



# Laboratory & Field Water Analysis Essentials

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***Be Right™***

## sensION™+ Meters & Probes



### *Complete Solutions*

Hach sensION+, an all-in-one system with guided menu navigation, makes general electrochemistry testing fast and simple. Each system is designed to be used in a wide variety of applications and comes complete with everything you need to start testing.

***For more information see pages 14-21.***

## H-Series Meters & Probes



### *Non-Glass*

Hach's rugged, non-glass H-Series family of pH sensors, are virtually unbreakable and store dry to eliminate maintenance in laboratory and field testing for difficult applications. Use Hach's H-Series benchtop or portable meters in areas where glass is not preferred such as rugged, outdoor, and food applications.

***For more information see pages 26-29.***



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Microbiological Products

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Test Kits

# Universal Meters & Probes



## HQd™ Meters & IntelliCAL™ Probes

### SMART PROBES

Hach, the leader in water quality, has developed a customized solution for water quality testing that takes the guesswork out of your measurements. Designed for your water applications, the Hach smart probes feature a built-in temperature sensor, and automatically recognize the testing parameter, calibration history, and method settings to minimize errors and setup time.

## sensION® + Meters & Probes

### COMPLETE SIMPLICITY

Hach sensION+, an all-in-one system with guided menu navigation makes general testing fast and simple. Each system is designed to be used in a wide variety of applications and comes complete with everything you need to start testing.



|                        | HQd   | sensION+ |
|------------------------|-------|----------|
| Ease of Use            | ★★★★★ | ★★★★★    |
| Accuracy & Performance | ★★★★★ | ★★★★★    |
| Durability             | ★★★★★ | ★★★★★    |
| Flexibility            | ★★★★★ | ★★★      |

# Specialty Meters & Probes



## H-Series Meters & Probes

### NON-GLASS

Hach's rugged, non-glass H-Series family of pH sensors resist damage and store dry to eliminate maintenance in laboratory and field testing of difficult applications. Use with Hach's H-Series benchtop or portable meters in areas where glass is not preferred such as rugged, outdoor, and food applications.



## MP Meters

### GO PROBELESS

Hach's MP Meters offer single-handed, portable operation for spot checking the pH, ORP, conductivity, resistivity, Total Dissolved Solids (TDS) and temperature of clean water. Fast and accurate in the laboratory, MP Meters are also rugged enough for daily process checks in challenging environments.



# Hach's Meters & Probes Family

| PARAMETERS              | UNIVERSAL METERS & PROBES                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                             | SPECIALTY METERS & PROBES                                                                                                                                                                                     |                                                                                                                                                                                                                                                           |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Smart                                                                                                                                                                                                                                                                        | Simple                                                                                                                                                                                                                                                                      | Non-glass                                                                                                                                                                                                     | Probeless                                                                                                                                                                                                                                                 |
|                         | HQd Meters & IntelliCAL Probes                                                                                                                                                                                                                                               | sensiON+ Meters & Probes                                                                                                                                                                                                                                                    | H-Series Meters & Probes                                                                                                                                                                                      | MP Meters                                                                                                                                                                                                                                                 |
|                         | <ul style="list-style-type: none"> <li>Compliance monitoring for drinking water and wastewater</li> <li>Laboratory verification of process instrumentation</li> <li>Industrial plant control</li> <li>Environmental monitoring</li> <li>Rugged field applications</li> </ul> | <ul style="list-style-type: none"> <li>Compliance monitoring for drinking water and wastewater</li> <li>Laboratory verification of process instrumentation</li> <li>Industrial plant control</li> <li>Environmental monitoring</li> <li>Beverage quality testing</li> </ul> | <ul style="list-style-type: none"> <li>Food processing</li> <li>Beverage quality testing</li> <li>Academic teaching</li> <li>Pharmaceutical research/development</li> <li>Industrial plant control</li> </ul> | <ul style="list-style-type: none"> <li>Industrial plant control</li> <li>Boiler/cooling water applications</li> <li>Water treatment control</li> <li>Distribution monitoring</li> <li>Pool and spa maintenance</li> <li>Tap or spigot sampling</li> </ul> |
| pH                      |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Glass                   | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Non-glass (ISFET)       |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| Conductivity            | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Resistivity             | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               | ■                                                                                                                                                                                                                                                         |
| Salinity                | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| TDS                     | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Ammonia                 | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| Ammonium                | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Chloride                | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Dissolved Oxygen        |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Luminescent (LDO®)      | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| BOD Probe (with LDO)    | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Galvanic                |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| Polarographic           |                                                                                                                                                                                                                                                                              | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Fluoride                | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| Temperature             | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Nitrate                 | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| ORP/Redox               | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Sodium                  | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| ATTRIBUTES              |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Multi-parameter Options | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             | ■                                                                                                                                                                                                                                                         |
| Simultaneous Display    | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Stainless Steel Probes  | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| Auto Probe Recognition  | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Multiple Cable Lengths  | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Multi-language Display  | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| On-screen Instructions  | ■                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                               |                                                                                                                                                                                                                                                           |
| Wireless Communication* |                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                             | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
| USB Connectivity        | ■                                                                                                                                                                                                                                                                            | ■                                                                                                                                                                                                                                                                           | ■                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |

\*For Bluetooth® capable models only

# Hach pH Probes by Application



BEST



GOOD



NOT APPLICABLE

|                     | HQd         |        |        |        |       |       |       |       |
|---------------------|-------------|--------|--------|--------|-------|-------|-------|-------|
|                     | PHC101      | PHC201 | PHC301 | PHC281 | 5010T | 5011T | 5014T | 5021T |
| <b>Applications</b> |             |        |        |        |       |       |       |       |
| General Purpose     |             | ★      | ★      |        | ★     |       | ✓     |       |
| Drinking Water      |             | ✓      |        | ★      |       |       | ★     | ✓     |
| Wastewater          | ★           | ✓      | ✓      | ✓      | ✓     | ★     |       | ✓     |
| Boiler / Cooler     |             |        |        | ★      |       |       | ✓     | ★     |
| Seawater            | ✓           | ✓      | ✓      | ★      | ✓     | ✓     | ✓     | ✓     |
| Beverage            |             | ✓      | ✓      | ★      |       | ✓     | ★     | ✓     |
| Food                |             |        |        | ✓      |       |       | ✓     | ✓     |
| Education           |             | ★      | ★      |        | ★     | ✓     |       |       |
| Pool / Spa          | ✓           | ★      |        |        | ★     |       |       |       |
| Soils               | ✓<br>rugged |        |        |        |       |       |       |       |
| Pharma              |             |        |        | ★      |       |       |       | ★     |
| <b>Sample Types</b> |             |        |        |        |       |       |       |       |
| Field Measurements  | ★<br>rugged |        |        |        |       |       |       |       |
| Low Ionic Strength  |             |        |        | ★      |       |       |       | ✓     |
| High Temperature    |             | ★      |        |        |       |       | ★     |       |
| Low Temperature     |             |        |        | ★      |       |       | ★     |       |



# Hach pH Probes by Application

| sensION+ |       |       |      |      |      | H-Series       |                |                |                |                |
|----------|-------|-------|------|------|------|----------------|----------------|----------------|----------------|----------------|
| 5050T    | 5051T | 5052T | 5045 | 5048 | 5059 | PH17           | PH37           | PH47           | PH57           | PH77           |
| ★        |       |       | ✓    | ✓    | ✓    |                |                |                |                | ✓              |
| ✓        | ★     | ✓     | ✓    | ✓    | ✓    |                |                |                |                |                |
|          |       | ★     |      |      |      |                |                |                |                |                |
| ✓        | ✓     | ✓     | ✓    | ✓    | ✓    |                |                |                |                |                |
|          | ✓     | ★     |      |      |      |                |                |                |                |                |
|          | ✓     | ✓     |      |      |      | ✓              | ★              | ✓              | ★              | ✓              |
| ★        | ✓     |       |      |      |      | ✓              |                |                |                | ★              |
| ★        |       |       | ✓    | ✓    | ✓    |                |                |                |                |                |
|          |       |       |      |      |      | ✓              | ✓              | ✓              | ✓              | ✓              |
|          |       | ★     |      |      |      |                |                |                |                |                |
| ✓        | ✓     | ✓     | ✓    | ✓    | ✓    | ★<br>non-glass | ★<br>non-glass | ★<br>non-glass | ★<br>non-glass | ★<br>non-glass |
|          |       |       |      |      |      |                |                |                |                |                |
|          |       | ★     |      |      |      |                |                |                |                |                |
|          |       |       |      |      |      |                |                |                |                |                |



# HQd Portable Meters



Now offering a complete water analysis portfolio of testing parameters with standard, rugged, and ultra options. Hach's HQd system gives maximum measurement flexibility and ease of operation with interchangeable probes and automatic parameter recognition.

| <b>Parameter</b>      | <b>HQ11d<br/>DEDICATED<br/>pH/mV<br/>PORTABLE METER</b> | <b>HQ14d<br/>DEDICATED<br/>CONDUCTIVITY<br/>PORTABLE METER</b> | <b>HQ30d<br/>SINGLE INPUT<br/>MULTI-PARAMETER<br/>PORTABLE METER</b> | <b>HQ40d<br/>DUAL INPUT<br/>MULTI-PARAMETER<br/>PORTABLE METER</b> |
|-----------------------|---------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|
| Temperature           | ■                                                       | ■                                                              | ■                                                                    | ■                                                                  |
| pH                    |                                                         |                                                                |                                                                      |                                                                    |
| Glass                 | ■                                                       |                                                                | ■                                                                    | ■                                                                  |
| Non-glass (ISFET)     |                                                         |                                                                |                                                                      |                                                                    |
| mV                    | ■                                                       |                                                                | ■                                                                    | ■                                                                  |
| Conductivity          |                                                         | ■                                                              | ■                                                                    | ■                                                                  |
| TDS                   |                                                         | ■                                                              | ■                                                                    | ■                                                                  |
| Salinity              |                                                         | ■                                                              | ■                                                                    | ■                                                                  |
| Resistivity           |                                                         | ■                                                              | ■                                                                    | ■                                                                  |
| Dissolved Oxygen      |                                                         |                                                                |                                                                      |                                                                    |
| Luminescent (LDO)     |                                                         |                                                                | ■                                                                    | ■                                                                  |
| BOD Sensor (with LDO) |                                                         |                                                                | ■                                                                    | ■                                                                  |
| ORP/Redox             | ■                                                       |                                                                | ■                                                                    | ■                                                                  |
| Ammonia               |                                                         |                                                                | ■                                                                    | ■                                                                  |
| Nitrate               |                                                         |                                                                | ■                                                                    | ■                                                                  |
| Fluoride              |                                                         |                                                                | ■                                                                    | ■                                                                  |
| Sodium                |                                                         |                                                                | ■                                                                    | ■                                                                  |
| Chloride              |                                                         |                                                                | ■                                                                    | ■                                                                  |
| Ammonium              |                                                         |                                                                | ■                                                                    | ■                                                                  |

| <b>Feature</b>            | <b>HQ11d<br/>DEDICATED<br/>pH/mV<br/>PORTABLE METER</b> | <b>HQ14d<br/>DEDICATED<br/>CONDUCTIVITY<br/>PORTABLE METER</b> | <b>HQ30d<br/>SINGLE INPUT<br/>MULTI-PARAMETER<br/>PORTABLE METER</b> | <b>HQ40d<br/>DUAL INPUT<br/>MULTI-PARAMETER<br/>PORTABLE METER</b> |
|---------------------------|---------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------------------------|
| IP Rating                 | IP67                                                    | IP67                                                           | IP67                                                                 | IP67                                                               |
| Internal data storage     | 500*                                                    | 500*                                                           | 500*                                                                 | 500*                                                               |
| Inputs                    | M12 digital (1)<br>for IntelliCAL probes                | M12 digital (1)<br>for IntelliCAL probes                       | M12 digital (1)<br>for IntelliCAL probes                             | M12 digital (1)<br>for IntelliCAL probes                           |
| Outputs                   | USB to PC / flash stick                                 | USB to PC / flash stick                                        | USB to PC / flash stick                                              | USB to PC / flash stick                                            |
| Interface languages       | 13**                                                    | 13**                                                           | 13**                                                                 | 13**                                                               |
| Warranty                  | 3 years                                                 | 3 years                                                        | 3 years                                                              | 3 years                                                            |
| Compliance                | CE.WEEE                                                 | CE.WEEE                                                        | CE.WEEE                                                              | CE.WEEE                                                            |
| Benchtop                  | with stand                                              | with stand                                                     | with stand                                                           | with stand                                                         |
| Portable                  | ■                                                       | ■                                                              | ■                                                                    | ■                                                                  |
| GLP features              | ■                                                       | ■                                                              | ■                                                                    | ■                                                                  |
| PC Data Transfer Software | included                                                | included                                                       | included                                                             | included                                                           |
| Backlight                 | ■                                                       | ■                                                              | ■                                                                    | ■                                                                  |
| Battery Operation         | ■                                                       | ■                                                              | ■                                                                    | ■                                                                  |
| AC and USB Operation      | optional                                                | optional                                                       | optional                                                             | included                                                           |
| Prod. No.                 | 89174-000                                               | 89174-002                                                      | 89174-004                                                            | 89174-006                                                          |

\*Expanded storage with external USB storage device. \*\*English, German, Spanish, Portuguese, French, Italian, Dutch, Turkish, Polish, Danish, Swedish, Russian, Czech

See pages 30-31 for HQd Bundles & Kits. See page 35 for HQd Accessories.

All the benefits of the digital HQd system, with simplified data transfer and easy-to-read results on a large, backlit screen.

**NEW!**



| Parameter             | HQ411d<br>DEDICATED<br>pH/mV<br>BENCHTOP METER | HQ430d<br>SINGLE INPUT<br>MULTI-PARAMETER<br>BENCHTOP METER | HQ440d<br>DUAL INPUT<br>MULTI-PARAMETER<br>BENCHTOP METER |
|-----------------------|------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| Temperature           | ■                                              | ■                                                           | ■                                                         |
| pH                    |                                                |                                                             |                                                           |
| Glass                 | ■                                              | ■                                                           | ■                                                         |
| Non-glass (ISFET)     |                                                |                                                             |                                                           |
| mV                    | ■                                              | ■                                                           | ■                                                         |
| Conductivity          |                                                | ■                                                           | ■                                                         |
| TDS                   |                                                | ■                                                           | ■                                                         |
| Salinity              |                                                | ■                                                           | ■                                                         |
| Resistivity           |                                                | ■                                                           | ■                                                         |
| Dissolved Oxygen      |                                                |                                                             |                                                           |
| Luminescent (LDO)     |                                                | ■                                                           | ■                                                         |
| BOD Sensor (with LDO) |                                                | ■                                                           | ■                                                         |
| ORP/Redox             | ■                                              | ■                                                           | ■                                                         |
| Ammonia               |                                                | ■                                                           | ■                                                         |
| Nitrate               |                                                | ■                                                           | ■                                                         |
| Fluoride              |                                                | ■                                                           | ■                                                         |
| Sodium                |                                                | ■                                                           | ■                                                         |
| Chloride              |                                                | ■                                                           | ■                                                         |
| Ammonium              |                                                | ■                                                           | ■                                                         |

| Feature                   | HQ411d<br>DEDICATED<br>pH/mV<br>BENCHTOP METER | HQ430d<br>SINGLE INPUT<br>MULTI-PARAMETER<br>BENCHTOP METER | HQ440d<br>DUAL INPUT<br>MULTI-PARAMETER<br>BENCHTOP METER |
|---------------------------|------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| IP Rating                 | IP54                                           | IP54                                                        | IP54                                                      |
| Internal data storage     | 500*                                           | 500*                                                        | 500*                                                      |
| Inputs                    | M12 digital (1) for IntelliCAL probes          | M12 digital (1) for IntelliCAL probes                       | M12 digital (2) for IntelliCAL probes                     |
| Outputs                   | USB to PC / flash stick                        | USB to PC / flash stick                                     | USB to PC / flash stick                                   |
| Interface languages       | 13**                                           | 13**                                                        | 13**                                                      |
| Warranty                  | 3 years                                        | 3 years                                                     | 3 years                                                   |
| Compliance                | CE.WEEE                                        | CE.WEEE                                                     | CE.WEEE                                                   |
| Benchtop                  | ■                                              | ■                                                           | ■                                                         |
| GLP features              | ■                                              | ■                                                           | ■                                                         |
| PC Data Transfer Software | included                                       | included                                                    | included                                                  |
| Backlight                 | ■                                              | ■                                                           | ■                                                         |
| Battery Operation         | ■                                              | ■                                                           | ■                                                         |
| Probe Stand               | optional for all models                        | included                                                    | included                                                  |
| Prod. No.                 | 89174-008                                      | 89174-010                                                   | 89174-012                                                 |

\*Expanded storage with external USB storage device. \*\*English, German, Spanish, Portuguese, French, Italian, Dutch, Turkish, Polish, Danish, Swedish, Russian, Czech

See pages 30-31 for HQd Bundles & Kits. See page 35 for HQd Accessories.

# HQd IntelliCAL Probes

## Dissolved Oxygen IntelliCAL LDO101 – Standard Luminescent Dissolved Oxygen (LDO) Probe

| Probe Type                                                                                   | Measurement Range              | Temperature Range         | Junction | Dimensions             | Prod. No. | Description                   |
|----------------------------------------------------------------------------------------------|--------------------------------|---------------------------|----------|------------------------|-----------|-------------------------------|
| Standard Luminescent Dissolved Oxygen Probe with Lumiphore Sensor and PC/Abs (plastic) body. | 0.05 to 20.00 mg/L (0 to 200%) | Continuous Use: 0 to 50°C | N/A      | 15 mm (D) x 200 mm (L) | 89174-014 | Electrode only (1 m cable)    |
| <i>Replacement Items / Accessories</i>                                                       |                                |                           |          |                        |           |                               |
|                                                                                              |                                |                           |          |                        | 89174-112 | Replacement LDO101 Sensor Cap |



## Dissolved Oxygen IntelliCAL LDO101 – Rugged Luminescent Dissolved Oxygen (LDO) Probe

| Probe Type                                                                                      | Measurement Range              | Temperature Range         | Junction | Dimensions             | Prod. No. | Description                   |
|-------------------------------------------------------------------------------------------------|--------------------------------|---------------------------|----------|------------------------|-----------|-------------------------------|
| Rugged Luminescent Dissolved Oxygen Probe with Lumiphore Sensor and Stainless Steel outer body. | 0.05 to 20.00 mg/L (0 to 200%) | Continuous Use: 0 to 50°C | N/A      | 15 mm (D) x 220 mm (L) | 89174-016 | Electrode only (5 m cable)    |
| <i>Replacement Items / Accessories</i>                                                          |                                |                           |          |                        |           |                               |
|                                                                                                 |                                |                           |          |                        | 89174-112 | Replacement LDO101 Sensor Cap |



*Rugged LDO101 is designed for DO measurements in the field where extra protection and durability are required.*

## BOD IntelliCAL LBOD101 – Standard Luminescent Dissolved Oxygen BOD (LBOD) Probe with integrated stirrer

| Probe Type                                                                                                                  | Measurement Range              | Temperature Range         | Junction | Dimensions                  | Prod. No. | Description                                    |
|-----------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------------------|----------|-----------------------------|-----------|------------------------------------------------|
| Luminescent Dissolved Oxygen Probe with Lumiphore Sensor, PC/Abs (plastic) body and integrated stirrer for BOD measurement. | 0.05 to 20.00 mg/L (0 to 200%) | Continuous Use: 0 to 50°C | N/A      | 15.875 mm (D)* x 200 mm (L) | 89174-018 | Electrode only (1.8 m cable)                   |
| <i>Replacement Items / Accessories</i>                                                                                      |                                |                           |          |                             |           |                                                |
|                                                                                                                             |                                |                           |          |                             | 89174-114 | Replacement LBOD101 Sensor Cap                 |
|                                                                                                                             |                                |                           |          |                             | 89174-116 | Replacement Stirrer Assembly for LBOD101 Probe |



See page 64 for BOD Nutrients.

\*Fits BOD bottle neck size > 15.875mm inside diameter.

## Conductivity IntelliCAL CDC401 – Rugged 4-pole Conductivity Probe

| Probe Type                                                                                           | Measurement Range                                                                                                                                                                                                      | Temperature Range               | Junction | Dimensions             | Prod. No. | Description                |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|----------|------------------------|-----------|----------------------------|
| Rugged graphite 4-pole conductivity cell with stainless outer body and built-in temperature sensor.* | Conductivity:<br>0.01 $\mu\text{S}/\text{cm}$ to 200 $\text{mS}/\text{cm}$<br>Resistivity:<br>2.5 $\Omega\text{-cm}$ to 49 $\text{M}\Omega\text{-cm}$<br>Salinity:<br>0 to 42 g/kg (ppt)<br>TDS:<br>0.0 to 50,000 mg/L | Continuous Use:<br>-10 to 110°C | N/A      | 14 mm (D) x 220 mm (L) | 89174-030 | Electrode only (5 m cable) |

See page 39 for Conductivity Standard Solutions.



\*Cell constant ( $k$ ) = 0.40  $\text{cm}^{-1}$

*Rugged CDC401 is designed for conductivity measurements in the field where extra protection and durability are required.*

## pH IntelliCAL PHC281 pH Ultra – Standard Refillable pH Electrode

| Probe Type                                                                                                                                                                                                                                 | Measurement Range | Temperature Range            | Junction      | Dimensions             | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|---------------|------------------------|-----------|----------------------------|
| Standard digital combination refillable pH electrode with Zeonor™ (plastic) body, double junction Ag/AgCl reference, viscous gel electrolyte, high-flow open junction diaphragm, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | Continuous Use:<br>0 to 80°C | Open Junction | 12 mm (D) x 200 mm (L) | 89174-024 | Electrode only (1 m cable) |

See page 39 for pH Buffers, Cleaning and Storage Solutions.



*PHC281 is designed for fast response in difficult samples, including drinking water and samples with low ionic strength (LIS).*

## pH IntelliCAL PHC101 – Standard Gel-fill, Open Junction pH Electrode

| Probe Type                                                                                                                                                                                                  | Measurement Range | Temperature Range            | Junction      | Dimensions             | Prod. No. | Description                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|---------------|------------------------|-----------|----------------------------|
| Standard digital combination non-refillable, gel-filled pH electrode with epoxy body, double junction Ag/AgCl reference, open junction diaphragm, built-in temperature sensor and standard size glass bulb. | 2 to 14 pH        | Continuous Use:<br>0 to 50°C | Open Junction | 12 mm (D) x 200 mm (L) | 89174-020 | Electrode only (1 m cable) |

See page 39 for pH Buffers, Cleaning and Storage Solutions.



*PHC101 is designed for low-maintenance use in "dirty" or challenging samples, including wastewater.*

# HQd IntelliCAL Probes

## pH IntelliCAL PHC301 – Standard Refillable, Ceramic Pin Junction pH Electrode

| Probe Type                                                                                                                                                                                                     | Measurement Range | Temperature Range         | Junction             | Dimensions             | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------|----------------------|------------------------|-----------|----------------------------|
| Standard digital combination refillable pH electrode with Zeonor™ (plastic) body, double junction Ag/AgCl reference, ceramic pin junction diaphragm, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | Continuous Use: 0 to 80°C | Ceramic Pin Junction | 12 mm (D) x 200 mm (L) | 89174-022 | Electrode only (1 m cable) |



See page 39 for pH Buffers, Cleaning and Storage Solutions.

*PHC301 is designed for use in general purpose water quality applications.*

## pH IntelliCAL PHC101 pH Probe – Rugged gel-fill pH electrode

| Probe Type                                                                                                                                                                                                                | Measurement Range | Temperature Range         | Junction      | Dimensions             | Prod. No. | Description                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------|---------------|------------------------|-----------|----------------------------|
| Rugged digital combination non-refillable, gel-filled pH electrode with stainless steel outer body, double junction Ag/AgCl reference, open junction diaphragm, built-in temperature sensor and standard size glass bulb. | 2 to 14 pH        | Continuous Use: 0 to 50°C | Open Junction | 12 mm (D) x 220 mm (L) | 89174-026 | Electrode only (5 m cable) |



See page 39 for pH Buffers, Cleaning and Storage Solutions.

*Rugged PHC101 is designed for low-maintenance pH measurements in the field where extra protection and durability are required.*

## ORP / Redox IntelliCAL MTC301 – Standard Refillable ORP / Redox Probe

| Probe Type                                                                                                                                             | Measurement Range | Temperature Range         | Junction             | Dimensions             | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------|----------------------|------------------------|-----------|----------------------------|
| Standard digital combination ORP/Redox electrode with epoxy body, refillable, Ag/AgCl reference, platinum disc sensor and built-in temperature sensor. | ±1200 mV          | Continuous Use: 0 to 80°C | Ceramic Pin Junction | 12 mm (D) x 200 mm (L) | 89174-048 | Electrode only (1 m cable) |



See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.

## ORP / Redox IntelliCAL MTC101 – Rugged Gel-fill ORP / Redox Probe

| Probe Type                                                                                                                                                                          | Measurement Range | Temperature Range         | Junction      | Dimensions             | Prod. No. | Description                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------------------|---------------|------------------------|-----------|----------------------------|
| Rugged digital combination ORP/Redox electrode with stainless steel outer body, non-refillable, gel-filled Ag/AgCl reference, platinum disc sensor and built-in temperature sensor. | ±1200 mV          | Continuous Use: 0 to 80°C | Open Junction | 12 mm (D) x 220 mm (L) | 89174-044 | Electrode only (5 m cable) |

See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.



Rugged MTC101 is designed for low-maintenance ORP/Redox measurements in the field where extra protection and durability are required.

## Ammonia IntelliCAL ISENH3181 – Combination Ammonia Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                    | Measurement Range                                                        | Temperature Range         | Junction              | Dimensions             | Prod. No. | Description                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------|-----------------------|------------------------|-----------|----------------------------|
| Digital combination gas-sensing ammonia ISE with epoxy body, refillable outer-body, double junction Ag/AgCl reference, built-in temperature sensor and replaceable NH <sub>3</sub> sensitive membrane module. | 0.01 mg/L (5x10 <sup>-7</sup> M) to 14,000 mg/L (1 M) NH <sub>3</sub> -N | Continuous Use: 0 to 50°C | Annular Ring Junction | 12 mm (D) x 220 mm (L) | 89174-034 | Electrode only (1 m cable) |

### Replacement Items / Accessories

|           |                                                                                    |
|-----------|------------------------------------------------------------------------------------|
| 89174-118 | Replacement membrane (3 pack) for IntelliCAL ISENH3181 Ammonia ISE                 |
| 97021-474 | 0.1M NH <sub>4</sub> Cl Fill Solution for IntelliCAL ISENH3181 Ammonia ISE (50 mL) |
| 97021-772 | Ammonia Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                    |
| 89174-120 | Air Gap Assembly for Ammonia ISE                                                   |

See page 39 for Ammonia Standard Solutions.



**NEW!**

## Ammonia IntelliCAL ISENH4181 – Combination Ammonium Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                     | Measurement Range                                                                  | Temperature Range         | Junction              | Dimensions             | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------|-----------------------|------------------------|-----------|----------------------------|
| Digital combination ammonium ISE with epoxy body, non-refillable gel-filled, double junction Ag/AgCl reference, built-in temperature sensor and (non-replaceable) solid-state ammonium selective PVC membrane. | 0.018 mg/L (10 <sup>-6</sup> M) to 9,000 mg/L (0.5 M) NH <sub>4</sub> <sup>+</sup> | Continuous Use: 0 to 50°C | Annular Ring Junction | 12 mm (D) x 220 mm (L) | 89174-036 | Electrode only (1 m cable) |

### Replacement Items / Accessories

|           |                                                                 |
|-----------|-----------------------------------------------------------------|
| 89173-994 | Ammonia Ionic Strength Adjustor (ISA) Powder Pillows (100 pack) |
|-----------|-----------------------------------------------------------------|

See page 39 for Ammonia Standard Solutions.



**NEW!**

ISENH4181's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).

# HQd IntelliCAL Probes

## Chloride IntelliCAL ISECL181 – Combination Chloride Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                              | Measurement Range                                                   | Temperature Range         | Junction              | Dimensions             | Prod. No. | Description                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------|-----------------------|------------------------|-----------|----------------------------|
| Digital combination chloride ISE with epoxy body, non-refillable, gel-filled, double junction Ag/AgCl reference, built-in temperature sensor and (non-replaceable) solid-state chloride selective crystalline membrane. | 0.1 mg/L ( $3 \times 10^{-6}$ M) to 35,500 mg/L (1 M) $\text{Cl}^-$ | Continuous Use: 0 to 50°C | Annular Ring Junction | 12 mm (D) x 220 mm (L) | 89174-038 | Electrode only (1 m cable) |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                                  |                                                                     |                           |                       |                        |           |                            |
| 89173-988 Chloride Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                                                                                                              |                                                                     |                           |                       |                        |           |                            |

See page 39 for Chloride Standard Solutions.

**NEW!**



*ISECL181's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).*

## Fluoride IntelliCAL ISEF121 – Combination Fluoride Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                              | Measurement Range                                                   | Temperature Range         | Junction              | Dimensions             | Prod. No. | Description                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------|-----------------------|------------------------|-----------|----------------------------|
| Digital combination fluoride ISE with epoxy body, non-refillable, gel-filled, Ag/AgCl reference, built-in temperature sensor and (non-replaceable) solid-state fluoride selective crystalline membrane. | 0.01 mg/L ( $5 \times 10^{-7}$ M) to 19,000 mg/L (1 M) $\text{F}^-$ | Continuous Use: 0 to 50°C | Annular Ring Junction | 12 mm (D) x 220 mm (L) | 89174-040 | Electrode only (1 m cable) |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                  |                                                                     |                           |                       |                        |           |                            |
| 97021-786 Fluoride Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                                                                                              |                                                                     |                           |                       |                        |           |                            |

See page 39 for Fluoride Standard Solutions.

**NEW!**



*ISEF121's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).*

## Nitrate IntelliCAL ISENO3181 – Combination Nitrate Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                    | Measurement Range                                                        | Temperature Range         | Junction              | Dimensions             | Prod. No. | Description                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|---------------------------|-----------------------|------------------------|-----------|----------------------------|
| Digital combination nitrate ISE with epoxy body, non-refillable, gel-filled, double junction Ag/AgCl reference, built-in temperature sensor and (non-replaceable) solid-state nitrate selective PVC membrane. | 0.1 mg/L ( $7 \times 10^{-6}$ M) to 14,000 mg/L (1 M) $\text{NO}_3^-$ -N | Continuous Use: 0 to 50°C | Annular Ring Junction | 12 mm (D) x 220 mm (L) | 89174-042 | Electrode only (1 m cable) |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                        |                                                                          |                           |                       |                        |           |                            |
| 89173-992 Nitrate Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                                                                                                     |                                                                          |                           |                       |                        |           |                            |

See page 39 for Nitrate Standard Solutions.

**NEW!**



*ISENO3181's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).*

## Sodium IntelliCAL ISENA381 – Combination Sodium Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                  | Measurement Range                                                     | Temperature Range         | Junction             | Dimensions             | Prod. No. | Description                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|---------------------------|----------------------|------------------------|-----------|----------------------------|
| Digital combination sodium ISE with Zeonor™ (plastic) body, refillable, double junction Ag/AgCl reference, built-in temperature sensor and sodium selective glass membrane. | 0.023 mg/L ( $1 \times 10^{-6}$ M) to 23,000 mg/L (1 M) $\text{Na}^+$ | Continuous Use: 0 to 50°C | Ceramic Pin Junction | 12 mm (D) x 220 mm (L) | 89174-032 | Electrode only (1 m cable) |



See page 39 for Sodium Standard Solutions.



# sensION+ Portable Meters



Hach sensION+, an all-in-one system with guided menu navigation makes general testing fast and simple.

| <b>Parameter</b> | <b>PH1<br/>BASIC<br/>PORTABLE<br/>pH METER</b> | <b>MM110<br/>PORTABLE<br/>pH/ORP<br/>MULTI-SENSOR METER</b> | <b>EC5<br/>PORTABLE<br/>CONDUCTIVITY<br/>METER</b> | <b>DO6<br/>PORTABLE<br/>DISSOLVED<br/>OXYGEN METER</b> | <b>MM150<br/>PORTABLE<br/>MULTI-PARAMETER<br/>MULTI SENSOR METER</b> |
|------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------|
| Temperature      | ■                                              | ■                                                           | ■                                                  | ■                                                      | ■                                                                    |
| pH               | ■                                              | ■                                                           |                                                    |                                                        | ■                                                                    |
| Conductivity     |                                                |                                                             | ■                                                  |                                                        | ■                                                                    |
| Salinity         |                                                |                                                             | ■                                                  |                                                        | ■                                                                    |
| TDS              |                                                |                                                             | ■                                                  |                                                        | ■                                                                    |
| Dissolved Oxygen |                                                |                                                             |                                                    | ■                                                      |                                                                      |
| ORP/Redox        | ■                                              | ■                                                           |                                                    |                                                        | ■                                                                    |

| <b>Feature</b>            | <b>PH1<br/>BASIC<br/>PORTABLE<br/>pH METER</b> | <b>MM110<br/>PORTABLE<br/>pH/ORP<br/>MULTI-SENSOR METER</b> | <b>EC5<br/>PORTABLE<br/>CONDUCTIVITY<br/>METER</b> | <b>DO6<br/>PORTABLE<br/>DISSOLVED<br/>OXYGEN METER</b> | <b>MM150<br/>PORTABLE<br/>MULTI-PARAMETER<br/>MULTI SENSOR METER</b> |
|---------------------------|------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------|--------------------------------------------------------|----------------------------------------------------------------------|
| IP Rating                 | IP67                                           | IP67                                                        | IP67                                               | IP67                                                   | IP67                                                                 |
| Internal data storage     | —                                              | —                                                           | —                                                  | —                                                      | —                                                                    |
| Inputs                    | MP-5                                           | MP-8                                                        | MP-5                                               | MP-5                                                   | MP-8                                                                 |
| Outputs                   | —                                              | —                                                           | —                                                  | —                                                      | —                                                                    |
| Interface languages       | Icon based,<br>no language needed              | Icon based,<br>no language needed                           | Icon based,<br>no language needed                  | Icon based,<br>no language needed                      | Icon based,<br>no language needed                                    |
| Warranty                  | 3 years                                        | 3 years                                                     | 3 years                                            | 3 years                                                | 3 years                                                              |
| Compliance                | CE.WEEE                                        | CE.WEEE                                                     | CE.WEEE                                            | CE.WEEE                                                | CE.WEEE                                                              |
| GLP features              | —                                              | —                                                           | —                                                  | —                                                      | —                                                                    |
| PC Data Transfer Software | —                                              | —                                                           | —                                                  | —                                                      | —                                                                    |
| Backlight                 | ■                                              | ■                                                           | ■                                                  | ■                                                      | ■                                                                    |
| Battery Operation         | ■                                              | ■                                                           | ■                                                  | ■                                                      | ■                                                                    |
| Prod. No.                 | 89174-186                                      | 89174-190                                                   | 89174-184                                          | 89231-218                                              | 89174-192                                                            |

See pages 32-33 for sensION+ Meter & Probe Kits. See page 36 for sensION+ Accessories.

Each system is designed to be used in a wide variety of applications and comes complete with everything you need to start testing.

**NEW!**



| Parameter    | PH3<br>BASIC<br>BENCHTOP<br>pH METER | PH31<br>GLP<br>BENCHTOP<br>pH METER | EC7<br>BENCHTOP<br>CONDUCTIVITY<br>METER | EC71<br>GLP<br>BENCHTOP<br>CONDUCTIVITY<br>METER | MM340<br>BENCHTOP<br>MULTI-<br>PARAMETER<br>METER | MM374<br>BENCHTOP<br>MULTI-<br>PARAMETER<br>METER |
|--------------|--------------------------------------|-------------------------------------|------------------------------------------|--------------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| Temperature  | ■                                    | ■                                   | ■                                        | ■                                                | ■                                                 | ■                                                 |
| pH           | ■                                    | ■                                   |                                          |                                                  | ■                                                 | ■                                                 |
| mV           |                                      | ■                                   |                                          |                                                  | ■                                                 | ■                                                 |
| Conductivity |                                      |                                     | ■                                        | ■                                                |                                                   | ■                                                 |
| Salinity     |                                      |                                     | ■                                        | ■                                                |                                                   | ■                                                 |
| TDS          |                                      |                                     |                                          | ■                                                |                                                   | ■                                                 |
| ORP/Redox    | ■                                    | ■                                   |                                          |                                                  | ■                                                 | ■                                                 |
| Ammonia      |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |
| Nitrate      |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |
| Fluoride     |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |
| Sodium       |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |
| Chloride     |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |
| Ammonium     |                                      |                                     |                                          |                                                  | ■                                                 | ■                                                 |

| Feature                   | PH3<br>BASIC<br>BENCHTOP<br>pH METER | PH31<br>GLP<br>BENCHTOP<br>pH METER | EC7<br>BENCHTOP<br>CONDUCTIVITY<br>METER | EC71<br>GLP<br>BENCHTOP<br>CONDUCTIVITY<br>METER | MM340<br>BENCHTOP<br>MULTI-<br>PARAMETER<br>METER | MM374<br>BENCHTOP<br>MULTI-<br>PARAMETER<br>METER |
|---------------------------|--------------------------------------|-------------------------------------|------------------------------------------|--------------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| IP Rating                 | IP42                                 | IP42                                | IP42                                     | IP42                                             | IP42                                              | IP42                                              |
| Internal data storage     | —                                    | 330                                 | —                                        | 400                                              | 330                                               | 330                                               |
| Inputs                    | BNC, ref, Pt1000                     | BNC, ref, Pt1000                    | E.C. cell, Pt1000                        | E.C. cell, Pt1000                                | 2 BNC, 2 ref, Pt1000                              | 2 BNC, 2 ref, 1 E.C.                              |
| Outputs                   | RS-232**                             | RS232* (two-way)                    | RS-232**                                 | RS-232**                                         | RS-232* (two-way)                                 | RS-232* (two-way)                                 |
| Interface languages       | 6**                                  | 6**                                 | 6**                                      | 6**                                              | 6**                                               | 6**                                               |
| Warranty                  | 3 years                              | 3 years                             | 3 years                                  | 3 years                                          | 3 years                                           | 3 years                                           |
| Compliance                | CE.WEEE                              | CE.WEEE                             | CE.WEEE                                  | CE.WEEE                                          | CE.WEEE                                           | CE.WEEE                                           |
| GLP features              | —                                    | ■                                   | —                                        | ■                                                | ■                                                 | ■                                                 |
| PC Data Transfer Software | ■                                    | ■                                   | ■                                        | ■                                                | ■                                                 | ■                                                 |
| Backlight                 | ■                                    | ■                                   | ■                                        | ■                                                | ■                                                 | ■                                                 |
| AC and USB Operation      | ■                                    | ■                                   | ■                                        | ■                                                | ■                                                 | ■                                                 |
| Prod. No.                 | 89174-172                            | 89174-174                           | 89174-178                                | 89174-180                                        | 89174-176                                         | 89174-182                                         |

\*USB compatibility with included adapter. \*\*English, German, Spanish, French, Italian, and Portuguese

See pages 32-33 for sensION+ Meter & Probe Kits. See page 36 for sensION+ Accessories.

# sensION+ Probes for Portable Meters

## pH sensION+ 5050T – Portable Non-refillable, Ceramic Pin Junction pH Electrode

| Probe Type                                                                                                                                                                                       | Measurement Range | Temperature Range | Junction             | Dimensions                           | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|--------------------------------------|-----------|----------------------------|
| Portable combination non-refillable, gel-fill pH electrode with polycarbonate (plastic) body, Ag/AgCl reference, ceramic pin junction, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 85 mm (L) without handle | 89174-216 | Electrode only (1 m cable) |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

*5050T is designed for portable, low-maintenance use in general purpose water quality applications.*

## pH sensION+ 5051T – Portable Non-refillable, Open Junction pH Electrode

| Probe Type                                                                                                                                                                        | Measurement Range | Temperature Range | Junction      | Dimensions                           | Prod. No. | Description                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|---------------|--------------------------------------|-----------|----------------------------|
| Portable combination non-refillable, solid polymer-fill pH electrode with glass body, Ag/AgCl reference, open junction, built-in temperature sensor and standard size glass bulb. | 2 to 14 pH        | 0 to 80°C         | Open Junction | 12 mm (D) x 85 mm (L) without handle | 89174-218 | Electrode only (1 m cable) |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

*5051T is designed for portable, low-maintenance use in "dirty" samples with high solids content (e.g. wastewater).*

## pH sensION+ 5052T – Portable Non-refillable, Annular Junction pH Electrode

| Probe Type                                                                                                                                                                             | Measurement Range | Temperature Range | Junction              | Dimensions                           | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-----------------------|--------------------------------------|-----------|----------------------------|
| Portable combination non-refillable, gel-fill pH electrode with glass body, Ag/AgCl reference, annular porous ring junction, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | 0 to 100°C        | Annular Ring Junction | 12 mm (D) x 85 mm (L) without handle | 89174-220 | Electrode only (1 m cable) |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

*5052T is designed for portable, low-maintenance use in "difficult" samples (viscous solutions, high temperature, low ionic strength).*

## ORP / Redox sensION+ 5055 – Portable non-refillable ORP/Redox Probe

| Probe Type                                                                                                                                          | Measurement Range | Temperature Range | Junction             | Dimensions                           | Prod. No. | Description                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|--------------------------------------|-----------|----------------------------|
| Portable combination non-refillable, gel-fill ORP/Redox electrode with polycarbonate (plastic) body, Ag/AgCl reference and annular platinum sensor. | ± 2000 mV         | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 85 mm (L) without handle | 89174-226 | Electrode only (1 m cable) |



See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.

## Dissolved Oxygen sensION+ 5120 – Portable Dissolved Oxygen Probe

| Probe Type                                                                                                                                                                             | Measurement Range       | Temperature Range | Junction | Dimensions                            | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|----------|---------------------------------------|-----------|----------------------------|
| Portable polarographic dissolved Oxygen Probe with PPS (plastic) body, refillable reference electrolyte, built-in temperature sensor and replaceable steel-reinforced membrane module. | 0.03 mg/L to saturation | 0 to 60°C         | N/A      | 12 mm (D) x 120 mm (L) without handle | 89174-208 | Electrode only (3 m cable) |



Replacement Items / Accessories

89174-392

Replacement Membrane Module for sensION+ 5120 DO Probe

*5120's steel-mesh reinforced membrane is durable for extended use in portable applications.*

# sensION+ Probes for Portable Meters

## Conductivity sensION+ 5060 – Portable 3-Pole Platinum Conductivity Probe

| Probe Type                                                                                                     | Measurement Range      | Temperature Range | Junction | Dimensions                           | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------|------------------------|-------------------|----------|--------------------------------------|-----------|----------------------------|
| Portable platinum 3-pole conductivity cell with polycarbonate (plastic) body and built-in temperature sensor.* | 0.2 µS/cm to 200 mS/cm | 0 to 80°C         | N/A      | 12 mm (D) x 85 mm (L) without handle | 89174-222 | Electrode only (1 m cable) |

\*Cell constant (k) = 1.0 cm<sup>-1</sup>

5060 is designed for portable conductivity measurements in general purpose water quality applications.



## Conductivity sensION+ 5062 – Portable 2-pole Titanium Conductivity Probe

| Probe Type                                                                                      | Measurement Range   | Temperature Range | Junction | Dimensions                           | Prod. No. | Description                |
|-------------------------------------------------------------------------------------------------|---------------------|-------------------|----------|--------------------------------------|-----------|----------------------------|
| Portable platinum 2-pole conductivity cell with titanium body and built-in temperature sensor.* | 5 µS/cm to 50 mS/cm | 0 to 80°C         | N/A      | 12 mm (D) x 85 mm (L) without handle | 89174-224 | Electrode only (1 m cable) |

\*Cell constant (k) = 0.3 cm<sup>-1</sup>

5060 is designed for portable conductivity measurements in general purpose water quality applications.



## pH, Conductivity, ORP / Redox sensION+ 5048 – Portable pH/Conductivity/ORP Multisensor\*

| Probe Type                                                                                                                                                                                                                                                         | Measurement Range                                                            | Temperature Range | Junction             | Dimensions                           | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-------------------|----------------------|--------------------------------------|-----------|----------------------------|
| Portable multisensor for simultaneous pH, Conductivity and ORP/Redox measurements. Probe has plastic body, non-refillable gel Ag/AgCl reference with ceramic pin junction and built-in temperature sensor. Also platinum sensor (ORP) and standard pH glass bulb.* | pH: 0 to 14 pH<br>Conductivity: 20 µS/cm to 200 mS/cm<br>ORP/Redox: ±2000 mV | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 85 mm (L) without handle | 89174-212 | Electrode only (1 m cable) |

\*Only for use with MM150 Meter.

5045 allows simultaneous measurement of three parameters in a standard 12 mm diameter electrode design.



## pH, ORP / Redox sensION+ 5045 – Portable pH/ORP Multisensor\*

| Probe Type                                                                                                                                                                                                                                           | Measurement Range                     | Temperature Range | Junction             | Dimensions                           | Prod. No. | Description                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|-------------------|----------------------|--------------------------------------|-----------|----------------------------|
| Portable multisensor for simultaneous pH and ORP/Redox measurements. Probe has plastic body, non-refillable gel Ag/AgCl reference with ceramic pin junction and built-in temperature sensor. Also platinum sensor (ORP) and standard pH glass bulb.* | pH: 0 to 14 pH<br>ORP/Redox: ±2000 mV | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 85 mm (L) without handle | 89174-210 | Electrode only (1 m cable) |

\*Only for use on MM110 Meter.

5045 allows simultaneous measurement of two parameters in a standard 12 mm diameter electrode design.



## pH, Conductivity sensION+ 5059 – Portable pH/Conductivity Multisensor\*

| Probe Type                                                                                                                                                                                                                                                       | Measurement Range                               | Temperature Range | Junction             | Dimensions                           | Prod. No. | Description                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------|----------------------|--------------------------------------|-----------|----------------------------|
| Portable multisensor for simultaneous pH and Conductivity measurements. Probe has plastic body, non-refillable gel Ag/AgCl reference with ceramic pin junction and built-in temperature sensor. Also platinum sensor (Conductivity) and standard pH glass bulb.* | pH: 0 to 14 pH<br>Conductivity: 20 to 200 mS/cm | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 85 mm (L) without handle | 89174-214 | Electrode only (1 m cable) |

\*Only for use with MM150 Meter.

5059 allows simultaneous measurement of two parameters in a standard 12 mm diameter electrode design.



# sensION+ Probes for Benchtop Meters

## pH sensION+ 5010T – Standard Non-refillable, Ceramic Pin Junction pH Electrode

| Probe Type                                                                                                                                                                                       | Measurement Range | Temperature Range | Junction             | Dimensions             | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|------------------------|-----------|----------------------------|
| Standard combination non-refillable, gel-fill pH electrode with polycarbonate (plastic) body, Ag/AgCl reference, ceramic pin junction, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 130 mm (L) | 89174-194 | Electrode only (1 m cable) |

See page 39 for pH Buffers, Storage and Maintenance Solutions.



5050T is designed for low-maintenance use in general purpose water quality applications.

## pH sensION+ 5011T – Standard Non-refillable, Open Junction pH Electrode

| Probe Type                                                                                                                                                                        | Measurement Range | Temperature Range | Junction      | Dimensions             | Prod. No. | Description                |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|---------------|------------------------|-----------|----------------------------|
| Standard combination non-refillable, solid polymer-fill pH electrode with glass body, Ag/AgCl reference, open junction, built-in temperature sensor and standard size glass bulb. | 2 to 14 pH        | 0 to 80°C         | Open Junction | 12 mm (D) x 130 mm (L) | 89174-193 | Electrode only (1 m cable) |

See page 39 for pH Buffers, Storage and Maintenance Solutions.



5011T is designed for low-maintenance use in "dirty" samples with high solids content (e.g. wastewater).

## pH sensION+ 5014T – Standard Refillable, Double Ceramic Pin pH Electrode

| Probe Type                                                                                                                                                                                                 | Measurement Range | Temperature Range | Junction                  | Dimensions             | Prod. No. | Description                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|---------------------------|------------------------|-----------|----------------------------|
| Standard combination refillable pH electrode with glass body, encapsulated Ag/AgCl reference with silver ion barrier, two ceramic pin junctions, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | -10 to 100°C      | Two Ceramic Pin Junctions | 12 mm (D) x 130 mm (L) | 89174-198 | Electrode only (1 m cable) |

Replacement Items / Accessories  
89174-442 3M KCl Fill Solution for sensION+ 5014T pH electrode (50 mL)

See page 39 for pH Buffers, Storage and Maintenance Solutions.



5014T is designed for high-performance pH measurements in general aqueous applications.

## pH sensION+ 5021T – Standard Refillable, Sleeve Junction pH Electrode

| Probe Type                                                                                                                                                                                                                     | Measurement Range | Temperature Range | Junction                  | Dimensions             | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|---------------------------|------------------------|-----------|----------------------------|
| Standard combination refillable pH electrode with glass body, encapsulated Ag/AgCl reference with silver ion barrier, open reference junction with sleeve diaphragm, built-in temperature sensor and standard size glass bulb. | 0 to 14 pH        | 0 to 60°C         | Open Junction With Sleeve | 12 mm (D) x 130 mm (L) | 89174-200 | Electrode only (1 m cable) |

Replacement Items / Accessories  
89174-442 3M KCl Fill Solution for sensION+ 5021T pH electrode (50 mL)

See page 39 for pH Buffers, Storage and Maintenance Solutions.



5021T is designed for pH measurements in "difficult" samples (eg. viscous solutions, LIS).  
The 5021T's sleeve reference junction is nearly impossible to clog, even in the most challenging applications.

# sensION+ Probes for Benchtop Meters

## Conductivity sensION+ 5070 – Standard 3-pole Platinum Conductivity Probe

| Probe Type                                                                                                     | Measurement Range           | Temperature Range | Junction | Dimensions             | Prod. No. | Description                |
|----------------------------------------------------------------------------------------------------------------|-----------------------------|-------------------|----------|------------------------|-----------|----------------------------|
| Standard platinum 3-pole conductivity cell with polycarbonate (plastic) body and built-in temperature sensor.* | 0.2 $\mu$ S/cm to 200 mS/cm | 0 to 80°C         | N/A      | 12 mm (D) x 130 mm (L) | 89174-206 | Electrode only (1 m cable) |

\*Cell constant (k) = 0.7  $\text{cm}^{-1}$



5070 is designed for conductivity measurements in general purpose water quality applications.

## ORP / Redox sensION+ 5056 – Standard Non-refillable ORP/Redox Probe

| Probe Type                                                                                                                                                   | Measurement Range | Temperature Range | Junction             | Dimensions             | Prod. No. | Description                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|------------------------|-----------|----------------------------|
| Standard combination non-refillable, gel-fill ORP/Redox electrode with glass body, encapsulated Ag/AgCl reference, ceramic pin junction and platinum sensor. | $\pm 2000$ mV     | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 130 mm (L) | 89174-202 | Electrode only (1 m cable) |

See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.



## ORP / Redox sensION+ 5057 – Standard Refillable ORP/Redox Probe

| Probe Type                                                                                                                         | Measurement Range | Temperature Range | Junction             | Dimensions             | Prod. No. | Description                |
|------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|------------------------|-----------|----------------------------|
| Standard combination refillable, ORP/Redox electrode with glass body, Ag/AgCl reference, ceramic pin junction and platinum sensor. | $\pm 2000$ mV     | 0 to 80°C         | Ceramic Pin Junction | 12 mm (D) x 130 mm (L) | 89174-204 | Electrode only (1 m cable) |

Replacement Items / Accessories  
89174-442 3M KCl Fill Solution for sensION+ 5057 ORP/Redox electrode (50 mL)

See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.



# sensION+ ISE Probes

## Chloride sensION+ 9652 / 9652C – Chloride Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                         | Measurement Range                | Temperature Range | Junction                         | Dimensions             | Prod. No.  | Description                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------|----------------------------------|------------------------|------------|---------------------------------------------------------------------|
| Chloride ISE with an epoxy body solid-state chloride selective crystalline membrane. 9652 is a half-cell only.* 9652C is a combination ISE with a non-refillable, gel-filled, double junction Ag/AgCl reference.** | 1 to 35,000 mg/L Cl <sup>-</sup> | 5 to 50°C         | N/A<br><br>Annular Ring Junction | 12 mm (D) x 120 mm (L) | 89174-232* | Electrode only (1 m cable)                                          |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                             |                                  |                   |                                  |                        |            |                                                                     |
|                                                                                                                                                                                                                    |                                  |                   |                                  |                        | 89173-988  | Chloride Ionic Strength Adjustor (ISA)<br>Powder Pillows (100 pack) |



See page 39 for Chloride Standard Solutions.

\*This ISE is a half-cell (sensor only) and requires a separate reference electrode (sensION+ 5044 is recommended).

9652 / 9652C's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).

## Fluoride sensION+ 9655 / 9655C – Fluoride Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                         | Measurement Range                  | Temperature Range | Junction                         | Dimensions             | Prod. No.  | Description                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------|----------------------------------|------------------------|------------|---------------------------------------------------------------------|
| Fluoride ISE with an epoxy body solid-state fluoride selective crystalline membrane. 9655 is a half-cell only.* 9655C is a combination ISE with a non-refillable, gel-filled, double junction Ag/AgCl reference.** | 0.02 to 20,000 mg/L F <sup>-</sup> | 5 to 40°C         | N/A<br><br>Annular Ring Junction | 12 mm (D) x 120 mm (L) | 89174-234* | Electrode only (1 m cable)                                          |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                             |                                    |                   |                                  |                        |            |                                                                     |
|                                                                                                                                                                                                                    |                                    |                   |                                  |                        | 97021-786  | Fluoride Ionic Strength Adjustor (ISA)<br>Powder Pillows (100 pack) |



See page 39 for Fluoride Standard Solutions.

\*This ISE is a half-cell (sensor only) and requires a separate reference electrode (sensION+ 5044 is recommended).

9655 / 9655C's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).

## Nitrate sensION+ 9662 / 9662C – Nitrate Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                               | Measurement Range                               | Temperature Range | Junction                         | Dimensions             | Prod. No.  | Description                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-------------------|----------------------------------|------------------------|------------|---------------------------------------------------------------------|
| Nitrate ISE with an epoxy body solid-state nitrate selective PVC membrane. 9662 is a half-cell only.* 9662C is a combination ISE with a non-refillable, gel-filled, double junction Ag/AgCl reference.** | 0.4 to 62,000 mg/L NO <sub>3</sub> <sup>-</sup> | 5 to 40°C         | N/A<br><br>Annular Ring Junction | 12 mm (D) x 120 mm (L) | 89174-236* | Electrode only (1 m cable)                                          |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                   |                                                 |                   |                                  |                        |            |                                                                     |
|                                                                                                                                                                                                          |                                                 |                   |                                  |                        | 89173-994  | Ammonium Ionic Strength Adjustor (ISA)<br>Powder Pillows (100 pack) |



See page 39 for Ammonium Standard Solutions.

\*This ISE is a half-cell (sensor only) and requires a separate reference electrode (sensION+ 5044 is recommended).

9662 / 9662C's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).

## Ammonium sensION+ 9663 / 9663C – Ammonium Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                                                                 | Measurement Range                              | Temperature Range | Junction                     | Dimensions             | Prod. No.  | Description                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------|------------------------------|------------------------|------------|----------------------------------------------------------------------------|
| Ammonium ISE with an epoxy body solid-state ammonium selective PVC membrane. 9663 is a half-cell only.* 9663C is a combination ISE with a non-refillable, gel-filled, double junction Ag/AgCl reference.** | 0.9 to 1,800 mg/L NH <sub>4</sub> <sup>+</sup> | 5 to 40°C         | N/A<br>Annular Ring Junction | 12 mm (D) x 120 mm (L) | 89174-216* | Electrode only (1 m cable)                                                 |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                     |                                                |                   |                              |                        |            | 89173-994 Ammonium Ionic Strength Adjustor (ISA) Powder Pillows (100 pack) |

See page 39 for Ammonium Standard Solutions.



\*This ISE is a half-cell (sensor only) and requires a separate reference electrode (sensION+ 5044 is recommended).

9663 / 9663C's solid-state sensor design eliminates costly membrane replacement and requires virtually no maintenance (dry storage).

## Ammonia sensION+ 5192700 – Combination Ammonia Ion Selective Electrode (ISE)

| Probe Type                                                                                                                                                               | Measurement Range                   | Temperature Range | Junction              | Dimensions             | Prod. No. | Description                                                                                                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------|-----------------------|------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------|
| Combination gas-sensing ammonia ISE with epoxy body, refillable outer-body, double junction Ag/AgCl reference and replaceable NH <sub>3</sub> sensitive membrane module. | 0.06 to 17,000 mg/L NH <sub>3</sub> | 0 to 50°C         | Annular Ring Junction | 12 mm (D) x 149 mm (L) | 97021-576 | Electrode only (1 m cable)                                                                                                      |
| <i>Replacement Items / Accessories</i>                                                                                                                                   |                                     |                   |                       |                        |           | 97021-474 0.1M NH <sub>4</sub> Cl Fill Solution for 5192700 Ammonia ISE (50 mL)                                                 |
|                                                                                                                                                                          |                                     |                   |                       |                        |           | 97021-772 Ammonia Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                       |
|                                                                                                                                                                          |                                     |                   |                       |                        |           | 97021-540 sensION+ Ammonia ISE Analysis Package (contains electrode, standard solutions, ISA pillows and replacement membranes) |
|                                                                                                                                                                          |                                     |                   |                       |                        |           | 89174-120 Air Gap Assembly for Ammonia ISE                                                                                      |

See page 39 for Ammonia Standards, Maintenance and Storage Solutions.



## Reference sensION+ 5044 – Double Junction Reference Electrode

| Probe Type                                                                                                                                                                                                  | Measurement Range | Temperature Range | Junction              | Dimensions             | Prod. No. | Description                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|-----------------------|------------------------|-----------|------------------------------------------------------------------------------------|
| Double junction reference electrode with a glass body, large ceramic junction, internal gel electrolyte and refillable 0.1M lithium acetate salt bridge. Recommended for use with sensION+ half-cell ISEs.* | N/A               | 0 to 60°C         | Annular Ring Junction | 12 mm (D) x 120 mm (L) | 89174-228 | Electrode only (1 m cable)                                                         |
| <i>Replacement Items / Accessories</i>                                                                                                                                                                      |                   |                   |                       |                        |           | 89174-456 0.1M lithium acetate fill solution for sensION+ 5044 Reference Electrode |



\*For use with the sensION+ MM374 Multimeter.

# sensION Probes

Hach sensION Meters have been discontinued and replaced with sensION+ Meters.  
Hach will continue to offer sensION Electrodes and Probes to all customers with existing sensION Meters.

## pH sensION – General Purpose, Standard Combination Non-refillable pH Electrode

| Probe Type                                                                                                                      | Measurement Range | Temperature Range            | Junction                | Dimensions                 | Prod. No. | Description                                       |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|-------------------------|----------------------------|-----------|---------------------------------------------------|
| Gel-fill with epoxy body, Ag/AgCl reference, ceramic pin junction, built-in temperature sensor and standard size glass pH bulb. | 0 to 14 pH        | Continuous Use:<br>0 to 45°C | Ceramic<br>Pin Junction | 152.5 mm (L) x 12.1 mm (D) | 97021-582 | Electrode only<br>(sensION 5-pin connector)       |
|                                                                                                                                 |                   |                              |                         |                            | 97021-580 | Electrode only<br>(BNC & 3.5 mm phone connectors) |
|                                                                                                                                 |                   |                              |                         |                            | 97021-584 | Electrode only<br>(BNC & DIN connectors)          |

## pH sensION – General Purpose, Standard Combination Refillable pH Electrode

| Probe Type                                                                                                                                | Measurement Range | Temperature Range            | Junction                | Dimensions                 | Prod. No. | Description                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|-------------------------|----------------------------|-----------|---------------------------------------------------|
| Epoxy body, refillable electrolyte, Ag/AgCl reference, ceramic pin junction, built-in temperature sensor and standard size glass pH bulb. | 0 to 14 pH        | Continuous Use:<br>0 to 45°C | Ceramic<br>Pin Junction | 152.5 mm (L) x 12.1 mm (D) | 97021-602 | Electrode only<br>(sensION 5-pin connector)       |
|                                                                                                                                           |                   |                              |                         |                            | 97021-604 | Electrode only<br>(BNC & 3.5 mm phone connectors) |
|                                                                                                                                           |                   |                              |                         |                            | 97021-600 | Electrode only<br>(BNC & DIN connectors)          |

## pH sensION – General Purpose, Standard Combination Platinum Series pH Electrode

| Probe Type                                                                                                                                        | Measurement Range | Temperature Range            | Junction         | Dimensions               | Prod. No. | Description                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|------------------|--------------------------|-----------|---------------------------------------------------|
| Epoxy body, replaceable gel electrolyte cartridge, Ag/AgCl reference, open junction, built-in temperature sensor and standard size glass pH bulb. | 0 to 14 pH        | Continuous Use:<br>0 to 45°C | Open<br>Junction | 241 mm (L) x 12.7 mm (D) | 97021-592 | Electrode only<br>(sensION 5-pin connector)       |
|                                                                                                                                                   |                   |                              |                  |                          | 97021-596 | Electrode only<br>(BNC & 3.5 mm phone connectors) |
|                                                                                                                                                   |                   |                              |                  |                          | 97021-594 | Electrode only<br>(BNC & DIN connectors)          |

## pH sensION – General Purpose, Standard Combination Platinum Series pH Electrode with Flat pH Sensor

| Probe Type                                                                                                                                                                       | Measurement Range | Temperature Range            | Junction            | Dimensions               | Prod. No. | Description                       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|---------------------|--------------------------|-----------|-----------------------------------|
| Epoxy body, replaceable gel electrolyte cartridge, Ag/AgCl reference, annular junction and flat pH sensor for surface measurements. (Does not have built-in temperature sensor.) | 0 to 13 pH        | Continuous Use:<br>0 to 45°C | Annular<br>Junction | 229 mm (L) x 12.7 mm (D) | 97021-590 | Electrode only<br>(BNC connector) |

### pH Replacement Items / Accessories

#### Prod. No. Description

97021-734 4M KCl saturated with AgCl fill solution for sensION 51941XX pH electrodes (65 mL)

97021-774 Replacement KCl gel electrolyte cartridges (2 pack) for Platinum Series pH electrodes

See page 39 for pH Buffers, Storage and Maintenance Solutions.

## Conductivity sensION – Conductivity Probe

| Probe Type                                                                                    | Measurement Range      | Temperature Range | Junction | Dimensions             | Prod. No. | Description                                          |
|-----------------------------------------------------------------------------------------------|------------------------|-------------------|----------|------------------------|-----------|------------------------------------------------------|
| Graphite 4-pole conductivity cell with Noryl (plastic) body and built-in temperature sensor.* | 0.1 µS/cm to 200 mS/cm | -10 to 110°C      | N/A      | 120 mm (L) x 15 mm (D) | 97021-616 | Electrode only (sensION 5-pin connector & 1 m cable) |
|                                                                                               |                        |                   |          |                        | 97021-618 | Electrode only (sensION 5-pin connector & 3 m cable) |

\*Cell constant (k) = 0.45 cm<sup>-1</sup>

See page 39 for Conductivity Standard Solutions.

## Dissolved Oxygen sensION – Polarographic Dissolved Oxygen Probe

| Probe Type                                                                                                 | Measurement Range                    | Temperature Range | Junction | Dimensions               | Prod. No. | Description                                           |
|------------------------------------------------------------------------------------------------------------|--------------------------------------|-------------------|----------|--------------------------|-----------|-------------------------------------------------------|
| Epoxy body, refillable reference electrolyte, built-in temperature sensor and replaceable membrane module. | 0 to 20 mg/L<br>0 to 200% saturation | 0 to 50°C         | N/A      | 149 mm (L) x 12.1 mm (D) | 97021-622 | Electrode only (sensION 5-pin connector & 1 m cable)  |
|                                                                                                            |                                      |                   |          |                          | 97021-624 | Electrode only (sensION 5-pin connector & 3 m cable)  |
|                                                                                                            |                                      |                   |          |                          | 97021-620 | Electrode only (sensION 5-pin connector & 15 m cable) |

*Dissolved Oxygen Replacement Items / Accessories*

| Prod. No. | Description                                                     |
|-----------|-----------------------------------------------------------------|
| 97021-412 | Electrolyte Fill Solution (50 mL) for sensION 51970XX DO probes |

## ORP / Redox sensION – Platinum Series Combination ORP Electrode

| Probe Type                                                                                                                                            | Measurement Range | Temperature Range | Junction      | Dimensions               | Prod. No. | Description                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|---------------|--------------------------|-----------|---------------------------------------------------------------|
| TPX (plastic) body, replaceable gel electrolyte cartridge, Ag/AgCl reference, open junction, built-in temperature sensor and annular platinum sensor. | ± 2000 mV         | 0 to 45°C         | Open Junction | 241 mm (L) x 12.7 mm (D) | 97021-586 | Electrode only (1 m fixed cable with sensION 5-pin connector) |

## ORP / Redox sensION – Combination Non-refillable, Gel-fill ORP/Redox Electrode

| Probe Type                                                 | Measurement Range | Temperature Range | Junction             | Dimensions               | Prod. No. | Description                                                   |
|------------------------------------------------------------|-------------------|-------------------|----------------------|--------------------------|-----------|---------------------------------------------------------------|
| Epoxy body, Ag/AgCl reference and annular Platinum sensor. | ± 2000 mV         | 0 to 45°C         | Ceramic Pin Junction | 241 mm (L) x 12.7 mm (D) | 97021-606 | Electrode only (1 m fixed cable with sensION 5-pin connector) |

See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.

# sensION Probes

## Nitrate sensION – Platinum Series Nitrate Ion Selective Electrode (ISE)

| Probe Type                                                                               | Measurement Range                                     | Temperature Range | Junction         | Dimensions               | Prod. No. | Description                                            |
|------------------------------------------------------------------------------------------|-------------------------------------------------------|-------------------|------------------|--------------------------|-----------|--------------------------------------------------------|
| TPX (plastic) body, replaceable gel electrolyte cartridge, and replaceable PVC membrane. | 0.5 to 14,000 mg/L<br>NO <sub>3</sub> <sup>-</sup> -N | 10 to 30°C        | Annular Junction | 244 mm (L) x 12.7 mm (D) | 97021-588 | Electrode only<br>(1 m fixed cable with BNC connector) |

### Nitrate Replacement Items / Accessories

| Prod. No. | Description                                                                                                            |
|-----------|------------------------------------------------------------------------------------------------------------------------|
| 97021-788 | Nitrate Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                        |
| 97021-544 | sensION Nitrate Analysis Package (includes electrode, reference cartridges, fill solution, standard solutions and ISA) |
| 97021-768 | Replacement Ammonium Sulfate gel electrolyte cartridges (2 pack) for Nitrate Platinum Series electrode                 |
| 97021-446 | Nitrate ISE Internal Fill Solution (50 mL)                                                                             |
| 97021-632 | Replacement sensION Nitrate ISE Membrane Modules (6 pack)                                                              |

See page 39 for Nitrate Standards and ISE Maintenance/Storage Solutions.

## Sodium sensION – Platinum Series Sodium Ion Selective Electrode (ISE)

| Probe Type                                                                                     | Measurement Range                           | Temperature Range | Junction             | Dimensions             | Prod. No. | Description                                            |
|------------------------------------------------------------------------------------------------|---------------------------------------------|-------------------|----------------------|------------------------|-----------|--------------------------------------------------------|
| TPX (plastic) body, replaceable gel electrolyte cartridge, and non-replaceable glass membrane. | 0.010 mg/L Na <sup>+</sup><br>to saturation | 0 to 50°C         | Ceramic Pin Junction | 240 mm (L) x 12 mm (D) | 97021-598 | Electrode only<br>(1 m fixed cable with BNC connector) |

### Sodium Replacement Items / Accessories

| Prod. No. | Description                                                                                            |
|-----------|--------------------------------------------------------------------------------------------------------|
| 97021-782 | Sodium Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                         |
| 97021-570 | sensION Sodium Analysis Package (includes electrode, reference cartridges, standard solutions and ISA) |
| 97021-754 | Replacement Ammonium Chloride gel electrolyte cartridges (2 pack) for Sodium Platinum Series electrode |

See page 39 for Sodium Standards and ISE Maintenance/Storage Solutions.

## Ammonia sensION – Combination Gas-Sensing Ammonia Ion Selective Electrode (ISE)

| Probe Type                                                                                                                      | Measurement Range                         | Temperature Range | Junction              | Dimensions             | Prod. No. | Description                                            |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|-----------------------|------------------------|-----------|--------------------------------------------------------|
| Epoxy body, refillable outer-body, double junction Ag/AgCl reference and replaceable NH <sub>3</sub> sensitive membrane module. | 0.06 to 17,000 mg/L<br>as NH <sub>3</sub> | 0 to 50°C         | Annular Ring Junction | 12 mm (D) x 149 mm (L) | 97021-576 | Electrode only<br>(1 m fixed cable with BNC connector) |

### Ammonia Replacement Items / Accessories

| Prod. No. | Description                                                                                                           |
|-----------|-----------------------------------------------------------------------------------------------------------------------|
| 97021-538 | Replacement membrane modules (5 pack) for 5192700 Ammonia ISE                                                         |
| 97021-474 | 0.1M NH <sub>4</sub> Cl Fill Solution for 5192700 Ammonia ISE (50 mL)                                                 |
| 97021-772 | Ammonia Ionic Strength Adjustor (ISA) Powder Pillows (100 pack)                                                       |
| 97021-540 | sensION+ Ammonia ISE Analysis Package (contains electrode, standard solutions, ISA pillows and replacement membranes) |
| 89174-120 | Air Gap Assembly for Ammonia ISE                                                                                      |

See page 39 Ammonia Standards, Maintenance and Storage Solutions.

## Temperature sensION – Temperature Probe

| Probe Type                                 | Measurement Range | Temperature Range | Junction | Dimensions            | Prod. No. | Description                             |
|--------------------------------------------|-------------------|-------------------|----------|-----------------------|-----------|-----------------------------------------|
| Stainless steel thermistor with 1 m cable. | N/A               | 0 to 80°C         | N/A      | 120 mm (L) x 6 mm (D) | 97021-628 | Probe only<br>(sensION 5-pin connector) |
|                                            |                   |                   |          |                       | 97021-626 | Probe only<br>(DIN connector)           |
|                                            |                   |                   |          |                       | 97021-630 | Probe only<br>(3.5 mm phone connector)  |

# miniLab® Pocket pH Meters

When you don't want the hassle of a probe but still need a non-glass pH meter.

**NEW!**



|                       | H130<br>miniLAB<br>POCKET<br>pH METER                                                       | H135<br>miniLAB<br>POCKET<br>pH METER               | H138<br>miniLAB<br>POCKET<br>pH METER |
|-----------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------|---------------------------------------|
| Specification         |                                                                                             |                                                     |                                       |
| Temperature           | ■ (ATC)                                                                                     | ■ (ATC)                                             | ■ (ATC)                               |
| Sensor                | ISFET silicon chip pH sensor                                                                |                                                     |                                       |
| Calibration           | 1-Point                                                                                     | 1-, 2-, or 3-point                                  |                                       |
| Buffer Recognition    | pH 7.00<br>pH 6.86                                                                          | pH 4.01, 7.00, and 10.01<br>pH 4.01, 6.86, and 9.18 |                                       |
| Reference             | Replaceable KCl gel filled (9316900)                                                        |                                                     |                                       |
| pH Range              | Suggested range: 5.0 to 9.0 pH<br>2.0 to 12.0 pH                                            | 2.0 to 12.0 pH                                      |                                       |
| Resolution            | 0.1 pH                                                                                      |                                                     | 0.01 pH                               |
| Input Accuracy        | ≤0.1 pH                                                                                     |                                                     | ≤0.01 pH                              |
| Repeatability         | ± 0.1 pH                                                                                    |                                                     | ± 0.03 pH                             |
| Display               | LCD                                                                                         |                                                     | LCD with Temperature                  |
| Operation Temp. Range | Range: 5 to 40°C; Automatic                                                                 |                                                     |                                       |
| Battery Operation     | Two 3v lithium batteries (CR2032) included                                                  |                                                     |                                       |
| Battery Life          | Up to 200 hours continuous warning with 10 hour advance low battery and automatic power off |                                                     |                                       |
| Dimensions            | 155 x 33 x 20 mm (6 1/8" L x 1 1/4" W x 3/4" H)                                             |                                                     |                                       |
| Weight                | 77 g (0.17 lbs.) -meter only                                                                |                                                     |                                       |

| Feature                   | H130<br>miniLAB<br>POCKET<br>pH METER      | H135<br>miniLAB<br>POCKET<br>pH METER      | H138<br>miniLAB<br>POCKET<br>pH METER      |
|---------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| IP Rating                 | IP67                                       | IP67                                       | IP67                                       |
| Internal data storage     | —                                          | —                                          | —                                          |
| Inputs                    | —                                          | —                                          | —                                          |
| Outputs                   | —                                          | —                                          | —                                          |
| Interface languages       | English                                    | English                                    | English                                    |
| Warranty                  | 1 year                                     | 1 year                                     | 1 year                                     |
| Compliance                | CE.WEEE                                    | CE.WEEE                                    | CE.WEEE                                    |
| GLP features              | —                                          | —                                          | —                                          |
| PC Data Transfer Software | —                                          | —                                          | —                                          |
| Backlight                 | —                                          | —                                          | —                                          |
| Battery Operation         | Two 3v lithium batteries (CR2032) included | Two 3v lithium batteries (CR2032) included | Two 3v lithium batteries (CR2032) included |
| AC and USB operation      | —                                          | —                                          | —                                          |
| Prod. No.                 | 89214-844                                  | 89214-846                                  | 89214-848                                  |

# H-Series Portable Meters



Dual-technology meters take readings from non-glass pH and traditional probes across multiple parameters. Available with optional data management, Bluetooth®, and ISE capabilities.



| Parameter                   | H160<br>WATERPROOF<br>PORTABLE<br>METER | H160G<br>WATERPROOF<br>PORTABLE<br>METER | H170<br>WATERPROOF<br>PORTABLE<br>METER | H170G<br>WATERPROOF<br>PORTABLE<br>METER |
|-----------------------------|-----------------------------------------|------------------------------------------|-----------------------------------------|------------------------------------------|
| Temperature                 | ■                                       | ■                                        | ■                                       | ■                                        |
| Dual pH technology          |                                         |                                          |                                         |                                          |
| Glass                       | ■                                       | ■                                        | ■                                       | ■                                        |
| Non-glass (ISFET)           | ■                                       | ■                                        | ■                                       | ■                                        |
| mV                          | ■                                       | ■                                        | ■                                       | ■                                        |
| Conductivity                |                                         |                                          | ■                                       | ■                                        |
| TDS                         |                                         |                                          | ■                                       | ■                                        |
| Salinity                    |                                         |                                          | ■                                       | ■                                        |
| Resistivity                 |                                         |                                          |                                         |                                          |
| Dissolved Oxygen (Galvanic) |                                         |                                          |                                         |                                          |
| ORP/Redox                   | ■                                       | ■                                        | ■                                       | ■                                        |
| Ammonia                     |                                         | ■                                        |                                         | ■                                        |
| Nitrate                     |                                         | ■                                        |                                         | ■                                        |
| Fluoride                    |                                         | ■                                        |                                         | ■                                        |
| Sodium                      |                                         | ■                                        |                                         | ■                                        |

| Feature                   | H160<br>WATERPROOF<br>PORTABLE<br>METER                        | H160G<br>WATERPROOF<br>PORTABLE<br>METER                       | H170<br>WATERPROOF<br>PORTABLE<br>METER                                                               | H170G<br>WATERPROOF<br>PORTABLE<br>METER                                                              |
|---------------------------|----------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| IP Rating                 | IP67                                                           | IP67                                                           | IP67                                                                                                  | IP67                                                                                                  |
| Internal data storage     | —                                                              | 999                                                            | —                                                                                                     | 999                                                                                                   |
| Inputs                    | BNC (1), 3.5 mm<br>phone (1), 8-pin<br>Waterproof ISFET pH (1) | BNC (1), 3.5 mm<br>phone (1), 8-pin<br>Waterproof ISFET pH (1) | BNC (1), 3.5 mm<br>phone (1), 8-pin<br>Waterproof ISFET pH (1), 12-pin<br>Waterproof conductivity (1) | BNC (1), 3.5 mm<br>phone (1), 8-pin Waterproof<br>ISFET pH (1), 12-pin<br>Waterproof conductivity (1) |
| Outputs                   | —                                                              | Bluetooth                                                      | —                                                                                                     | Bluetooth                                                                                             |
| Interface languages       | English                                                        | English                                                        | English                                                                                               | English                                                                                               |
| Warranty                  | 3 years                                                        | 3 years                                                        | 3 years                                                                                               | 3 years                                                                                               |
| Compliance                | CE.WEEE                                                        | CE.WEEE.IC.FCC                                                 | CE.WEEE                                                                                               | CE.WEEE.IC.FCC                                                                                        |
| GLP features              | —                                                              | ■                                                              | —                                                                                                     | ■                                                                                                     |
| PC Data Transfer Software | —                                                              | included                                                       | —                                                                                                     | included                                                                                              |
| Backlight                 | ■                                                              | ■                                                              | ■                                                                                                     | ■                                                                                                     |
| Battery Operation         | ■                                                              | ■                                                              | ■                                                                                                     | ■                                                                                                     |
| AC and USB operation      | —                                                              | —                                                              | —                                                                                                     | —                                                                                                     |
| Prod. No.                 | 89214-852                                                      | 89214-856                                                      | 89214-860                                                                                             | 89214-864                                                                                             |

See page 34 for H-Series Bundles. See page 36 for H-Series Accessories.

# H-Series Benchtop Meters

Benchtop models include GLP-related features and optional Bluetooth® communication.



| Parameter                   | H260G<br>BENCHTOP<br>METER | H270G<br>BENCHTOP<br>METER | H280G<br>BENCHTOP<br>METER |
|-----------------------------|----------------------------|----------------------------|----------------------------|
| Temperature                 | ■                          | ■                          | ■                          |
| Dual pH technology          |                            |                            |                            |
| Glass                       | ■                          | ■                          | ■                          |
| Non-glass (ISFET)           | ■                          | ■                          | ■                          |
| mV                          | ■                          | ■                          | ■                          |
| Conductivity                |                            | ■                          | ■                          |
| TDS                         |                            | ■                          | ■                          |
| Salinity                    |                            | ■                          | ■                          |
| Resistivity                 |                            |                            |                            |
| Dissolved Oxygen (Galvanic) |                            |                            | ■                          |
| ORP/Redox                   | ■                          | ■                          | ■                          |
| Ammonia                     | ■                          | ■                          | ■                          |
| Nitrate                     | ■                          | ■                          | ■                          |
| Fluoride                    | ■                          | ■                          | ■                          |
| Sodium                      | ■                          | ■                          | ■                          |

| Feature                   | H260G<br>BENCHTOP<br>METER                                                       | H270G<br>BENCHTOP<br>METER                                                                                                 | H280G<br>BENCHTOP<br>METER                                                                                                 |
|---------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| IP Rating                 | IP42                                                                             | IP42                                                                                                                       | IP42                                                                                                                       |
| Internal data storage     | 999                                                                              | 999                                                                                                                        | 999                                                                                                                        |
| Inputs                    | BNC (1), 3.5 mm<br>phone (1), 4 mm<br>reference (1), 8-pin<br>RJ-45 ISFET pH (1) | BNC (1), 3.5 mm<br>phone (1), 4 mm<br>reference (1), 8-pin<br>RJ-45 ISFET pH<br>(1), 12-pin waterproof<br>Conductivity (1) | BNC (1), 3.5 mm<br>phone (1), 4 mm<br>reference (1), 8-pin<br>RJ-45 ISFET pH (1),<br>12-pin Waterproof<br>Conductivity (1) |
| Outputs                   | USB to PC                                                                        | USB to PC                                                                                                                  | USB to PC                                                                                                                  |
| Interface languages       | English                                                                          | English                                                                                                                    | English                                                                                                                    |
| Warranty                  | 3 years                                                                          | 3 years                                                                                                                    | 3 years                                                                                                                    |
| Compliance                | CE.WEEE                                                                          | CE.WEEE                                                                                                                    | CE.WEEE                                                                                                                    |
| GLP features              | ■                                                                                | ■                                                                                                                          | ■                                                                                                                          |
| PC Data Transfer Software | included                                                                         | included                                                                                                                   | included                                                                                                                   |
| Backlight                 | ■                                                                                | ■                                                                                                                          | ■                                                                                                                          |
| Battery Operation         | ■                                                                                | ■                                                                                                                          | ■                                                                                                                          |
| AC and USB operation      | included                                                                         | included                                                                                                                   | included                                                                                                                   |
| Prod. No.                 | 89214-868                                                                        | 89214-872                                                                                                                  | 89214-876                                                                                                                  |

See page 34 for H-Series Bundles. See page 36 for H-Series Accessories.

# H-Series Probes

## pH H-Series PH77 – General Purpose ISFET pH Electrode

| Probe Type                                                                                                                                                        | Measurement Range | Temperature Range | Junction       | Dimensions              | Prod. No.               | Description                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------|-------------------------|-------------------------|-------------------------------------------------------------------|
| Combination non-refillable, gel-fill pH electrode with stainless steel body, fiber junction, built-in temperature sensor and non-glass round tip ISFET pH sensor. | 0 to 14 pH        | 0 to 60°C         | Fiber Junction | 140 mm (L) x 8.3 mm (D) | 82007-534<br>82026-950* | Electrode only (1 m cable)<br>Electrode with waterproof connector |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

\*Waterproof Version. Waterproof probes are for use with the H160, H160G, H170 and H170G handheld meters.

PH77 ISFET pH electrode is ideal for general purpose applications where ultra rugged or non-glass sensors are required.

## pH H-Series PH17 – Micro ISFET pH Electrode

| Probe Type                                                                                                                                                             | Measurement Range | Temperature Range | Junction       | Dimensions                                                                      | Prod. No.               | Description                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------|---------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------|
| Combination non-refillable, gel-fill pH electrode with stainless steel body, fiber junction, built-in temperature sensor and non-glass micro-diameter ISFET pH sensor. | 0 to 14 pH        | 0 to 60°C         | Fiber Junction | Lower Body:<br>130 mm (L) x 4.8 mm (D)<br>Upper Body:<br>80 mm (L) x 8.3 mm (D) | 14221-752<br>82026-952* | Electrode only (1 m cable)<br>Electrode with waterproof connector |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

\*Waterproof Version. Waterproof probes are for use with the H160, H160G, H170 and H170G handheld meters.

PH17 ISFET pH electrode is ideal for microsample or test tube applications where ultra rugged or non-glass sensors are required.

## pH H-Series PH37 – Piercing Tip Micro ISFET pH Electrode

| Probe Type                                                                                                                                                                          | Measurement Range | Temperature Range | Junction       | Dimensions                                                                     | Prod. No.               | Description                                                       |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------|--------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------|
| Combination non-refillable, gel-fill pH electrode with stainless steel body, fiber junction, built-in temperature sensor and non-glass piercing-tip micro-diameter ISFET pH sensor. | 0 to 14 pH        | 0 to 60°C         | Fiber Junction | Lower Body:<br>90 mm (L) x 4.8 mm (D)<br>Upper Body:<br>80 mm (L) x 8.3 mm (D) | 14221-754<br>82026-954* | Electrode only (1 m cable)<br>Electrode with waterproof connector |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

\*Waterproof Version. Waterproof probes are for use with the H160, H160G, H170 and H170G handheld meters.

PH37 ISFET pH electrode is ideal for penetration applications where small diameter, ultra rugged or non-glass sensors are required.

## pH H-Series PH47 – NMR Tube Micro ISFET pH Electrode

| Probe Type                                                                                                                                                                         | Measurement Range | Temperature Range            | Junction       | Dimensions                                                                      | Prod. No.               | Description                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|----------------|---------------------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------|
| Combination non-refillable, gel-fill pH electrode with stainless steel body, fiber junction, built-in temperature sensor and non-glass long-length micro-diameter ISFET pH sensor. | 0 to 14 pH        | Continuous Use:<br>0 to 60°C | Fiber Junction | Lower Body:<br>220 mm (L) x 3.8 mm (D)<br>Upper Body:<br>80 mm (L) x 8.3 mm (D) | 14221-756<br>82026-956* | Electrode only (1 m cable)<br>Electrode with waterproof connector |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

\*Waterproof Version. Waterproof probes are for use with the H160, H160G, H170 and H170G handheld meters.

PH47 ISFET pH electrode is ideal for measurement in NMR tubes or long-reach applications where ultra rugged or non-glass sensors are required.

## pH H-Series PH57 – Heavy Duty Piercing ISFET pH Electrode

| Probe Type                                                                                                                                                                         | Measurement Range | Temperature Range            | Junction       | Dimensions                                     | Prod. No.               | Description                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|----------------|------------------------------------------------|-------------------------|-------------------------------------------------------------------|
| Combination non-refillable, gel-fill pH electrode with stainless steel body, fiber junction, built-in temperature sensor and non-glass long-length micro-diameter ISFET pH sensor. | 0 to 14 pH        | Continuous Use:<br>0 to 60°C | Fiber Junction | 90 mm (L) x 4.8 mm (D)<br>w/ heavy-duty handle | 82007-538<br>82026-958* | Electrode only (1 m cable)<br>Electrode with waterproof connector |



See page 39 for pH Buffers, Storage and Maintenance Solutions.

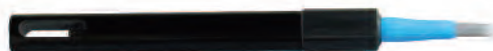
\*Waterproof Version. Waterproof probes are for use with the H160, H160G, H170 and H170G handheld meters.

PH57 ISFET pH electrode is ideal for heavy-duty piercing applications where ultra rugged or non-glass sensors are required.

## Conductivity H-Series KP5 – “Bull’s-Eye” General Purpose Conductivity Probe

| Probe Type                                                                          | Measurement Range       | Temperature Range            | Junction | Dimensions             | Prod. No. | Description                 |
|-------------------------------------------------------------------------------------|-------------------------|------------------------------|----------|------------------------|-----------|-----------------------------|
| Graphite 4-pole conductivity cell with epoxy body and built-in temperature sensor.* | 5 $\mu$ S/cm to 1 mS/cm | Continuous Use: -10 to 110°C | N/A      | 110 mm (L) x 16 mm (D) | 82026-962 | Electrode only (3 ft cable) |

\*Cell constant (k) = 0.5 cm<sup>-1</sup>



H-Series KP5 "Bull's-Eye" probe is designed for conductivity measurements in general purpose water quality applications.

## Conductivity H-Series – K1 Drinking Water Conductivity Probe

| Probe Type                                                                          | Measurement Range        | Temperature Range            | Junction | Dimensions             | Prod. No. | Description                 |
|-------------------------------------------------------------------------------------|--------------------------|------------------------------|----------|------------------------|-----------|-----------------------------|
| Platinum 4-pole conductivity cell with glass body and built-in temperature sensor.* | 10 $\mu$ S/cm to 2 mS/cm | Continuous Use: -10 to 110°C | N/A      | 110 mm (L) x 12 mm (D) | 82026-960 | Electrode only (3 ft cable) |

\*Cell constant (k) = 1.0 cm<sup>-1</sup>



H-Series K1 probe is designed for conductivity measurements in drinking water or low-level conductivity applications.

## Conductivity H-Series – K10 High Salinity/Brackish Water Conductivity Probe

| Probe Type                                                                          | Measurement Range    | Temperature Range            | Junction | Dimensions             | Prod. No. | Description                 |
|-------------------------------------------------------------------------------------|----------------------|------------------------------|----------|------------------------|-----------|-----------------------------|
| Platinum 4-pole conductivity cell with epoxy body and built-in temperature sensor.* | 1 mS/cm to 200 mS/cm | Continuous Use: -10 to 110°C | N/A      | 110 mm (L) x 12 mm (D) | 82026-966 | Electrode only (3 ft cable) |

\*Cell constant (k) = 10 cm<sup>-1</sup>



H-Series K10 probe is designed for conductivity measurements in saline/brackish waters or high conductivity applications.

## Dissolved Oxygen H-Series – DO50-GS Standard Galvanic Dissolved Oxygen Electrode

| Probe Type                                                                                                                                                 | Measurement Range                                              | Temperature Range         | Junction | Dimensions             | Prod. No. | Description                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|---------------------------|----------|------------------------|-----------|-----------------------------|
| Galvanic Dissolved Oxygen Probe with PC/Abs (plastic) body, refillable reference electrolyte, built-in temperature sensor and replaceable membrane module. | Dissolved Oxygen: 0 to 19.99 mg/L<br>% Saturation: 0 to 199.9% | Continuous Use: 0 to 50°C | N/A      | 110 mm (L) x 12 mm (D) | 97006-530 | Electrode only (3 ft cable) |
| <b>Replacement Items / Accessories</b>                                                                                                                     |                                                                |                           |          |                        |           |                             |
| 97011-956 Kit includes replacement membrane module and bottle of electrolyte (65 mL) for DO50-GS probe.                                                    |                                                                |                           |          |                        |           |                             |
| 97011-956 Replacement membrane module for DO50-GS probe.                                                                                                   |                                                                |                           |          |                        |           |                             |



H-Series DO50-GS probe is designed for dissolved oxygen measurements in general purpose water quality applications.

## ORP / Redox H-Series – ORP110-GS Standard ORP / Redox Probe

| Probe Type                                                                                                               | Measurement Range | Temperature Range            | Junction             | Dimensions             | Prod. No. | Description                 |
|--------------------------------------------------------------------------------------------------------------------------|-------------------|------------------------------|----------------------|------------------------|-----------|-----------------------------|
| Combination non-refillable, gel-fill ORP/Redox electrode with epoxy body, Ag/AgCl reference and annular platinum sensor. | ± 1999 mV         | Continuous Use: -10 to 110°C | Ceramic Pin Junction | 110 mm (L) x 12 mm (D) | 82020-480 | Electrode only (3 ft cable) |

See page 39 for ORP Standards, Maintenance, Storage and Reducing Solutions.



H-Series ORP110-GS probe is designed for ORP/Redox measurements in general purpose water quality applications.

# HQd Meter & IntelliCAL Probe Bundles

- *HQd meters and IntelliCAL probes now available in packaged configurations for your laboratory or portable applications.*
- *Choose from basic starter kits or complete advanced kits.*
- *Include buffers, standards, and accessories for quick ordering and simple start up.*

## Portable Bundles

Prod. No. Description

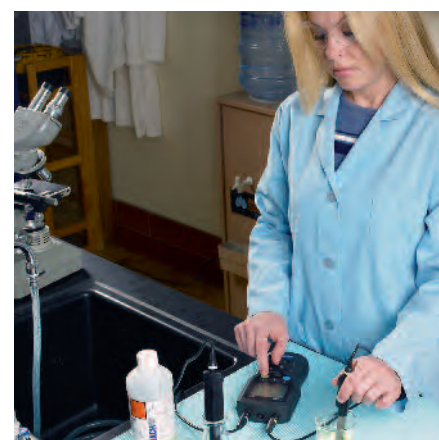
- 89233 210 Portable pH Starter Kit**  
HQ11d pH meter, gel pH probe with 1 m cable.
- 89174 054 Portable Conductivity Starter Kit**  
HQ14d conductivity meter, standard conductivity probe with 1 m cable.
- 89174 056 Advanced pH/Conductivity Kit**  
HQ40d meter with A/C power and USB adapters, refillable pH probe with 1 m cable, conductivity probe with 1 m cable.
- 89174 058 Complete Water Quality Kit**  
Portable DO/pH/Conductivity HQ40d meter with A/C power and USB adapters, refillable pH probe with 1 m cable, conductivity probe with 1 m cable, standard LDO probe with 1 m cable.



## Benchtop Bundles

Prod. No. Description

- 89233 216 pH Ultra Starter Kit**  
HQ440d Multi Lab Meter, pH Ultra refillable probe with 1 m cable.
- 89174 062 Ammonia ISE Measurement Kit**  
HQ440d Multi Lab Meter, Ammonia Probe with 1 m cable.
- 89174 064 Fluoride ISE Measurement Kit**  
HQ440d Multi Lab Meter, Fluoride probe with 1 m cable.
- 89174 060 Sodium ISE Starter Kit**  
HQ440d Multi Lab Meter, cables, HQ440d Multi Lab Meter, cables, IntelliCAL sodium ISE probe with 1 m cable.
- 89174 066 Nitrate ISE Measurement Kit**  
HQ440d Multi Lab Meter, Nitrate Probe with 1 m cable.



- Hach HQd meters pH, ORP, Conductivity, and LDO probes are now available in rugged field kits.
- Feature rugged probes available only from Hach.
- All required buffers and accessories for field measurement are organized securely in one durable case!

## Prod. No. Description

### 89174 070 Rugged DO Field Kit

Rugged case with durable foam insert for organization, HQ30d meter, rugged LDO probe with 5 m cable.

### 89174 072 Rugged DO Field Kit with HQ40d Multi Meter

Rugged case with durable foam insert for organization, HQ40d meter with A/C power and USB adapters, rugged LDO probe with 5 m cable.

### 89174 074 Advanced DO/pH/Conductivity Rugged Field Kit

Rugged case with durable foam insert for organization, HQ40d meter with A/C power and USB adapters, rugged LDO probe with 5 m cable, rugged pH probe with 5 m cable, rugged conductivity probe with 5 m cable.

### 89174 076 Rugged DO/pH Field Kit

Rugged case with durable foam insert for organization, HQ40d meter with A/C power and USB adapters, rugged LDO probe with 5 m cable, rugged pH probe with 5 m cable.

### 89174 078 Rugged ORP Field Kit

Rugged case with HQ40d meter with A/C power and USB adapters, ORP rugged gel-filled probe with 5 m cable.



## Prod. No. Description

### 89174 080 Rugged ORP/LDO Field Kit

Rugged case with HQ40d meter with A/C power and USB adapters, rugged gel-filled ORP probe with 5 m cable, rugged LDO probe with 5 m cable.

### 89174 082 Rugged Environmental Conductivity/LDO Field Kit

Rugged case with HQ40d meter with A/C power and USB adapters, rugged conductivity probe with 5 m cable, rugged LDO probe with 5 m cable.

### 89174 084 Rugged Field Case for two probes with 5 m cables

Includes: Empty case and insert for meter and probe storage; (4) Containers for sample collection; 500 mL Wash Bottle.

### 89174 086 Rugged Field Case for three probes with 5 m cables

Includes same accessories as case 8505500.



# sensION+ Benchtop Meter & Probe Kits

- *sensION+ Benchtop meters are available in popular packaged configurations*
- *Choose from basic kits or advanced kits for your lab testing needs*
- *Unique design developed as a complete workstation including integrated stirrer, probe stand, calibration flasks, and compartments for essential lab work*
- *All benchtop kits include: workstation with integrated stirrer, buffers, standards, storage solutions, and accessories for quick start up*

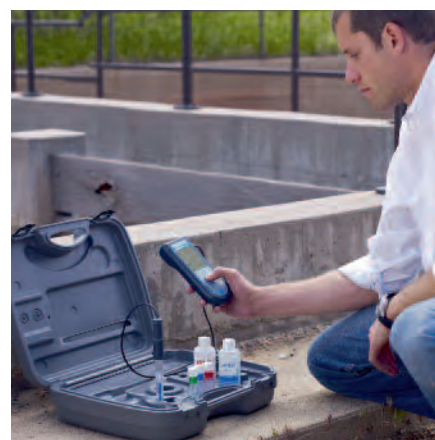
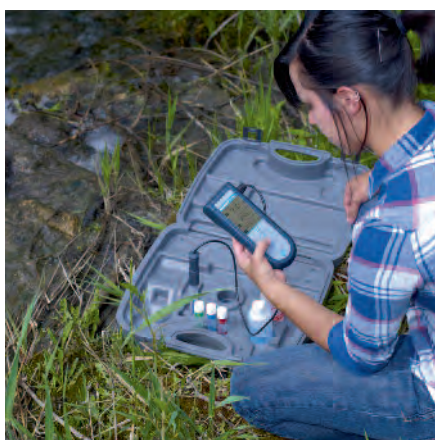


| Prod. No. | Description                                                                                                                                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89174 122 | <b>Basic pH (general) Benchtop Kit</b><br>sensION+ PH3 meter with universal 5010T pH and temperature electrode. For general aqueous applications.                                                                                                                           |
| 89174 126 | <b>Advanced pH (dirty samples) Benchtop Kit</b><br>sensION+ PH3 meter with open junction 5011T pH and temperature electrode. For high solid content and/or viscous media samples.                                                                                           |
| 89174 124 | <b>Advanced pH (high performance) Benchtop Kit</b><br>sensION+ PH3 meter with dual junction 5014T pH and temperature electrode. For sulfurs, reducing sugars or media that reacts with Ag+ ions.                                                                            |
| 89174 128 | <b>Advanced pH (difficult samples) Benchtop Kit</b><br>sensION+ PH3 meter with clog-free 5021T pH and temperature electrode. For low ionic strength, colloidal, emulsions and cream samples.                                                                                |
| 89174 130 | <b>Basic pH (general) Benchtop Kit</b><br>sensION+ PH31 GLP meter with universal 5010T pH and temperature electrode. For general aqueous applications.                                                                                                                      |
| 89174 134 | <b>Advanced pH (general) Benchtop Kit</b><br>sensION+ PH31 GLP meter with open junction 5011T pH and temperature electrode. For high solid content and/or viscous media samples                                                                                             |
| 89174 132 | <b>Advanced pH (high performance) Benchtop Kit</b><br>sensION+ PH31 GLP meter with dual junction 5014T pH and temperature electrode. For sulfurs, reducing sugars or media that reacts with Ag+ ions.                                                                       |
| 89174 136 | <b>Advanced pH (difficult samples) Benchtop Kit</b><br>sensION+ PH31 GLP meter with clog-free 5021T pH and temperature electrode. For low ionic strength, colloidal, emulsions and cream samples.                                                                           |
| 89174 142 | <b>Basic pH (general) Benchtop Kit</b><br>sensION+ MM340 pH & ISE GLP meter with universal 5010T pH and temperature electrode. For general aqueous applications.                                                                                                            |
| 89174 146 | <b>Advanced pH (dirty samples) Benchtop Kit</b><br>sensION+ MM340 pH & ISE meter with open junction 5011T pH and temperature electrode. For high solid content and/or viscous media samples.                                                                                |
| 89174 144 | <b>Advanced pH (high performance) Benchtop Kit</b><br>sensION+ MM340 pH & ISE GLP meter with dual junction 5014T pH and temperature electrode. For sulfurs, reducing sugars or media that reacts with Ag+ ions.                                                             |
| 89174 148 | <b>Advanced pH (difficult samples) Benchtop Kit</b><br>sensION+ MM340 pH & ISE GLP meter with clog-free 5021T pH and temperature electrode. For low ionic strength, colloidal, emulsions and cream samples.                                                                 |
| 89174 138 | <b>Basic Conductivity Benchtop Kit</b><br>sensION+ EC7 meter with universal 5070 conductivity and temperature cell. For general aqueous applications.                                                                                                                       |
| 89174 140 | <b>Advanced Conductivity Benchtop Kit</b><br>sensION+ EC71 GLP meter with universal 5070 conductivity and temperature cell. For general aqueous applications.                                                                                                               |
| 89174 150 | <b>Advanced pH (high performance) &amp; Conductivity Benchtop Kit</b><br>sensION+ MM374 pH, conductivity & ISE GLP meter with dual junction 5014 pH and universal 5070 conductivity with temperature cell. For sulfurs, reducing sugars or media that reacts with Ag+ ions. |

# sensION+ Portable Meter & Probe Kits

- *sensION+ meters are available in popular packaged configurations*
- *Choose from basic, advanced, or multi-sensor kits for your field testing needs*
- *Specialized field carrying case acts as a portable laboratory*
- *All field kits include: field carrying case, buffers, standards, storage solutions, calibration tubes, and accessories for quick start up*

| Prod. No. | Description                                                                                                                                                                                                    |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89174 156 | <b>Basic pH (general) Field Kit</b><br>sensION+ PH1 meter with universal 5050T pH and temperature electrode. For general aqueous applications.                                                                 |
| 89174 158 | <b>Advanced pH (dirty samples) Field Kit</b><br>sensION+ PH1 meter with open junction 5051T pH and temperature electrode. For high solid content and/or viscous media samples.                                 |
| 89174 160 | <b>Advanced pH (difficult samples) Field Kit</b><br>sensION+ PH1 meter with high contact 5052T pH and temperature electrode. For low ionic strength, colloidal, emulsions and cream samples.                   |
| 89174 162 | <b>Basic ORP Field Kit</b><br>sensION+ PH1 meter with 5055 ORP electrode. For chemical waste treatment, galvanic baths and general aqueous applications.                                                       |
| 89174 152 | <b>Basic Conductivity Field Kit</b><br>sensION+ EC5 meter with universal 5060 conductivity and temperature cell. For general aqueous applications.                                                             |
| 89174 154 | <b>Advanced Conductivity Field Kit</b><br>sensION+ EC5 meter with robust, Titanium 5062 conductivity and temperature cell. For difficult media applications.                                                   |
| 89174 166 | <b>Basic Dissolved Oxygen Field Kit</b><br>sensION+ DO6 meter with robust, polarographic 5120 DO and temperature probe. For general aqueous applications.                                                      |
| 89174 164 | <b>Advanced pH &amp; ORP Multi sensor Field Kit</b><br>sensION+ MM110 meter with 5045 pH, ORP and temperature multi-sensor. For general aqueous applications.                                                  |
| 89174 170 | <b>Advanced pH, Conductivity &amp; ORP Multi sensor Field Kit</b><br>sensION+ MM150 meter with 5048 pH, conductivity, ORP and temperature multi-sensor. For waste treatment and general aqueous applications.. |



# H-Series Bundles

| Prod. No. | Description                                                                                                                                                                | Prod. No. | Description                                                                                                                                                              |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89214 870 | H260G meter with PH77-SS ISFET pH Probe, USB Cord, AC Adapter, and SmartLogger II Software, PLUS consumables.                                                              | 89214 858 | H160G Bluetooth Meter, PHW77-SS ISFET Probe, Field Carrying Case & Calibration Kit, Rubber Holster, and SmartLogger II Software, PLUS consumables.                       |
| 89214 874 | H270G meter with PH77-SS ISFET pH Probe, CDW97-KP5 Conductivity Probe, USB Cord, AC Adapter, and SmartLogger II Software, PLUS consumables.                                | 89214 862 | H170 Meter, PHW77-SS pH Probe & CDW97-KP5 Conductivity Probe; Field Case & Calibration/Standards Kit, and Rubber Holster, PLUS consumables..                             |
| 89214 878 | H280G meter with PH77-SS ISFET pH Probe, CDW97-KP5 Conductivity Probe DO50-GS Dissolved Oxygen Probe, USB Cord, AC Adapter, and SmartLogger II Software, PLUS consumables. | 89214 866 | H170G Bluetooth Meter, PHW77-SS pH Probe, CDW97-KP5 Conductivity, Field Case & Calibration/Standards Kit, Rubber Holster, and SmartLogger II Software, PLUS consumables. |
| 89214 854 | H160-77 meter & PHW77-SS pH Probe; Field Case & Calibration Kit; Rubber Holste, PLUS consumables.                                                                          |           |                                                                                                                                                                          |



# HQd Meter & Probe Accessories

## Meter Stand

Perfect for use in the laboratory or other applications where hands-free meter operation is desired. Black molded plastic is durable and easy to clean.

**Prod. No.**  
89174 098



## Protective Glove

Provides added impact protection that field use requires. Wrist and neck straps keep the meter secure. Two probe holders (not included in kit) can slide onto glove.

**Prod. No.**  
89174 100



## Field Kit

Includes protective glove and 5 120 mL sample cups. Carry your HQd system anywhere. Custom inserts organize and securely position your meter and probes.

**Prod. No.**  
89174 094



## Probe Holder (Standard IntelliCAL Probes Only)

For use with the Protective Glove. Simply wrap 1- or 3-meter cables around the holder and slide probe into protective sheath. Protective Glove can hold one or two Probe Holders.

**Prod. No.**  
89174 110



## Color Coded Probe Clips

Clip a color-coded band to each end of your probe cable for identification. Ten clips of five different colors per package.

NOTE: One package of clips included with each probe.

**Prod. No.**  
89174 104



## Replacement Stirrer Assembly for IntelliCAL LBOD Probe

**Prod. No.**  
89174 116



## Replacement Shroud Kit for Rugged Probes

Includes protective bell and locking ring. The rugged shroud absorbs the impact from rough wear and tear.

**Prod. No.**  
89174 106



## Replacement LDO Sensor Cap

Includes i-button™ and sensor cap.

**Prod. No.**  
89174 112



## Replacement LBOD Sensor Cap

**Prod. No.**  
89174 114



## Replacement Membranes for IntelliCAL ISENH3181 Ammonia ISE

Pack of 3 replacement membrane modules designed for the IntelliCAL ISENH3181 Ammonia ISE.

**Prod. No.**  
89174 118

## HQd Meter USB and AC Power Adapter Kit

Provides A/C power in the lab. The USB adapter can be used to transfer data from the meter to a PC, memory stick, or printer.

NOTE: Meter will remain water-proof after using the A/C power adapter. Included with HQ40d meter systems.

| Prod. No. | Description                            |
|-----------|----------------------------------------|
| 89174 108 | HQd Meter USB and AC Power Adapter Kit |



## Printer

| Prod. No. | Description                                                                                                                                                                                                                                                                                                                                                                                |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89174 092 | Citizen PD-24<br>Includes printer, universal power supply, 115V North American power cord, RS-232 cable and gender adapter, USB cable, battery pack, one roll of thermal paper, and instruction manual. Compatible with 2100Q Portable Turbidimeters (USB+Power Module required), HQd Series Water Quality Meters, DR Spectrophotometers with USB interface, and the BODTrak II Apparatus. |
| 89174 102 | Printer Paper for PD-24, Thermal 5/pk                                                                                                                                                                                                                                                                                                                                                      |



## sensION+ Accessories

| Prod. No.        | Description                                                  |
|------------------|--------------------------------------------------------------|
| <b>89174 378</b> | Thermal printer, RS 232, for sensION+ benchtop               |
| <b>89174 408</b> | Thermal paper for printer LZW8201.99, bag with 5 rolls       |
| <b>89174 410</b> | Dot-impact printer, RS 232, for sensION+ instruments         |
| <b>89174 412</b> | Standard paper for printer LZW8200, bag with 10 rolls        |
| <b>89174 414</b> | Ribbon for printer LZW8200.99, 3 units.                      |
| <b>89174 416</b> | RS232 cable, for sensION+ benchtop instruments               |
| <b>89174 418</b> | RS232 cable for sensION+ benchtop, with USB adapter          |
| <b>89174 380</b> | Magnetic stirrer with sensor holder, for sensION MM benchtop |
| <b>89174 386</b> | Holder and clamp for one sensor, for portable sensION+       |
| <b>89174 388</b> | 3x10 mL printed tubes, for portable pH calibration, US       |
| <b>89174 390</b> | 3x10 mL printed tubes, for portable conductivity calibration |

| Prod. No.        | Description                                                  |
|------------------|--------------------------------------------------------------|
| <b>89174 392</b> | Spare membrane for D.O. electrode LZW5120                    |
| <b>89174 398</b> | Three-sensor holder, for sensION+ benchtop instruments       |
| <b>89174 382</b> | 3x50 mL printed flasks for benchtop pH calibration, US       |
| <b>89174 384</b> | 3x50 mL printed flasks for benchtop conductivity calibration |
| <b>89174 400</b> | Holder and clamp for three sensors, sensION+                 |
| <b>89174 402</b> | Pyrex glass chamber, continuous flow measurements, sensION+  |
| <b>89174 404</b> | PP protector, electrode storage, sensION+                    |
| <b>89174 406</b> | PP protector, for measurement, sensION+                      |
| <b>89233 222</b> | Hach LabCom Easy Software, sensION+, GLP                     |
| <b>89233 224</b> | Hach LabCom Software, sensION+, GLP                          |

## H-Series Accessories



*Universal  
Probe Stand*

**Prod. No.**  
**97011 954**  
**97011 956**

**89214 850**  
**14221 746**

### Description

Easy-to-thread-on cap with a pre-installed membrane  
Includes the DO50-CAP plus a small bottle of electrolyte and a syringe to add the electrolyte to the sensor. There is enough electrolyte to refill 3 caps.

Replacement Reference Electrode for the H130, H135 & H138  
Replacement Reference Electrode for miniLab Models

## Pocket-sized pH testers for quick, easy, accurate measurements.

### Applications

- Plating
- Water conditioning
- Boiler/cooling water
- Lakes and rivers
- Food processing
- Swimming pools and spas
- Anywhere humidity levels are high



Now IP67 rated\* (dustproof and waterproof), Pocket Pal Testers are immune to harsh environments and accidental spills that could harm electronics. If accidentally immersed in water, the circuitry will remain unharmed. Pocket Pal Testers clip onto your shirt pocket, produce immediate results, and feature an easy-to-read liquid crystal display (LCD). While not recommended as a replacement for a pH or ORP instrument/electrode system, or a Hach Conductivity or TDS meter, Pocket Pal Testers offer a cost-effective alternative for routine, on-the-spot measurements.

### Temperature Pocket Pal Tester

Range: -15 to 170°C

The Temperature Pocket Pal Tester is an accurate, economical tester offering a wide range of measurement otherwise requiring two glass thermometers.

### pH Pocket Pal Tester

Range: 0.0-14.0 pH Resolution: 0.1 pH Accuracy:  $\pm 0.2$  pH The pH Pocket Pal Tester is ideal for quick, on-site pH testing. Applications include water quality testing at cooling towers, swimming pools and spas\*\*. Hach color-coded, unit-dose pH buffer powder pillows, which ensure freshness and eliminate the possibility of contamination, and prepared pH buffer solutions are available in three pH values, 4.01, 7.00, or 10.00 (see pages 38-39). They are recommended for calibration adjustments.

### TDS Pocket Pal Tester

Range: 10-1990 TDS

IP67 rated (waterproof and dustproof). Ideal for quick TDS spot checks, this tester is not a replacement for a conductivity or TDS meter. Tester accuracy is  $\pm 2\%$  at 25°C and accuracy can be  $\pm 10\%$  of reading over the temperature measurement range. **(For more accurate measurement, use the HQ14d, HQ30d, or HQ40d Meters, see pages 6-7.)** Results are displayed digitally. Prepared sodium chloride solution is available and is required for calibration.

### Conductivity Pocket Pal Tester

Range: 10-1990  $\mu\text{S}/\text{cm}$

The Conductivity Pocket Pal Tester is ideal for swimming pools and drinking water control. Now IP67 rated. Rugged, dustproof and waterproof plastic body, and easy-to-read digital display make it perfect for on-site measurement. Other applications include water treatment (softener, demineralization, reverse osmosis, and drinking water), fish farming and aquariums, and pollution control. Prepared sodium chloride solution is available and is required for calibration.

### ORP Pocket Pal Tester

Range:  $\pm 999$  mV

The ORP Pocket Pal Tester offers an accurate and affordable way of testing for redox potential. Because there are no chemical test kits or litmus paper for measuring this parameter, the ORP Pocket Pal Tester is a valuable tool, assuring accuracy, fast response, and excellent repeatability. The ORP Pocket Pal Tester is not IP67 rated. Lights solution is available to check electrode potential.

\*Only the Temperature, pH, TDS, and Conductivity Pocket Pal Testers are IP67 rated.

\*\*Testing in the presence of heavy metals or in liquids warmer than 50°C is not advised.



| Prod. No. | Description                    |
|-----------|--------------------------------|
| 97027-092 | pH Pocket Pal Tester           |
| 97027-094 | TDS Pocket Pal Tester          |
| 97027-088 | Conductivity Pocket Pal Tester |
| 97027-090 | ORP Pocket Pal Tester          |
| 97027-096 | Temperature Pocket Pal Tester  |
| 97026-976 | Replacement Temperature Probe  |

NOTE: Calibration solutions are not included with Pocket Pal testers.

# pH Buffers & Standard Solutions

## pH Calibration Buffers

Hach standard calibration buffers are available in convenient, unit-dose powder pillows or color-coded liquids. Powder pillows assure freshness and eliminate the possibility of contamination. Recommended for automatic calibration. Simply open the pillow and add the contents to 50 mL of deionized or demineralized water. Both liquid and powder buffers assure accuracy ( $\pm 0.02$  pH units) and are NIST traceable.

### pH Buffer Pillows

Buffers with pH values of 4.01, 7.00, and 10.01 are color-coded for added convenience. pH is  $\pm 0.02$  at 25°C.

| Description                 | Quantity   | Prod. No. |
|-----------------------------|------------|-----------|
| <b>Color Coded</b>          |            |           |
| 4.01 (Red)                  | 15         | 97021 766 |
|                             | 50         | 97021 744 |
|                             | 250        | 97021 742 |
| 7.00 (Yellow)               | 15         | 97021 770 |
|                             | 50         | 97021 748 |
|                             | 250        | 97021 746 |
| 10.01 (Blue)                | 15         | 97021 764 |
|                             | 50         | 89231 016 |
|                             | 250        | 97021 808 |
| 4.01 (Red) 7.00 (Yellow)    | 10 of each | 97021 806 |
| <b>Colorless</b>            |            |           |
| 6.00                        | 50         | 97021 800 |
| 6.86                        | 15         | 97021 784 |
| 8.00                        | 15         | 97021 798 |
| 9.00                        | 50         | 97021 792 |
| pH Storage Solution Pillows | 20         | 97021 756 |

### pH Buffer Solutions

pH is  $\pm 0.02$  at 25°C.

| Item                                     | Unit   | Prod. No. |
|------------------------------------------|--------|-----------|
| <b>pH 4.01 Color-Coded Red (NIST)</b>    |        |           |
|                                          | 500 mL | 97021 520 |
|                                          | 4 L    | 97021 510 |
|                                          | 20 L   | 97021 556 |
| <b>pH 7.00 Color-Coded Yellow (NIST)</b> |        |           |
|                                          | 500 mL | 97021 458 |
|                                          | 4 L    | 97021 440 |
|                                          | 20 L   | 97021 558 |
| <b>pH 10.01 Color-Coded Blue (NIST)</b>  |        |           |
|                                          | 500 mL | 97021 552 |
|                                          | 4 L    | 97021 406 |
|                                          | 20 L   | 97021 554 |
| <b>pH 4.01 Colorless (NIST)</b>          |        |           |
|                                          | 500 mL | 97021 438 |
|                                          | 4 L    | 97021 444 |
| <b>pH 7.00 Colorless (NIST)</b>          |        |           |
|                                          | 500 mL | 97021 426 |
|                                          | 4 L    | 97021 432 |
| <b>pH 10.01 Colorless (NIST)</b>         |        |           |
|                                          | 500 mL | 97021 408 |
|                                          | 4 L    | 97021 410 |

## Save when you purchase pH buffer 3-packs!

Prod. No. Description

### 20 L SIZE 3-PACK

**97021 448 Includes:**  
 97021 554 10.01 (blue) NIST  
 97021 558 7.00 (yellow) NIST  
 97021 556 4.01 (red) NIST

### 4 L SIZE 3-PACK

**97021 450 Includes:**  
 97021 406 10.01 (blue) NIST  
 97021 440 7.00 (yellow) NIST  
 97021 510 4.01 (red) NIST

### 500 mL SIZE 3-PACK

**97021 452 Includes:**  
 97021 552 10.01 (blue) NIST  
 97021 458 7.00 (yellow) NIST  
 97021 520 4.01 (red) NIST

## Singlet™ Solution Packs

Singlet single-use standard solutions are ideal for on-site analysis, eliminating the need to prepare standardized buffer solutions for pH meter calibration. You can have fresh pH buffer solutions without having to purchase and carry deionized or demineralized water. The convenient foil-pouch packaging maintains freshness, and keeps the solutions contaminant-free and ready to travel with you anywhere.

| Description                          | Quantity     | Prod. No. |
|--------------------------------------|--------------|-----------|
| pH 7.00 and pH 10.01 Buffer Solution | pk/10 of ea. | 97021 730 |
| pH 4.01 and pH 7.00 Buffer Solution  | pk/10 of ea. | 97021 728 |
| pH 4.01 Buffer Solution              | pk/20        | 97021 462 |
| pH 7.00 Buffer Solution              | pk/20        | 97021 424 |
| pH 10.01 Buffer Solution             | pk/20        | 97021 404 |



Visit: [www.hach.com/standardsguide](http://www.hach.com/standardsguide)  
for additional standards

## Prod. No. Description

### pH Storage and Cleaning Solutions

97021 420 pH Storage Solution (3M Potassium Chloride), 500 mL

### BOD Nutrients and Seed Inoculum

97026 674 BOD Nutrient Buffer Pillows, prepares 300 mL, 50/pk

97026 670 BOD Nutrient Buffer Pillows, prepares 3 L, 50/pk

97026 672 BOD Nutrient Buffer Pillows, prepares 6 L, 50/pk

97026 668 BOD Nutrient Buffer Pillows, prepares 19 L, 25/pk

97026 564 Formula 2533™ Nitrification Inhibitor, 35 g

97026 568 Formula 2533™ Nitrification Inhibitor, 500 g

### KCl Conductivity Standards

#### 500 mL

97021 476 35 g/L KCl, (53 mS/cm), 500 mL

### NaCl Conductivity Standards

#### 100 mL

97021 532 85.47 mg/L NaCl, (180 µS/cm), 100 mL

97021 534 491 mg/L NaCl, (1000 µS/cm), 100 mL

97021 506 10,246 mg/L NaCl, (18,000 µS/cm), 100 mL

### ORP Standards and Solutions

97021 750 Light's Standard Solution in sealed ampules, 20/pk

### Ionic Strength Adjusters

97026 578 Fluoride Powder, 454 g

97021 786 Fluoride Powder Pillows, 100

97021 526 Fluoride Solution, 3.78 L

97021 772 Ammonia ISA Powder Pillows, 100/pk

97021 788 Nitrate ISA Powder Pillows, 100/pk

97021 782 Sodium ISA Powder Pillows, 100/pk

### Electrode Filling Solutions and Cartridges

97021 768 Ammonium Sulfate Reference Cartridges, 2/pk

97021 446 Nitrate Internal Filling Solution, 50 mL

### Calcium Standard Solutions as Ca

97021 400 100 mg/L, 500 mL

97021 402 1000 mg/L, 500 mL

### Chloride Standard Solutions as Cl

97021 488 100 mg/L, 1 L

97021 512 1,000 mg/L, NaCl, 500 mL

## Prod. No. Description

### Fluoride Standard Solutions as F (NIST)

97021 490 0.5 mg/L, 500 mL

97021 484 1.0 mg/L, 500 mL

97021 514 1.0 mg/L, 1 L

97021 530 2.0 mg/L, 500 mL

97021 466 5.0 mg/L, 500 mL

97021 494 10 mg/L, 500 mL

97021 498 100 mg/L, 500 mL

### Nitrogen Ammonia Standard Solutions as NH<sub>3</sub> N

97021 508 1 mg/L, 500 mL

97021 522 10 mg/L, 500 mL

97021 796 50 mg/L, 2-mL PourRite Ampule, 20/pk

97021 804 50 mg/L, 10-mL Voluette Ampule, 16/pk

97024 518 100 mg/L, 500 mL

97021 802 160 mg/L, 10-mL Voluette Ampule, 16/pk

### Nitrogen Nitrate Standard Solutions as NO<sub>3</sub><sup>-</sup> N (NIST)

97021 500 1 mg/L as NO<sub>3</sub><sup>-</sup>-N, 4.43 mg/L as NO<sub>3</sub><sup>-</sup>-N (NIST)

97021 794 5 mg/L, 10-mL Voluette Ampule, 16/pk

97021 478 10 mg/L, 44.3 mg/L as NO<sub>3</sub><sup>-</sup>, 500 mL

97021 460 15 mg/L, 100 mL

97021 468 100 mg/L as NO<sub>3</sub><sup>-</sup>-N, 443 mg/L as NO<sub>3</sub><sup>-</sup>, 500 mL

97021 790 500 mg/L, 10-mL Voluette Ampule, 16/pk

97021 442 1,000 mg/L as NO<sub>3</sub><sup>-</sup>-N; 4430 mg/L as NO<sub>3</sub><sup>-</sup>, 500 mL

### Potassium Standard Solutions as K

97021 422 100 mg/L, 500 mL

### Sodium Electrode Storage Solution

97021 464 50 mL

### Sodium Standard Solution as Na

97021 428 100 mg/L, 1 L (NIST)

97021 434 1000 mg/L, 500 mL (NIST)

# Hach LBOD IntelliCAL™ Probe

**A Breakthrough in BOD Measurement!**  
**Hach LBOD IntelliCAL™ probe uses**  
**patented LDO® technology to deliver**  
**superior confidence in results!**

**All the same great benefits of the Hach LDO probe, with the built-in features to measure BOD!**

- No membranes to replace.
- Calibration in less than one minute.
- Reliable performance and accurate readings time after time.
- Have confidence in your results!

**EPA Recommends  
 Hach LDO® Method 10360  
 for use in compliance  
 monitoring.\***



*\*Hach's LDO technology has been approved in numerous states for measuring and reporting Dissolved Oxygen (DO) and BOD.*

## Probe Only

Have confidence in your results! Perfect for use in EPA-based BOD testing in 300 mL BOD bottles in approved states.

|                    |                     |
|--------------------|---------------------|
| <b>Product No.</b> | <b>Cable Length</b> |
| 89174-018          | 1.8 meter cable     |

## BOD Reagents

- Complete line of products for BOD preparation
- Prepackaged nutrient buffer
- Convenient, easy to use, pre-measured products

| Prod. No. | Description                                              |
|-----------|----------------------------------------------------------|
| 97026-564 | Nitrification inhibitor - 35 g, 200 tests                |
| 97026-568 | Nitrification Inhibitor - 500 g, 2500 tests              |
| 97026-674 | Nutrient Buffer Pillows, 0.5-mL size for 300 mL, 50/pk   |
| 97026-670 | Nutrient Buffer Pillows, 3-mL size for 3 liters, 50/pk   |
| 97026-672 | Nutrient Buffer Pillows, 6-mL size for 6 liters, 50/pk   |
| 97026-668 | Nutrient Buffer Pillows, 19-mL size for 19 liters, 25/pk |

# Choosing Your Colorimeter

Hach colorimeters are designed for the rigors of field use and provide consistently accurate measurements of over 100 different parameters.

## Pocket Colorimeter™ II

- Measure one or two parameters quickly and easily.



## DR/820 Colorimeter

- Rugged enough for field use with 20-parameter versatility
- Easy method selection with keypad interface
- One instrument measures the most popular parameters

## DR/850 Colorimeter

- Rugged enough for field use with 50-parameter versatility
- Easy method selection with keypad interface
- One instrument measures a wide range of popular parameters



## DR/890 Colorimeter

- Rugged enough for field use with 90-parameter versatility
- Easy method selection with keypad interface
- The industry's most versatile portable colorimeter for a wide range of applications

## FEATURES

|                                                 |                                          |                                                                       |                                                                       |                                                                       |
|-------------------------------------------------|------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|-----------------------------------------------------------------------|
| Number of Parameters                            | 1 or 2 depending on model                | 20+                                                                   | 50+                                                                   | 90+                                                                   |
| Factory Calibrated                              | Yes                                      | Yes                                                                   | Yes                                                                   | Yes                                                                   |
| Storage of User Calibration Curves              | Yes (most models)                        | Yes                                                                   | Yes                                                                   | Yes                                                                   |
| Wavelength Selection                            | Fixed wavelength                         | Auto-Select                                                           | Auto-Select                                                           | Auto-Select                                                           |
| Datalogging                                     | most recent 10 points                    | up to 99 points                                                       | up to 99 points                                                       | up to 99 points                                                       |
| Readout Modes                                   | Concentration, absorbance                | Concentration, absorbance, %T                                         | Concentration, absorbance, %T                                         | Concentration, absorbance, %T                                         |
| IP67 Rating (submersible 1 m for 30 mins)       | Yes*                                     | Yes                                                                   | Yes                                                                   | Yes                                                                   |
| PC Interface Available                          | No                                       | Yes                                                                   | Yes                                                                   | Yes                                                                   |
| LCD Display                                     | Backlit                                  | Not Backlit                                                           | Not Backlit                                                           | Not Backlit                                                           |
| Battery Requirements (alkaline or rechargeable) | 4 AAA                                    | 4 AA                                                                  | 4 AA                                                                  | 4 AA                                                                  |
| Nominal Battery Life                            | 2000 tests                               | 6 months of average usage                                             | 6 months of average usage                                             | 6 months of average usage                                             |
| LED Source Lamp                                 | Yes                                      | Yes                                                                   | Yes                                                                   | Yes                                                                   |
| Dimensions                                      | 15.5 x 6.1 x 3.5 cm (6.2 x 2.5 x 1.4 in) | 23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)                              | 23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)                              | 23.6 x 8.7 x 4.7 cm (9.3 x 3.4 x 1.9 in)                              |
| Weight                                          | 0.23 kg ( 0.5 lb)                        | 0.45 kg ( 1 lb)                                                       | 0.45 kg ( 1 lb)                                                       | 0.45 kg ( 1 lb)                                                       |
| Full List of Parameters and Tests               | See pages 42-43                          | See pages 42-43                                                       | See pages 42-43                                                       | See pages 42-43                                                       |
| Accessories                                     | Belt Holster/Case                        | RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases | RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases | RS-232 Data Transfer Adapter (DTA), hard or soft-sided carrying cases |

\*Battery compartment excluded.

## KEY SPECIFICATIONS

|                             |                                  |                            |                                 |                                           |
|-----------------------------|----------------------------------|----------------------------|---------------------------------|-------------------------------------------|
| Wavelengths                 | Single wavelength model-specific | 1 Fixed wavelength 520 nm  | 2 Fixed wavelengths 520, 610 nm | 4 Fixed wavelengths 420, 520, 560, 610 nm |
| Wavelength Accuracy         | ±2 nm (typical)                  | ±1 nm                      | ±1 nm                           | ±1 nm                                     |
| Spectral Bandwidth          | 15 nm (typical)                  | 10 nm nominal              | 10 nm nominal                   | 10 nm nominal                             |
| Operating Temperature Range | 0 to 50°C (32 to 122°F)          | 0 to 50°C (32 to 122°F)    | 0 to 50°C (32 to 122°F)         | 0 to 50°C (32 to 122°F)                   |
| Storage Temperature Range   | -40 to 60°C (-40 to 140°F)       | -40 to 60°C (-40 to 140°F) | -40 to 60°C (-40 to 140°F)      | -40 to 60°C (-40 to 140°F)                |
| To order, see:              | pages 44-45                      | page 46                    |                                 |                                           |

# Quick Reference Guide

The tables on the following 4 pages list test ranges, methods of analysis, and corresponding reagent set Product Numbers. The complete procedure for each test is included in the manual or CD supplied with the instrument. The ranges given are for the pre-calibrated instrument readout; higher ranges can be analyzed by sample dilution. Parameters marked "EPA" are EPA-approved, accepted, or equivalent for reporting purposes; sample pretreatment may be required on some procedures. If no reagent set is listed for a parameter, order needed reagents and supplies separately. See the Parameters Section, pages 57-96, for more information.

| Test                                  | EPA              | Method                         | Number      | DR/890 | DR/850 | DR/820 | PC II Colorimeter | Prod. No. |
|---------------------------------------|------------------|--------------------------------|-------------|--------|--------|--------|-------------------|-----------|
| Alachlor in Water                     |                  | Immunoassay                    | 10202       |        |        |        | •                 | 97026-276 |
| Aluminum                              |                  | Aluminon                       | 8012        | •      | •      | •      | •                 | 97009-488 |
| Ammonia, Nitrogen                     |                  | Salicylate                     | 8155        | •      |        | •      | •                 | 97009-530 |
| Ammonia, Nitrogen (Test 'N Tube), LR  |                  | Salicylate                     | 10023       | •      | •      |        |                   | 97009-556 |
| Ammonia, Nitrogen (Test 'N Tube), HR  |                  | Salicylate                     | 10031       | •      | •      |        |                   | 97009-572 |
| Ammonia, Free, Nitrogen               |                  | Indophenol                     | 10200       | •      | •      |        | •                 | 89231-436 |
| Atrazine                              |                  | Immunoassay                    | 10050       |        |        |        | •                 | 97026-274 |
| Benzotriazole                         |                  | UV Photolysis                  | 8079        | •      |        |        |                   | 97026-574 |
| Carbohydrazide                        |                  | Iron Reduction                 | 8140        | •      |        |        |                   | 89231-394 |
| Chloramine, Mono, LR                  |                  | Indophenol                     | 10171 10200 | •      | •      |        | •                 | 97009-456 |
| Chlorine, Free                        | •                | DPD                            | 8021        | •      | •      | •      | •                 | 97009-454 |
| Chlorine, Free (AccuVac)              | •                | DPD                            | 8021        | •      | •      | •      | •                 | 97009-494 |
| Chlorine, Free (Test 'N Tube)         |                  | DPD                            | 10102       | •      | •      | •      |                   | 97026-566 |
| Chlorine, Free, MR                    | •                | DPD                            | 10245       | •      | •      | •      | •                 | 97009-468 |
| Chlorine, Free, HR                    | •                | DPD                            | 10069       | •      | •      | •      | •                 | 97009-468 |
| Chlorine, Total (Pour-Thru Cell), ULR | •                | DPD                            | 8370 10014  |        |        |        |                   | 89231-132 |
| Chlorine, Total                       | •                | DPD                            | 8167        | •      | •      | •      | •                 | 97009-464 |
| Chlorine, Total (AccuVac)             | •                | DPD                            | 8167        | •      | •      | •      | •                 | 97009-498 |
| Chlorine, Total (Test 'N Tube)        |                  | DPD                            | 10101       | •      | •      | •      |                   | 97026-544 |
| Chlorine, Total, MR                   | •                | DPD                            | 10250       | •      | •      | •      | •                 | 97009-470 |
| Chlorine, Total, HR                   | •                | DPD                            | 10070       | •      | •      | •      | •                 | 97009-470 |
| Chlorine Dioxide, DPD                 | •                | DPD/Glycine                    | 10126       | •      | •      | •      | •                 | 97009-500 |
| Chlorine Dioxide, DPD (AccuVac)       | •                | DPD/Glycine                    | 10126       | •      | •      | •      | •                 | 97009-540 |
| Chlorine Dioxide, LR                  |                  | Chlorophenol Red               | 8065        |        |        |        |                   | 89231-338 |
| Chromium, Hexavalent                  | •                | 1,5 Diphenylcarbohydrazide     | 8023        | •      |        |        | •                 | 97026-582 |
| Chromium, Hexavalent (AccuVac)        | •                | 1,5 Diphenylcarbohydrazide     | 8023        | •      |        |        | •                 | 97026-552 |
| Chromium, Total                       |                  | Alkaline Hypobromite Oxidation | 8024        | •      |        |        |                   | 89231-340 |
| Cobalt                                |                  | PAN                            | 8078        |        |        |        |                   | 97026-266 |
| COD, LR                               | •                | Dichromate                     | 8000        | •      |        |        |                   | 97009-532 |
| COD, HR                               | •                | Dichromate                     | 8000        | •      | •      |        |                   | 97009-538 |
| COD, HR+                              |                  | Dichromate                     | 8000        | •      | •      |        |                   | 97009-542 |
| COD                                   |                  | Manganese III                  | 10067       | •      | •      | •      |                   | 97026-430 |
| Copper, LR                            |                  | Porphyrin                      | 8143        | •      |        |        |                   | 89231-416 |
| Copper                                | •                | Bicinchoninate                 | 8506        | •      |        |        | •                 | 97014-526 |
| Copper (AccuVac)                      |                  | Bicinchoninate                 | 8026        | •      |        |        | •                 | 97009-502 |
| Cyanide                               |                  | Pyridine-Pyrazalone            | 8027        | •      | •      |        |                   | 97009-478 |
| Cyanuric Acid                         |                  | Turbidimetric                  | 8139        | •      | •      | •      |                   | 97026-542 |
| DEHA (Diethylhydroxylamine)           |                  | Iron Reduction                 | 8140        | •      |        |        |                   | 89231-394 |
| Detergents (Surfactants)              |                  | Crystal Violet                 | 8028        | •      | •      |        |                   | 89231-396 |
| Dissolved Oxygen (AccuVac), LR        |                  | Indigo Carmine                 | 8316        | •      | •      |        |                   | 97026-684 |
| Dissolved Oxygen (AccuVac), HR        |                  | HRDO                           | 8166        | •      | •      | •      | •                 | 97014-596 |
| Dissolved Oxygen (AccuVac), UHR       |                  | Ultra High Range               | 8333        |        |        |        |                   | 97014-596 |
| Erythorbic Acid (Isoascorbic Acid)    |                  | Iron Reduction                 | 8140        | •      |        |        |                   | 89231-394 |
| Fluoride, Arsenic Free                | • <sup>1,2</sup> | SPADNS 2                       | 10225       | •      | •      |        | •                 | 97027-020 |
| Fluoride, Arsenic Free (AccuVac)      | • <sup>1,2</sup> | SPADNS 2                       | 10225       | •      | •      |        | •                 | 97009-514 |
| Fluoride                              | • <sup>2</sup>   | SPADNS                         | 8029        | •      | •      |        | •                 | 97026-692 |
| Fluoride (AccuVac)                    | • <sup>2</sup>   | SPADNS                         | 8029        | •      | •      |        | •                 | 97009-512 |

<sup>1</sup>Per 40 CFR 136.6 Method Modification and Flexibility. <sup>2</sup>Not EPA accepted for drinking water using DR/800 Series colorimeters.

| Test                                                 | EPA Method                           | Number | DR1/890 | DR1/850 | DR1/820 | PC II Colorimeter | Prod. No. |
|------------------------------------------------------|--------------------------------------|--------|---------|---------|---------|-------------------|-----------|
| Hardness, Ca & Mg                                    | Calmagite Colorimetric               | 8030   | •       | •       | •       |                   | 97009-524 |
| Hydrazine                                            | p-Dimethylaminobenzaldehyde          | 8141   | •       |         |         |                   | 97026-508 |
| Hydrazine (AccuVac)                                  | p-Dimethylaminobenzaldehyde          | 8141   | •       |         |         |                   | 97026-448 |
| Hydroquinone                                         | Iron Reduction                       | 8140   | •       |         |         |                   | 89231-394 |
| Iodine DPD                                           | DPD                                  | 8031   |         |         |         |                   | 97009-464 |
| Iodine DPD (AccuVac)                                 | DPD                                  | 8031   |         |         |         |                   | 97009-498 |
| Iron                                                 | FerroZine                            | 8147   | •       |         |         |                   | 89231-276 |
| Iron, Ferrous                                        | 1, 10 Phenanthroline                 | 8146   | •       | •       | •       |                   | 97009-458 |
| Iron, Ferrous (AccuVac)                              | 1, 10 Phenanthroline                 | 8146   | •       | •       | •       |                   | 97026-628 |
| Iron, Total                                          | FerroMo                              | 8365   | •       | •       |         |                   | 97026-982 |
| Iron, Total                                          | TPTZ                                 | 8112   | •       | •       |         | •                 | 89231-148 |
| Iron, Total (AccuVac)                                | TPTZ                                 | 8112   | •       | •       |         | •                 | 89231-114 |
| Iron, Total                                          | • FerroVer                           | 8008   | •       | •       | •       | •                 | 97026-696 |
| Isoascorbic Acid (Erythorbic Acid) (ISA)             | Iron Reduction                       | 8140   | •       |         |         |                   | 89231-394 |
| Lead                                                 | LeadTrak Fast Column Extraction 8317 | 8317   |         |         |         | •                 | 89231-376 |
| Manganese, LR                                        | PAN                                  | 8149   | •       |         |         | •                 | 89231-420 |
| Manganese, HR                                        | • Periodate Oxidation                | 8034   | •       | •       | •       | •                 | 97009-436 |
| Methylethylketoxime (MEKO)                           | Iron Reduction                       | 8140   | •       |         |         |                   | 89231-394 |
| Molybdenum, Molybdate, LR                            | Ternary Complex                      | 8169   | •       | •       |         | •                 | 97026-990 |
| Molybdenum, Molybdate, HR                            | Mercaptoacetic Acid                  | 8036   | •       |         |         |                   | 97026-984 |
| Molybdenum, Molybdate (AccuVac), HR                  | Mercaptoacetic Acid                  | 8036   | •       |         |         |                   | —         |
| Nickel                                               | PAN                                  | 8150   |         |         |         | •                 | 97026-266 |
| Nitrate, Nitrogen, LR                                | Cadmium Reduction                    | 8192   | •       | •       | •       |                   | 97027-008 |
| Nitrate, Nitrogen, MR                                | Cadmium Reduction                    | 8171   | •       |         |         |                   | 97009-474 |
| Nitrate, Nitrogen (AccuVac), MR                      | Cadmium Reduction                    | 8171   | •       |         |         |                   | 97009-506 |
| Nitrate, Nitrogen (Test 'N Tube), HR                 | Chromotropic Acid                    | 10020  | •       |         |         |                   | 97009-576 |
| Nitrate, Nitrogen, HR                                | Cadmium Reduction                    | 8039   | •       | •       | •       | •                 | 97009-474 |
| Nitrate, Nitrogen (AccuVac), HR                      | Cadmium Reduction                    | 8039   | •       | •       | •       | •                 | 97009-506 |
| Nitrite, Nitrogen, LR                                | • Diazotization                      | 8507   | •       | •       | •       |                   | 97009-466 |
| Nitrite, Nitrogen (AccuVac), LR                      | • Diazotization                      | 8507   | •       | •       | •       |                   | 97009-508 |
| Nitrite, Nitrogen (Test 'N Tube), LR                 | Diazotization                        | 10019  | •       | •       | •       |                   | 97026-522 |
| Nitrite, Nitrogen, HR                                | Ferrous Sulfate                      | 8153   | •       |         |         |                   | 97026-608 |
| Nitrogen, Ammonia (see Ammonia, Nitrogen)            |                                      |        |         |         |         |                   |           |
| Nitrogen, Total (Test 'N Tube), LR                   | Persulfate Digestion                 | 10071  | •       |         |         |                   | 97026-608 |
| Nitrogen, Total (Test 'N Tube), HR                   | Persulfate Digestion                 | 10072  | •       |         |         |                   | 89231-422 |
| Nitrogen, Total Inorganic (TIN) (Test 'N Tube)       | Titanium Trichloride Reduction       | 10021  | •       | •       |         |                   | 89231-418 |
| Nitrogen, Total Kjeldahl (TKN)                       | Nessler                              | 8075   | •       |         |         |                   | 97026-688 |
| Ozone (AccuVac), LR                                  | Indigo                               | 8311   | •       | •       |         | •                 | 97026-460 |
| Ozone (AccuVac), MR                                  | Indigo                               | 8311   | •       | •       |         | •                 | 97026-172 |
| Ozone (AccuVac), HR                                  | Indigo                               | 8311   | •       | •       |         |                   | 97026-462 |
| PCB (Polychlorinated Biphenyls) in Soil <sup>2</sup> | Immunoassay                          | 10050  |         |         |         | •                 | 97026-278 |
| pH                                                   | Colorimetric Phenol Red              | 10076  | •       | •       | •       | •                 | 97026-490 |
| Phenols                                              | • 4-Aminoantipyrine                  | 8047   |         |         |         |                   | 89231-344 |
| Zinc                                                 | • Zincon                             | 8009   | •       | •       |         | •                 | 97014-598 |

# Pocket Colorimeter™ II



## Portable, rugged, waterproof analysis.

- Measures one or two parameters
- Waterproof, IP67 rated
- Logs last 10 data points with measurement time
- Rugged
- Backlit display
- Easier than ever to use



*Rugged, portable, and convenient!*

*See next page for ordering information.*



*Each model comes as a test kit (shown above) with required sample cells, reagents, batteries and manual.*

**Need to test two or more parameters?  
Choose the colorimeter that's right for you.**  
See page 41.

### Specifications\*

**Wavelength Accuracy**  
Fixed wavelength,  $\pm 2$  nm (varies with model)

**Lamp Type**  
Light Emitting Diode (LED)

**Filter Bandwidth**  
15 nm

**Absorbance**  
0 to 2.5 Abs

**Operating Conditions**  
0 to 50 °C ; 0 to 90 % relative humidity

**Sample Cell Pathlength**  
1 cm and 25 mm

**Display**  
LCD, backlit

**Enclosure Rating (IP)**  
IP 67 (excludes battery compartment)

**Power supply (batteries)**  
4 AAA batteries, approximate life of 2000 tests (use of backlight reduces this number)

**Compliance**  
European CE mark

**Warranty**  
2 years

**Dimensions (H x W x D)**  
3.5 cm x 6.1 cm x 15.5 cm  
1.4 in x 2.5 in x 6.2 in

**Weight**  
0.23 kg  
0.5 lbs

*\*Subject to change without notice.*

## How To Order Pocket Colorimeter™ II Standard Models

Each model comes as a test kit with required sample cells, reagents, batteries and manual.

| Description                                       | Method                           | Range                                                                | # of Tests | Prod. No. |
|---------------------------------------------------|----------------------------------|----------------------------------------------------------------------|------------|-----------|
| Alachlor                                          | Immunoassay                      | 0.1, 0.5 ppb thresholds                                              | 18         | 97026-848 |
| Aluminum                                          | Aluminon                         | 0.02-0.80 mg/L Al                                                    | 100        | 97026-930 |
| Ammonia                                           | Salicylate                       | 0.01-0.80 mg/L NH <sub>3</sub> -N                                    | 100        | 97009-566 |
| Ammonia, Free<br>(also tests for Monochloramine)  | Indophenol                       | 0.02-0.50 mg/L NH <sub>3</sub> -N/<br>0.04-4.50 mg/L Cl <sub>2</sub> | 50-100     | 89231-450 |
| Atrazine                                          | Immunoassay                      | 0.1, 0.5, 3.0 ppb thresholds                                         | 18         | 97026-254 |
| Bromine                                           | DPD                              | 0.05-4.50/0.2-10.0 mg/L Br <sub>2</sub>                              | 50-100     | 97026-968 |
| Chloramine, Mono<br>(also tests for Free Ammonia) | Indophenol                       | 0.02-0.50 mg/L NH <sub>3</sub> -N/<br>0.04-4.50 mg/L Cl <sub>2</sub> | 50-100     | 89231-450 |
| Chloride, F* & T* **                              | DPD                              | 0.02-2.00/0.1-8.0 mg/L Cl <sub>2</sub>                               | 50-100     | 97009-564 |
| Chlorine, F & T & pH                              | DPD/Phenol Red                   | 0.1-10.0 mg/L Cl <sub>2</sub> /6.0-8.5 pH†                           | 100        | 97026-970 |
| Chlorine, SwiftTest Dispenser<br>Free Chlorine*   | DPD                              | 0.02-2.00/0.1-8.0 mg/L Cl <sub>2</sub>                               | 125-250    | 97026-950 |
| Chlorine, SwiftTest Dispenser<br>Total Chlorine** | DPD                              | 0.02-2.00/0.1-8.0 mg/L Cl <sub>2</sub>                               | 125-250    | 97026-948 |
| Chlorine Dioxide*                                 | DPD/Glycine                      | 0.05-5.00 mg/L Cl <sub>2</sub>                                       | 100        | 97009-536 |
| Chromium, Hexavalent**                            | 1,5 Diphenylcarbohydrazide       | 0.01-0.70 mg/L Cr <sup>6+</sup>                                      | 100        | 97026-932 |
| Copper**                                          | Bicinchoninate                   | 0.04-5.00 mg/L Cu                                                    | 100        | 97026-972 |
| Dissolved Oxygen                                  | HRDO                             | 0.2-10.0 mg/L O <sub>2</sub>                                         | 25         | 97026-920 |
| Fluoride* **                                      | SPADNS                           | 0.1-2.0 mg/L†† F-                                                    | 25-50      | 89231-446 |
| Fluoride* **                                      | SPADNS2 (Arsenic-Free)           | 0.1-2.0 mg/L†† F-                                                    | 25-50      | 89231-412 |
| Iron, FerroVer®*                                  | FerroVer®                        | 0.02-5.00 mg/L Fe                                                    | 100        | 97026-934 |
| Iron, TPTZ                                        | TPTZ                             | 0.01-1.70 mg/L Fe                                                    | 100        | 97026-974 |
| Lead                                              | LeadTrak™ Fast Column Extraction | 5-150 µg/L Pb                                                        | 20         | 97026-914 |
| Manganese, HR**                                   | Periodate Oxidation              | 0.2-20.0 mg/L Mn                                                     | 100        | 97009-560 |
| Manganese, LR                                     | PAN                              | 0.01 - 0.70 mg/L Mn                                                  | 50         | 97026-936 |
| Molybdate                                         | Ternary Complex                  | 0.02-3.00/0.1-12.0 mg/L Mo <sup>6+</sup>                             | 100        | 97026-940 |
| Nickel & Cobalt                                   | PAN                              | 0.01-1.00 mg/L Ni/<br>0.02-2.00 mg/L Co                              | 100        | 97026-942 |
| Nitrate                                           | Cadmium Reduction                | 0.4-30.0 mg/L NO <sub>3</sub> -N                                     | 100        | 97009-558 |
| Ozone                                             | Indigo Trisulfonate              | 0.01-0.25/0.01-0.75 mg/L O <sub>3</sub>                              | 25-50      | 97026-916 |
| PCB in Soil                                       | Immunoassay                      | 1, 5, 10, 50 ppm thresholds                                          | 18         | 97027-078 |
| Phosphate* **                                     | PhosVer® 3                       | 0.02-3.00 mg/L PO <sub>4</sub>                                       | 100        | 97009-562 |
| Phosphonate                                       | Persulfate UV Oxidation          | 0.1-2.5/1-125 mg/L PO <sub>4</sub>                                   | 100        | 89231-448 |
| Silica                                            | Silicomolybdate                  | 1-100 mg/L SiO <sub>2</sub>                                          | 100        | 89231-452 |
| Sulfate**                                         | Turbidimetric                    | 2-70 mg/L SO <sub>4</sub>                                            | 100        | 97009-554 |
| TPH in Soil                                       | Immunoassay                      | 20, 50, 100, 200 ppm thresholds                                      | 18         | 97027-082 |
| TPH in Water                                      | Immunoassay                      | 2, 5, 10, 20 ppm thresholds                                          | 18         | 97027-084 |
| Zinc**                                            | Zincon                           | 0.02-3.00 mg/L Zn                                                    | 100        | 97009-434 |

\*Method is EPA compliant for drinking water (additional sample preparation steps may be required).

\*\*Method is EPA compliant for wastewater (additional sample preparation steps may be required).

† Colorimetric pH is not approved for regulatory reporting.

†† Greater sensitivity (0.01 mg/L) is achieved by substituting bottled SPADNS reagent solution for the AccuVac® ampules provided in the kit.

## How To Order Pocket Colorimeter™ II Generic Versions

Single-wavelength (generic) Pocket Colorimeter™ II Instruments measure absorbance at fixed wavelength. Create and store one or two calibrations for use in your application.

| Prod. No. | Description             |
|-----------|-------------------------|
| 97026 952 | Light Wavelength 420 nm |
| 97026 954 | Light Wavelength 450 nm |
| 97026 956 | Light Wavelength 500 nm |
| 97026 958 | Light Wavelength 528 nm |
| 97026 960 | Light Wavelength 550 nm |
| 97026 962 | Light Wavelength 580 nm |
| 97026 964 | Light Wavelength 600 nm |
| 97026 966 | Light Wavelength 655 nm |

### Accessories

|           |                                                |
|-----------|------------------------------------------------|
| 97009 482 | Pocket Colorimeter™ II Soft-Sided Case/Holster |
|-----------|------------------------------------------------|

### Prod. No. Description

#### SPEC✓ Secondary Standards

|           |                                                                      |
|-----------|----------------------------------------------------------------------|
| 97027 072 | Spec✓ Secondary Gel Standards Set for Monochloramine & Free Ammonia. |
| 97026 500 | Spec✓ Secondary Gel Standards Set, DPD Chlorine - LR                 |
| 97027 074 | Spec✓ Secondary Gel Standards Set, DPD Chlorine - HR                 |
| 97026 524 | Spec✓ Gel Secondary Standard Set, Ozone, Mid-Range                   |
| 97026 450 | Spec✓ Gel Secondary Standard Set, Fluoride                           |

# DR/800 Series Colorimeters



**Choose  
the DR/800  
Colorimeter  
that's right  
for you.  
See  
page 41.**

## Multi-parameter analysis in the palm of your hand!

- Easy to use software, pre programmed methods, and prepared reagents
- Datalogging capabilities
- Rugged, waterproof, hand held, multi parameter analysis!
- Choose from 3 Models:

### DR/820

Engineered to test for more than 20 parameters, this colorimeter includes all the features identified above. Ideal for testing programs that focus on basic water quality constituents, such as chlorine, iron, dissolved oxygen, and sulfate.

### DR/850

This colorimeter tests for more than 50 parameters and includes all the advanced capabilities listed above.

### DR/890

As the most complete, most capable of all the DR/800 Series, this colorimeter tests for more than 90 parameters, from aluminum to zinc. Use it for testing natural waters, industrial waters, and everything in between.

*The optional carrying case (shown at right) provides room for the instrument, all accessories, and additional reagent sets.*



Each DR/800 Series Colorimeter comes with two 1-inch glass sample cells marked at 10, 20, and 25 mL, two 1 cm plastic sample cells, a 16-mm COD/Test 'N Tube' adapter, 4 AA alkaline batteries, and illustrated instrument and procedure manuals. European CE mark.

| Prod. No. | Description                                   |
|-----------|-----------------------------------------------|
| 97009 580 | DR/820 Colorimeter<br>(approx. 20 parameters) |
| 97009 582 | DR/850 Colorimeter<br>(approx. 50 parameters) |
| 97009 588 | DR/890 Colorimeter<br>(approx. 90 parameters) |

See pages 42-43 for more information on tests each model can run.

#### Optional Accessories

|           |                                                |
|-----------|------------------------------------------------|
| 97009 484 | DR/Check Absorbance Standard Kit<br>(Set of 4) |
| 97009 526 | Instrument Carrying Case, soft-sided           |

# 2100 Series Laboratory Turbidimeter



**Enhanced performance for the demanding user.**

**EPA  
COMPLIANT**

## Color Measurement (2100AN only)

Interchangeable color filters allow APHA Platinum Cobalt color measurement.

## Easy Calibration

Display prompts the analyst for each standard and automatically adjusts the curve as needed.

## Ratio and Non-Ratio Measurement Modes

Ratio measurement (1) corrects for color interference, (2) enhances long-term calibration stability, and (3) allows the measurement of turbidity at levels greater than 1,000 NTU. With ratio toggled off, turbidity is measured using only the single 90-degree detector.



See next page for ordering information.

|                               | 2100AN Turbidimeter                                                                                                                                                                                                                                                                           | 2100N Turbidimeter                                                                                                                                                   |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Applications</b>           | Monitoring and regulatory reporting of turbidity in drinking water, wastewater, and process water. Monitoring and quality control of chemicals and pharmaceuticals, highly colored samples and samples with high turbidity. Flow Cell accessories allow automatic or semiautomatic operation. | Monitoring and regulatory reporting of turbidity in drinking water, wastewater, and process water. Flow Cell accessories allow automatic or semiautomatic operation. |
| <b>Principle of Operation</b> | Nephelometric Ratio Selectable on or off                                                                                                                                                                                                                                                      |                                                                                                                                                                      |
| <b>Measurement Modes</b>      | Select NTU, EBC, Nephelo, ABS, %T, or CU                                                                                                                                                                                                                                                      | Select NTU, EBC or Nephelo                                                                                                                                           |
| <b>Ranges</b>                 |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                      |
| NTU Mode                      | RATIO ON: Manual 0-0.999, 0-9.99, 0-99.9, 0-10,000;<br>Auto 0-10,000 auto decimal<br>RATIO OFF: 0-40.0                                                                                                                                                                                        | RATIO ON: Manual 0-0.999, 0-9.99, 0-99.9, 0-4000;<br>Auto 0-4000 auto decimal<br>RATIO OFF: 0-40.0                                                                   |
| Absorbance                    | Manual: 0 to 0.999 ABS, 0 to 2.00 ABS;<br>Auto: 0 to 2.00 ABS                                                                                                                                                                                                                                 | —                                                                                                                                                                    |
| Transmittance                 | Range: 1.0 to 100 %T; Resolution: 0.1 %T                                                                                                                                                                                                                                                      | —                                                                                                                                                                    |
| Color (at 455 nm)             | Range: 0 to 500 CU; Resolution: 1 CU                                                                                                                                                                                                                                                          | —                                                                                                                                                                    |
| <b>Accuracy*</b>              |                                                                                                                                                                                                                                                                                               |                                                                                                                                                                      |
| Turbidity                     | ± 2% of reading plus 0.01 NTU from 0 to 1000 NTU<br>± 5% of reading from 1000 to 4000 NTU<br>± 10% of reading from 4000 to 10,000 NTU                                                                                                                                                         | ± 2% of reading plus 0.01 NTU from 0 to 1000 NTU<br>± 5% of reading from 1000 to 4000 NTU                                                                            |
| Color Measurements†           | ± 2 CU from 0-30 (calibrated at 15 CU)<br>± 5 CU from 0-500 (calibrated at 500 CU)                                                                                                                                                                                                            | —<br>—<br>—                                                                                                                                                          |
| ABS (Photometric Linearity)†  | ± 0.005 ABS from 0-1 ABS at 455 nm                                                                                                                                                                                                                                                            | —                                                                                                                                                                    |
| %T (Photometric Linearity)†   | ± 0.12%T from 10 to 100 %T at 455 nm                                                                                                                                                                                                                                                          | —                                                                                                                                                                    |
| <b>Resolution</b>             | 0.001 on lowest range                                                                                                                                                                                                                                                                         |                                                                                                                                                                      |
| <b>Light Source</b>           | 2100N and 2100AN: Tungsten lamp<br>2100N IS and 2100AN IS: Infrared light emitting diode (LED) 860 ±30nm                                                                                                                                                                                      |                                                                                                                                                                      |
| <b>Sample Cells</b>           | Six, 95-mm x 25-mm (3.74" x 1")                                                                                                                                                                                                                                                               |                                                                                                                                                                      |
| <b>Built-in Printer</b>       | Built-in 28 column thermal printer                                                                                                                                                                                                                                                            | —                                                                                                                                                                    |
| <b>Serial Input/Output</b>    | RS232 serial interface (bidirectional)                                                                                                                                                                                                                                                        |                                                                                                                                                                      |
| <b>Warranty</b>               | 2 Years                                                                                                                                                                                                                                                                                       |                                                                                                                                                                      |

\* Reference conditions: 23 ±2°C, 50% Relative Humidity ±10% Relative Humidity Noncondensing, 115/230 Vac, 50/60 Hz.

† Flow cell required to achieve cited specifications.

# 2100 Series Laboratory Turbidimeter



*Hach Flow Cells eliminate the time-consuming task of matching sample cells. Additional Color Filter Modules for the 2100AN Turbidimeter provide a variety of color measurement methods for specialized applications. Sample preparation tools include a sample degassing kit and a sample filtration and degassing kit.*

## 2100 Series Laboratory Turbidimeters

Each instrument is supplied with six sample cells, a complete set of StablCal® Primary Calibration Standards in sealed vials, silicone oil and oiling cloth, dust cover, instrument and operations manuals, and a power cord. Model 2100AN also includes a 455 nm filter for Pt-Co color measurement. Models 2100AN and AN IS also include printer paper.

*IMPORTANT: for EPA reporting purposes, order 2100N or 2100AN models only. The IS versions are not EPA compliant.*

### Prod. No. Description

#### EPA Compliant

**97009-598 2100N Laboratory Turbidimeter**  
110/220 Vac, with a North American power cord and a fuse.

**97009-600 2100AN Laboratory Turbidimeter**  
110/220 Vac, with a North American power cord and a fuse.

### Prod. No. Description

#### Accessories

**97009-578** Kit, Manual Flow Cell  
**97009-586** Kit, Automated Flow Cell, 115 Vac  
**97026-912** Kit, Automated Flow Cell, 230 Vac  
**97009-476** Kit, Sample Degassing  
**97009-486** Kit, Sample Filtration & Degassing  
**89231-104** Branson Ultrasonic Bath for cleaning cells  
**97009-480** Color Filter Module for 410 nm wavelength  
**97009-444** Color Filter Module for 500 nm wavelength  
**97009-450** Color Filter Module for 810 nm wavelength  
**97026-910** Cell Adapter for 12 and 13 mm vials  
**97009-544** StablCal Set for 2100N/N IS  
**97009-548** StablCal Set for 2100AN/AN IS  
**97027-028** Gelex Secondary Standard Set for 2100N/N IS  
**97027-026** Gelex Secondary Standard Set for 2100AN/AN IS  
**97026-754** Sample Cells, 1" round glass, 30 mL with cap, qty/6  
**97026-772** Polishing Cloth  
**97026-738** Silicone Oil  
**97026-926** Lamp Replacement Kit for 2100N and 2100AN

## Easiest calibration & verification with accurate results every time!

### Easy On-Screen Assisted Calibration and Verification

Save time and get accurate results with an easy-to-follow interface that eliminates the need for complicated manuals to perform routine calibrations. Single-standard RapidCal™ calibration offers a simplified solution for low-level measurement, while ensuring you meet reporting requirements.

### Simple Data Transfer

Customizable power and connectivity modules enable smooth data transfer and flexibility. Optional USB+Power Module allows data download to any computer via USB port.

### Accuracy for Rapidly Settling Samples

The innovative Rapidly Settling Turbidity™ mode provides accurate measurements for difficult-to-measure, rapidly settling samples. An exclusive algorithm that calculates turbidity based on a series of automatic readings eliminates redundant measurements and estimating.

### Convenient Data Logging

Up to 500 measurements are automatically stored for easy access and backup, including: date and time, operator ID, reading mode, sample ID, sample number, units, calibration time, calibration status, error messages, and the result.

The 2100Q Portable Turbidimeter offers a unique combination of advanced features, such as easy calibration and simplified data transfer, and measurement innovation for rapidly settling samples, giving you confidence you're getting accurate results every time.



**EPA  
COMPLIANT**

## Customize Power and Connectivity with Flexible Modules

### Power Module (97049-286)

- Allows the 2100Q and 2100Qis to operate on line power (includes universal power adapter).

### USB+Power Module (97049-284)

- Allows linepower: 110-230 Vac, 50/60 Hz
- Charges NiMH batteries
- Transfers data to Citizen PD-24 printer
- Transfers data to computer without additional software (stored in module in XML format)
- Enables firmware updates
- Allows simple entry of Sample and User IDs with optional barcode scanner

| Features                                                                      | Previous<br>2100P<br>Turbidimeter | 2100Q<br>Turbidimeter |
|-------------------------------------------------------------------------------|-----------------------------------|-----------------------|
| On-screen, assisted operation                                                 |                                   | ✓                     |
| Single Step Calibration Function                                              |                                   | ✓                     |
| RapidCal™ Single Standard Calibration                                         |                                   | ✓                     |
| RST Feature for improved accuracy and precision with rapidly settling samples |                                   | ✓                     |
| Data log                                                                      |                                   | ✓                     |
| Data Transfer without special software                                        |                                   | ✓                     |
| Two-detector Optical System                                                   | ✓                                 | ✓                     |
| Range: 0-1000 NTU                                                             | ✓                                 | ✓                     |
| Resolution: 0.01 on lowest range                                              | ✓                                 | ✓                     |



See next page for ordering information.

# 2100Q Portable Turbidimeter

## Specifications\*

### Measurement Method

Ratio turbidimetric determination using a primary nephelometric light scatter signal (90°) and transmitted light scatter signal.

### Regulatory

2100Q: Meets EPA Method 180.1  
2100Qis: Meets ISO 7027

### Range

0 - 1000 NTU (FNU)

### Light Source

2100Q: Tungsten filament lamp  
2100Qis: LED at 860 nm

### Accuracy

± 2 % of reading plus stray light

### Repeatability

± 1 % of reading, or 0.01 NTU (FNU), whichever is greater

### Signal Averaging

Selectable on/off

### Resolution

0.01 NTU (FNU) on lowest range

### Stray Light

< 0.02 NTU (FNU)

### Reading Mode (User-Selectable)

Normal (Push to Read)  
Signal Averaging  
Rapidly Settling Turbidity

### Calibration Options

Single-standard RapidCal™ for 0 - 40 NTU (FNU)  
Full-range calibration from 0-1000 NTU (FNU)  
Calibration to degrees of turbidity  
Custom

### Calibration Logger

Records the last 25 successful calibrations

### Verification Logger

Logs the last 250 successful verifications

### Data Logger

500 records

### Enclosure Rating (IP)

IP67 (closed lid, battery and module compartments excluded)

### Sample Requirements

15 mL (0.5 oz.)

### Power Options

AC 100-240V, 50/60 Hz  
(with Power Module or USB+Power Module)  
4 AA alkaline batteries  
4 AA NiMH batteries (rechargeable with USB+Power Module)

### Certifications

CE certified

### Interface

Optional USB

### Dimensions (H x W x D)

7.7 cm x 10.7 cm x 22.9 cm  
3.0 in x 4.2 in x 9.0 in

### Weight

530 g (1.17 lbs) without batteries  
620 g (1.37 lbs) with 4 AA alkaline batteries

\*Subject to change without notice.



Portable turbidimeters are supplied with four AA alkaline batteries, a carrying case with insert, primary calibration standards in 1" sealed vials (20, 100, 800 NTU), 10 NTU primary verification standard, 6 sample cells with screw-tops, instrument manual (printed and CD-ROM), quick start guide, silicone oil and oiling cloth.

| Prod. No. | Description                                             |
|-----------|---------------------------------------------------------|
| 97049 281 | 2100Q Portable Turbidimeter<br>(meets EPA Method 180.1) |

### Optional Accessories

|           |                                                                                                                        |
|-----------|------------------------------------------------------------------------------------------------------------------------|
| 97049 284 | USB+Power Module<br>Includes module, universal power supply, standard USB cable, special USB cable adapter, and manual |
| 97049 286 | Power Module<br>Includes module, universal power supply, and manual                                                    |

| Prod. No. | Description                                                                                                                                                                                                                                                                                                                                                                          |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 89174 092 | Printer<br>Includes printer, universal power supply, 115V North American power cord, RS-232 cable and gender adapter, USB cable, battery pack, one roll of thermal paper, and instruction manual. Compatible with 2100Q Portable Turbidimeters (USB+Power Module required), HQd Series Water Quality Meters, DR Spectrophotometers with USB interface, and the BODTrak II Apparatus. |
| 97027 030 | Gelex Secondary Standard Set                                                                                                                                                                                                                                                                                                                                                         |
| 89231 198 | NiMH Batteries, AA, pk/4<br>Rechargeable with USB+Power Module                                                                                                                                                                                                                                                                                                                       |
| 97009 476 | Degassing Kit                                                                                                                                                                                                                                                                                                                                                                        |

## StablCal® Stabilized Formazin Primary Standards

- No preparation of formazin stock
- No dilutions
- Minimal handling
- No special glassware or difficult lab techniques
- StablCal can be used to calibrate a turbidimeter made by any manufacturer

StablCal Stabilized Formazin Standards are true formazin dilutions developed for use in any turbidimeter. With proprietary manufacturing technology, Hach prepares StablCal standards in precise concentrations for conventional turbidimeters. Monitor high-quality treated drinking water, wastewater effluent, or an industrial process stream with complete confidence in the results with Hach StablCal Stabilized Formazin Standards.

StablCal standards are equivalent in performance to formazin primary standards, but require no special preparation, saving precious time in the laboratory. Calibration of turbidimeters with StablCal can be done quickly and accurately.

### Individual Values for All Turbidimeters

Prod. No. Description

#### <0.1 NTU Value

97026 424 StablCal® Turbidity Standard, < 0.1 NTU, 100 mL

97026 434 StablCal® Turbidity Standard, < 0.1 NTU, 500 mL

#### 0.1 NTU Value

97026 386 StablCal® Turbidity Standard, 0.10 NTU, 100 mL

#### 0.3 NTU Value

97026 426 StablCal® Turbidity Standard, 0.30 NTU, 100 mL

#### 0.5 NTU Value

97026 388 StablCal® Turbidity Standard, 0.50 NTU, 100 mL

#### 1 NTU Value

97026 472 StablCal® Turbidity Standard, 1.0 NTU, 100 mL

97026 166 StablCal® Turbidity Standard, 1.0 NTU, 500 mL

#### 10 NTU Value

97026 416 StablCal® Turbidity Standard, 10 NTU, 100 mL

97026 452 StablCal® Turbidity Standard, 10 NTU, 500 mL

#### 20 NTU Value

97026 458 StablCal® Turbidity Standard, 20 NTU, 100 mL

97026 436 StablCal® Turbidity Standard, 20 NTU, 500 mL

#### 100 NTU Value

97026 390 StablCal® Turbidity Standard, 100 NTU, 100 mL

97026 474 StablCal® Turbidity Standard, 100 NTU, 500 mL

#### 200 NTU Value

97026 396 StablCal® Turbidity Standard, 200 NTU, 100 mL

97026 456 StablCal® Turbidity Standard, 200 NTU, 500 mL

#### 800 NTU Value

97026 398 StablCal® Turbidity Standard, 800 NTU, 100 mL

97026 476 StablCal® Turbidity Standard, 800 NTU, 500 mL

#### 1000 NTU Value

97026 392 StablCal® Turbidity Standard, 1000 NTU, 100 mL

#### 4000 NTU Value

97026 512 Formazin Turbidity Standard, 4000 NTU, 100 mL

#### 7500 NTU Value

97026 498 StablCal® Turbidity Standard, 7500 NTU,

Sealed Vial Standard

### StablCal® Calibration Kits

Prod. No. Description

#### For the 2100Q 20, 100, 800, 10 (for verification) NTU

97049 282 Set of StablCal Sealed Vial Standards

97049 292 100 mL bottles

97049 290 500 mL bottles

#### For the 2100P <0.1, 20, 100, 800 NTU

97009 528 StablCal® Turbidity Standards Calibration Kit,

2100P Portable Turbidimeter, Sealed Vials

97009 550 StablCal® Turbidity Standards Calibration Set,

2100P Portable Turbidimeter, 100 mL bottles

97026 814 StablCal® Turbidity Standards Calibration Kit,

2100P Portable Turbidimeter, 500 mL bottles

#### For the 2100N/N IS <0.1, 20, 200, 1000, 4000 NTU

97009 544 StablCal Set for 2100N/N IS

97009 552 StablCal® Turbidity Standards Calibration Kit,

2100N / N IS Turbidimeter, 100 mL bottles

97026 812 StablCal® Turbidity Standards Calibration Kit,

2100N / N IS Turbidimeter, 500 mL bottles

#### For the 2100AN/AN IS <0.1, 20, 200, 1000, 4000, 7500 NTU

97009 548 StablCal Set for 2100AN/AN IS

97009 534 StablCal® Turbidity Standards Calibration Kit,

2100AN / AN IS Turbidimeter, 100 mL bottles

97026 810 StablCal® Turbidity Standards Calibration Kit,

2100AN / AN IS Turbidimeter, 500 mL bottles

#### 2100A 1.0, 10, 100, 1000 NTU

97026 806 StablCal® Turbidity Standards Calibration Kit,

2100A Turbidimeter, Sealed Vials

97027 068 StablCal® Turbidity Standards Calibration Kit,

2100A Turbidimeter, 100 mL bottles

#### ULR Verification Set\* 0.1, 0.3, 0.5, 1.0 NTU

89231 424 StablCal® ULR Verification Kit, 100 mL

### Gelex Secondary Standards

Prod. No. Description

97027 030 Gelex Secondary Standard set

97027 028 Gelex Secondary Standard Set for 2100N/N IS

97027 026 Gelex Secondary Standard Set for 2100AN/AN IS

\*For verification only. Not for calibration.



StablCal® Stabilized Formazin Turbidity Standards are available in 100 mL, 500 mL, 1L, and 1 gallon bottles, or in convenient sealed vials. Sets are available that include the specific range of NTU values needed to calibrate any turbidimeter.

# AutoCAT™ 9000 Titrator

Revolutionary instrument for automatic amperometric titrations.

**EPA  
COMPLIANT**



- Automatic calculation of analyte concentration
- Automatic "hands free" operation
- Easy to use interface
- Real time graphics and graphic print output
- Automatic archiving of results
- Titrant calibration
- Electrode cleaning
- Greater accuracy and precision than manual titrations

## Built-In Titrant standardization Procedures

Users are guided through the standardization of the titrant with methods built into the instrument. Titrant concentration is automatically updated after standardization and can also be entered from the Certificate of Analysis (downloadable from [www.hach.com](http://www.hach.com)), for the specific lot of titrant used.

## Automated EPA Approved Methods

The AutoCAT automates the USEPA approved amperometric titration procedures for chlorine, chlorine dioxide, and chlorite determinations as described in "Standard Methods for the Examination of Water and Wastewater." Sample preparation is presented to the user in easy to understand screen displays. When the titration begins, the titration is entirely "hands-off."

## The AutoCAT 9000 has the following USEPA approved methods:

- Forward titration for Free Chlorine, 0.1 to 5 mg/L (Standard Method 4500-Cl D. 4b)
- Forward titration for Total Chlorine, 1.2 µg/L to 5 mg/L (Standard Method 4500-Cl D. 4d)
- Back titration for Total Chlorine, 5.1 µg/L to 5 mg/L (Standard Method 4500-Cl C.)
- Chlorine Dioxide with Chlorite, 0.1 to 5 mg/L (Standard Method 4500-ClO<sub>2</sub> E.)
- Sulfite (as SO<sub>2</sub>, Sodium Bisulfite)

The AutoCAT ships complete with all accessories necessary for free and total chlorine titrations, including burette, dual platinum electrode, temperature sensor, stir bar, plus all tubing and reagents. Please see below for required reagents for chlorine dioxide/chlorite, or for back total chlorine methods, and accessories.

## Specifications\*

**Electrode**  
Dual platinum

**Display**  
Real-time graphics, menu driven, LCD

**Power Requirements**  
90/264 Vac, 47/63 Hz, 115 VA

**Dimensions (H x W x D)**  
38 cm x 23 cm x 45 cm (H x W x D)  
(15 x 9 x 17.7")

**Output**  
RS-232 Serial output to printer/PC

**Languages**  
English, French, and Spanish

**Enclosure**  
Splashproof, with alphanumeric keypad

\*Subject to change without notice.

| Prod. No. | Description  |
|-----------|--------------|
| 97027 098 | AutoCAT 9000 |

## Additional Required Chlorine Dioxide/Chlorite Method Reagents

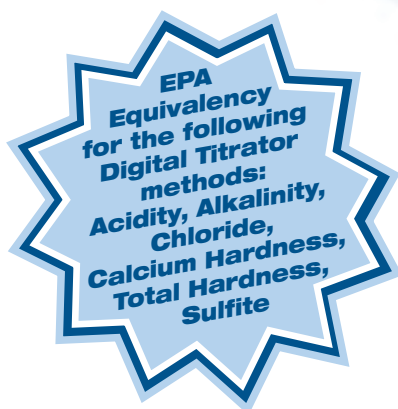
|           |                                                        |
|-----------|--------------------------------------------------------|
| 97026 604 | Hydrochloric Acid Standard Solution, 2.5 N, 100 mL MDB |
| 97026 588 | Potassium Iodide, ACS, 100 g                           |

## Additional Required Total Chlorine Back Titration Method

|           |                                         |
|-----------|-----------------------------------------|
| 97026 296 | Iodine Standard Solution, 0.0282 N, 1 L |
|-----------|-----------------------------------------|

## Accurate, convenient titrations without the bulk, fragility, or waste of a conventional buret.

- Faster than a buret
- Rugged design
- 20 parameters
- Interchangeable cartridges



### Digital Titrator: Fast, Precise, Economical

#### Precise, less technique-sensitive

Digital Titrator automatically calculates precise volume of titrant dispensed.

#### End-point easier to determine

The number used for calculation of sample concentration is recorded directly from the Digital Titrator's digital counter. For many methods, the displayed value is the concentration.

#### Saves time

Titration cartridges can be changed in seconds and eliminate glassware clean up before and after titration.

#### No cross contamination

Cartridges are always fresh and sealed against outside contamination.

#### Economical

Cartridges contain strong, concentrated reagents, so low volumes are used—waste is minimal.

#### Portable

With the Digital Titrator, titrations can be performed in the lab, the manufacturing plant, or the field.

### Problems with Buret Technique

Buret technique is dependent on operator skill.

Operator must examine level of buret to determine volume dispensed, a technique subject to visual interpretation.

Titration solutions must be prepared and measured, and all glassware must be acid-washed, rinsed with DI water, and dried.

Improper handling of reagent solutions and even slightly soiled glassware can compromise results.

Buret reagents are formulated with chemicals of low concentration and subsequently require higher volumes. Ratio of standard titrant to Digital Titrator cartridge is approximately 80:1.

Buret glassware cannot be safely transported to the plant or field.

Buret titrations require glass buret, buret stand, buret clamp, and funnel for filling.

| Prod. No.  | Description                                                                                                                                                                                  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 97026 774  | Digital Titrator<br>Includes hard-sided carrying case, a manual, and five straight delivery tubes                                                                                            |
| 89231 440  | Delivery tubes, 90° with J-hook, 5/pk                                                                                                                                                        |
| 97027 100  | Delivery Tubes for Digital Titrator                                                                                                                                                          |
| 97026 760  | Digital Titrator Cartridge Assembly, Empty                                                                                                                                                   |
| <b>Kit</b> |                                                                                                                                                                                              |
| 97026 256  | Test Kit, Universal Digital Titrator<br>Includes Digital Titrator, manual, 10-mL graduated cylinder, 125 - and 250-mL Erlenmeyer flasks, demineralizer bottle, clippers and a carrying case. |

See next page for Accessories.

### Specifications\*

#### DIGITAL TITRATOR

##### Delivery

800 digits/mL or 0.00125 mL/digit

##### Accuracy

± 1 % (Uncertainty of readings is 1 digit. Most samples require more than 100 digits)

##### Weight

90/264 Vac, 47/63 Hz, 115 VA

#### CARTRIDGES

##### Volume

13 mL

##### Number of Tests

Most reagents are formulated to provide 100 typical titrations, but number may vary depending on sample concentration.

##### Weight

56.75 g (2 oz)

\*Subject to change without notice.

# Digital Titrator Accessories

## TitraStir® Continuous Mixer/Stand

The Digital Titrator can be hand-held, or you can attach it to this convenient laboratory stand. The TitraStir Titration Stand is a single-speed, magnetic stirring plate with a built-in support rod and custom holder for the Digital Titrator. Titration flasks rest on a white disc, so color changes are easy to see, and the support rod can be used to attach clamps, rings and other hardware.

### Prod. No. Description

#### Accessories

- 1940000** TitraStir™ Stand, 115 Vac  
Includes power cord, support rod and mounting hardware, holder for Digital Titrator assembly (or other apparatus), glass disc, and stir bar. Digital Titrator not included.



### Specifications\*

**Dimensions (H x W x D)**  
6.4 x 15.2 x 22.9 cm (2.5 x 6 x 9")

**Weight**  
132 g (4.7 oz)

**Power Requirements**  
115 or 230 vac, 50/60 Hz, 20 VA

*\*Subject to change without notice.*



Over 40 ready to use  
titrant solutions  
available.

### EPA Equivalent Cartridges

|                                | Method                    | Range                                      | Titrant                                    | Prod. No. |
|--------------------------------|---------------------------|--------------------------------------------|--------------------------------------------|-----------|
| Acidity <sup>1</sup>           | Methyl Orange             | 1 - 4,000 mg/L CaCO <sub>3</sub>           | 1.600 N NaOH                               | 89231-292 |
| Alkalinity, Total <sup>2</sup> | Bromcresol/Methyl Red     | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.1600 N H <sub>2</sub> SO <sub>4</sub>    | 97026-506 |
| Alkalinity, Total <sup>2</sup> | Bromcresol/Methyl Red     | 1 - 10 meq/L Base                          | 1.600 N H <sub>2</sub> SO <sub>4</sub>     | 97026-514 |
| Aqua Ammonia                   | Colorimetric pH End Point | 5 - 35 % as NH <sub>3</sub>                | 8.00 N H <sub>2</sub> SO <sub>4</sub>      | 97026-646 |
| Chloride <sup>3</sup>          | Mercuric Nitrate          | 10 - 160 mg/L Cl <sup>-</sup>              | 0.2256 N Hg(NO <sub>3</sub> ) <sub>2</sub> | 97026-694 |
| Chloride <sup>3</sup>          | Mercuric Nitrate          | 100 - 8,000 mg/L Cl <sup>-</sup>           | 0.256 N Hg(NO <sub>3</sub> ) <sub>2</sub>  | 97026-360 |
| Hardness, Calcium <sup>4</sup> | EDTA (ManVer® 2)          | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.0800 M EDTA                              | 97026-590 |
| Hardness, Total <sup>5</sup>   | EDTA (CalVer® 2)          | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 0.800 M EDTA                               | 97026-602 |
| Sulfite <sup>6</sup>           | Iodate-Iodide             | 0 - 800 mg/L SO <sub>3</sub> <sup>2-</sup> | 0.3998 N KIO <sub>3</sub> -KI              | 97026-236 |

<sup>1</sup> Equivalent to Standard Method 2310 B (4a), 18th, 19th, 20th, and online edition.

<sup>2</sup> Equivalent to Standard Methods 2320 B, 18th, 19th, 20th, and online edition.

<sup>3</sup> Equivalent to Standard Methods 4500-Cl C, 18th, 19th, 20th, and online edition.

<sup>4</sup> Equivalent to Standard Methods 3500-Ca D, 18th, 19th, 20th, and online edition.

<sup>5</sup> Equivalent to Standard Methods 2340 B or C, 18th, 19th, 20th, and online edition.

<sup>6</sup> Equivalent to Standard methods 4500-SO<sub>3</sub> B, 18th, 19th, 20th, and online edition.

\* Not for delivery to Connecticut.

# Digital Titrator Cartridges and Reagent Sets

| Parameter                   | Method                       | Range                                      | Titrant                                                 | Cart. Prod. No. |
|-----------------------------|------------------------------|--------------------------------------------|---------------------------------------------------------|-----------------|
| Acid-Base                   | Phenolphthalein End Point    | 10 - 4,000 meq/L Acid                      | 8 N NaOH                                                | 97026-606       |
| Acid-Base                   | Phenolphthalein End Point    | 1 - 10 meq/L Base                          | 1.600 N H <sub>2</sub> SO <sub>4</sub>                  | 97026-514       |
| Acid-Base                   | Phenolphthalein End Point    | 10 - 4,000 meq/L Base                      | 8.00 N H <sub>2</sub> SO <sub>4</sub>                   | 97026-646       |
| Acid-Base                   | Phenolphthalein End Point    | 10 - 4,000 meq/L Base                      | 8.00 N HCl                                              | 97026-546       |
| Alkalinity                  | Phenolphthalein              | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.1600 N H <sub>2</sub> SO <sub>4</sub>                 | 97026-506†      |
| Alkalinity                  | Phenolphthalein              | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 1.600 N H <sub>2</sub> SO <sub>4</sub>                  | 97026-514†      |
| Alkalinity, Total           | Phenolphthalein              | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.1600 N H <sub>2</sub> SO <sub>4</sub>                 | 97026-506†      |
| Alkalinity, Total           | Bromocresol/Methyl Red       | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 1.600 N H <sub>2</sub> SO <sub>4</sub>                  | 97026-514†      |
| Aqua Ammonia                | Bromocresol/Methyl Red       | 5 - 35 % as NH <sub>3</sub>                | 8.00 N H <sub>2</sub> SO <sub>4</sub>                   | 97026-646†      |
| Carbon Dioxide              | Colorimetric pH End Point    | 10 - 100 mg/L CO <sub>2</sub>              | 0.3636 N NaOH                                           | 97026-240       |
| Carbon Dioxide              | Phenolphthalein              | 100 - 1,000 mg/L CO <sub>2</sub>           | 3.636 N NaOH                                            | 97026-488       |
| Chelant, Free               | Phenolphthalein              | 0 - 20.0 mg/L CaCO <sub>3</sub>            | 0.0800 M MgCl <sub>2</sub>                              | 97026-348       |
| Chelant, Total              | Magnesium Chloride           | 0 - 40 mg/L Na <sub>4</sub> EDTA           | 0.0200M Bi(NO <sub>3</sub> ) <sub>3</sub>               | 97026-226       |
| Chloride                    | Bismuth Nitrate              | 10 - 160 mg/L Cl <sup>-</sup>              | 0.2256 N Hg(NO <sub>3</sub> ) <sub>2</sub>              | 97026-694†      |
| Chloride                    | Mercuric Nitrate             | 10 - 160 mg/L Cl <sup>-</sup>              | 0.2256 N AgNO <sub>3</sub>                              | 97026-232       |
| Chloride                    | Silver Nitrate               | 100 - 10,000 mg/L Cl <sup>-</sup>          | 1.128 N AgNO <sub>3</sub>                               | 97026-710       |
| Chloride                    | Silver Nitrate               | 100 - 8,000 mg/L Cl <sup>-</sup>           | 0.256 N Hg(NO <sub>3</sub> ) <sub>2</sub>               | 97026-360†      |
| Chlorine, Free              | Mercuric Nitrate             | 0 - 1,000 µg/L Cl <sub>2</sub>             | 0.00564 N PAO                                           | 97026-230       |
| Chlorine, Free              | Amperometric, Forward        | 0 - 3.00 mg/L Cl <sub>2</sub>              | 0.00564 N FEAS                                          | 97026-252       |
| Chlorine, Total             | DPD-FEAS                     | 6 µg/L - 1,000 Cl <sub>2</sub>             | 0.028 N Iodine                                          | 97026-228       |
| Chlorine, Total             | Amperometric, Black          | 0 - 1,000 µg/L Cl <sub>2</sub>             | 0.00564 N PAO                                           | 97026-230       |
| Chlorine, Total             | Amperometric, Forward        | 0 - 3.00 mg/L Cl <sub>2</sub>              | 0.00564 N FEAS                                          | 97026-252       |
| Chlorine, Total             | DPD-FEAS                     | 1 - 400 mg/L Cl <sub>2</sub>               | 0.02256 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> | 97026-550       |
| Chlorine, Total             | Iodometric                   | 20 - 2,000 mg/L                            | 0.113 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>   | 97026-432       |
| Chlorine, Total             | Iodometric                   | 2,000 - 70,000 mg/L Cl <sub>2</sub>        | 2.00 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>    | 97026-242       |
| Chromate                    | Iodometric                   | 20 - 400 mg/L CrO <sub>4</sub>             | 0.2068 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>  | 97026-496       |
| Hardness, Calcium           | Iodometric                   | 1 - 16 G.d.h.                              | 0.1428 M EDTA                                           | 97026-560       |
| Hardness, Calcium           | EDTA (CalVer® 2)             | 10 - 200 G.d.h.                            | 0.714 M EDTA                                            | 97026-528       |
| Hardness, Calcium           | EDTA (CalVer® 2)             | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.0800 M EDTA                                           | 97026-590†      |
| Hardness, Calcium           | EDTA (CalVer® 2)             | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 0.800 M EDTA                                            | 97026-602†      |
| Hardness, Total             | EDTA (CalVer® 2)             | 1 - 16 G.d.h.                              | 0.1428 M EDTA                                           | 97026-560       |
| Hardness, Total             | EDTA (ManVer® 2)             | 10 - 200 G.d.h.                            | 0.714 M EDTA                                            | 97026-528       |
| Hardness, Total             | EDTA (ManVer® 2)             | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.0800 M EDTA                                           | 97026-590       |
| Hardness, Total             | EDTA (ManVer® 2)             | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 0.800 M EDTA                                            | 97026-602       |
| Hardness, Total, Sequential | EDTA (ManVer® 2)             | 1 - 16 G.d.h.                              | 0.1428 M EDTA                                           | 97026-560       |
| Hardness, Total, Sequential | EDTA (CalVer® 2 & ManVer® 2) | 10 - 200 G.d.h.                            | 0.714 M EDTA                                            | 97026-528       |
| Hardness, Total, Sequential | EDTA (CalVer® 2 & ManVer® 2) | 10 - 160 mg/L CaCO <sub>3</sub>            | 0.0800 M EDTA                                           | 97026-590       |
| Hardness, Total, Sequential | EDTA (CalVer® 2 & ManVer® 2) | 100 - 4,000 mg/L CaCO <sub>3</sub>         | 0.800 M EDTA                                            | 97026-602       |
| Hypochlorite                | EDTA (CalVer® 2 & ManVer® 2) | 50 - 150 g/L Cl <sub>2</sub>               | 2.26 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>    | 97026-356       |
| Iron                        | Iodometric Method            | 10 - 100 mg/L Fe                           | 0.0716 M EDTA                                           | 97026-548       |
| Iron                        | EDTA                         | 100 - 1,000 mg/L Fe                        | 0.716 M EDTA                                            | 97026-246       |
| Nitrite                     | EDTA                         | 100 - 2,500 mg/L NaNO <sub>2</sub>         | 0.5 N Ceric Ion                                         | 97026-234       |
| Oxygen, Dissolved           | Ceric Ion Titration          | 1 - 10 mg/L O <sub>2</sub>                 | 0.200 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>   | 97026-536       |
| Oxygen, Dissolved           | Azide mod. of Winkler Method | 10 - 100 mg/L DO                           | 2.00 N Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>    | 97026-242       |
| Salinity                    | Azide mod. of Winkler Method | 0 - 100 ppt salinity                       | 2.570 N Hg(NO <sub>3</sub> ) <sub>2</sub>               | 97026-486       |
| Sulfite                     | Mercuric Nitrate             | 0 - 800 mg/L SO <sub>3</sub> <sup>2-</sup> | 0.3998 N KIO <sub>3</sub> -KI                           | 97026-236       |
| Volatile Acids              | Iodate-Iodide                | 100 - 2,400 mg/L CH <sub>3</sub> COOH      | 0.9274 N NaOH                                           | 97026-238       |

†Not for delivery to Connecticut.

# Digesdahl® Digestion Apparatus



## Cut digestion time to 10 minutes!

- Accurate, reliable, fast results\*
- Eliminates metal catalysts
- Very low reagent use
- No fume hood required

Cut digestion time to 10 minutes with the patented Digesdahl Digestion Apparatus. Use the Digesdahl to determine Kjeldahl nitrogen (crude protein), phosphorus, calcium, potassium, iron, copper, silver, aluminum, nickel, cobalt, magnesium, manganese, lead, zinc, cadmium, and chromium in a variety of solid and liquid samples.

The system uses sulfuric acid and hydrogen peroxide to rapidly digest organic materials. Quantitative dilution directly in the digestion flask allows fast preparation for analyses by photometric or other methods.

A water aspirator purges reaction products, so digestions can be safely completed behind the optional safety shield without the need for a fume hood.

*\*Digesdahl digestion methods are not approved for EPA reporting purposes.*

### Specifications\*

#### Power Requirements

115 or 230 Vac, 50/60 Hz, 250 watts

#### Control

Variable from 25-250 watts

#### Construction

Corrosion-resistant, epoxy-painted metal with composition heater base

#### Dimensions

14 x 16.5 x 33.6 cm (5.5 x 6.5 x 13.25") Requires total height clearance of approximately 50 cm (20") when assembled

#### Net Weight

3.85 kg (8.5 lb)

#### Shipping Weight

4.8 kg (10.6 lb)

*\*Subject to change without notice.*

Each Digesdahl unit includes two digestion flasks, a fractionating column and capillary funnel, an aspirator, finger cots, safety glasses, and assembly instructions.

#### Prod. No. Description

**89231-034** Digesdahl Digestion Apparatus  
115 Vac, 50/60 Hz

**89231-206** Safety Shield

**89231-014** Hydrogen Peroxide Pour-out Dispenser,  
with flask, dispenses 10 mL

#### Reagents

**97026-688** Reagent Set for Colorimetric TKN Determination

# Most Popular Reagents

## Chlorine

| Description                                             | Prod. No. |
|---------------------------------------------------------|-----------|
| Free Chlorine, 10 mL Powder Pillows, pk/100             | 97009-454 |
| Free Chlorine, SwifTest Dispenser + Reagent (250 tests) | 89231-194 |
| Free Chlorine, SwifTest Dispenser Reagent (refill)      | 89231-302 |
| Total Chlorine, 10 mL Powder Pillows, pk/100            | 97009-464 |
| Total Chlorine, SwifTest Dispenser+ Reagent (250 tests) | 89231-196 |
| Total Chlorine, SwifTest Dispenser Reagent (refill)     | 89231-304 |
| Spec✓ Gel Secondary Standard Kit-LR Chlorine, DPD       | 97026-500 |
| Spec✓ Gel Secondary Standard Kit-HR Chlorine, DPD       | 97027-074 |



PermaChem™  
Powder Pillows  
Our most  
cost-conscious reagent  
platform.

SwifTest™  
Reagent  
Dispenser  
No need  
to open  
containers.



## COD (Chemical Oxygen Demand)

| Description                           | Prod. No. |
|---------------------------------------|-----------|
| COD Digestion Vials—16 mm, LR, pk/25  | 97009-532 |
| COD Digestion Vials—16 mm, LR, pk/150 | 97009-592 |

## Fluoride

| Description                                    | Prod. No. |
|------------------------------------------------|-----------|
| SPADNS Fluoride AccuVac, pk/25                 | 97009-512 |
| SPADNS Reagent Solution, 500 mL                | 97026-692 |
| SPADNS 2 ARSENIC-FREE Fluoride AccuVac, pk/25  | 97009-514 |
| SPADNS 2 ARSENIC-FREE Reagent Solution, 500 mL | 97027-020 |
| Spec✓ Gel Secondary Standard Kit - Fluoride    | 97026-450 |

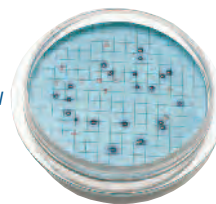
AccuVac® Ampule  
Quick, easy and  
economical.



## Iron

| Description                                         | Prod. No. |
|-----------------------------------------------------|-----------|
| FerroVer Iron Reagent Powder Pillows, 10 mL, pk/100 | 97026-696 |

Prepared  
Microbiological  
Media



## Nitrate

| Description                               | Prod. No. |
|-------------------------------------------|-----------|
| Nitrate Reagent Set, 10 mL, LR, 100 tests | 97027-008 |

## Ammonia

| Description                                       | Prod. No. |
|---------------------------------------------------|-----------|
| Ammonia Reagent Set, Salicylate, 10 mL, 100 tests | 97009-530 |

Single and  
Multi-Parameter  
Standards



## Phosphorus

| Description                             | Prod. No. |
|-----------------------------------------|-----------|
| PhosVer 3 Powder Pillows, 10 mL, pk/100 | 97009-438 |

Spec✓™ Gel  
Standards



## Ozone

| Description                                 | Prod. No. |
|---------------------------------------------|-----------|
| Ozone AccuVac, LR, pk/25                    | 97026-460 |
| Ozone AccuVac, MR, pk/25                    | 97026-172 |
| Ozone AccuVac, HR, pk/25                    | 97026-462 |
| Spec✓ Gel Secondary Standard Kit - Ozone MR | 97026-524 |

Voluette® Ampule  
Standards



# Most Popular Test Kits & Test Strips



## Free and Total Chlorine Test Strips

- Accurate and easy to use—just dip and read!
- Great for quick, on-site evaluations of chlorine levels

| Prod. No. | Range                                      | No. of Tests |
|-----------|--------------------------------------------|--------------|
| 97026-504 | 0-10 mg/L 0, 0.5, 1.0, 2.0, 4.0, 10.0 mg/L | Bottle of 50 |
| 97026-358 | Also available individually wrapped        | Box of 250   |



## Arsenic Test Kit

- No lab analysis needed—detect arsenic levels in the field to assess compliance with the new EPA Arsenic Rule
- Reliable test strip method recovers 100% of inorganic arsenic in samples

| Prod. No. | Range                                                   | No. of Tests |
|-----------|---------------------------------------------------------|--------------|
| 89231-430 | 0-500 µg/L (ppb) 0, 10, 30, 50, 70, 300, 500 µg/L (ppb) | 100          |



## Free and Total Chlorine Test Kit Model CN-66

- Our most popular test kit!
- Quickly and accurately measure chlorine levels in the field or lab

| Prod. No. | Range          | No. of Tests                                        |
|-----------|----------------|-----------------------------------------------------|
| 97026-858 | 0.1 – 3.5 mg/L | 50 Free Cl <sub>2</sub><br>50 Total Cl <sub>2</sub> |

Other kits also available:

|           |                             |     |
|-----------|-----------------------------|-----|
| 97026-896 | Model CN-66F Free Chlorine  | 100 |
| 97026-860 | Model CN-66T Total Chlorine | 100 |



## Nitrate and Nitrite Test Strips

- Accurate and easy to use – just dip and read!
- Get results in less than 1 minute, in the field or in the lab

| Prod. No. | Range                                                                                              | No. of Tests |
|-----------|----------------------------------------------------------------------------------------------------|--------------|
| 97026-442 | Nitrate: 0-50 mg/L 0, 1, 2, 5, 10, 20, 50 mg/L<br>Nitrite: 0-3 mg/L 0, 0.15, 0.3, 1, 1.5, 3.0 mg/L | Bottle of 25 |



## 5-in-1 Water Quality Test Strips

- Great for quick, on-site evaluations of water quality
- Five water quality measurements on 1 strip!

| Prod. No. | Parameter                                | Range      | Steps                            | No. of Tests |
|-----------|------------------------------------------|------------|----------------------------------|--------------|
| 97026-318 | Free Chlorine                            | 0-10 mg/L  | 0, 0.5, 1.0, 2.0, 4.0, 10.0      | Bottle of 50 |
|           | Total Chlorine                           | 0-10 mg/L  | 0, 0.5, 1.0, 2.0, 4.0, 10.0      |              |
|           | Total Hardness (as CaCO <sub>3</sub> )   | 0-25 gpg   | 0, 1.5, 3, 7, 15, 25             |              |
|           | Total Alkalinity (as CaCO <sub>3</sub> ) | 0-425 mg/L | 0, 25, 50, 120, 250, 425         |              |
|           | Total Alkalinity (as CaCO <sub>3</sub> ) | 0-240 mg/L | 0, 40, 80, 120, 180, 240         |              |
|           | pH                                       | 6.2-8.4    | 6.2, 6.8, 7.2, 7.8, 8.4 pH units |              |

## Reagents

| Description                                                                                                                                                                       | Method                | Platform | Range                                                                          | EPA Compliant<br>WW <sup>†</sup><br>WW | # Tests  | Prod. No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------|--------------------------------------------------------------------------------|----------------------------------------|----------|-----------|
| <b>BURET TITRATION</b>                                                                                                                                                            | 8219 (MO)<br>8010 (P) |          | 0 - 5,000 mg/L CaCO <sub>3</sub> (MO)<br>0 - 10,000 mg/L CaCO <sub>3</sub> (P) |                                        |          |           |
| Bromphenol Blue Indicator Powder Pillows, 100/pk                                                                                                                                  |                       | PP       |                                                                                |                                        | 100      | 89230-976 |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                                                                                  |                       | PP       |                                                                                |                                        | 100      | 97026-726 |
| Water, Deionized, 4 L                                                                                                                                                             |                       | S        |                                                                                |                                        |          | 89230-866 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                 | 8201 (MO)<br>8202 (P) |          |                                                                                | WW<br>WW                               |          |           |
| <b>Acidity Reagent Set, Digital Titrator</b>                                                                                                                                      |                       | DT       | 10 - 160 mg/L CaCO <sub>3</sub><br>100 - 4,000 mg/L CaCO <sub>3</sub>          |                                        | 100      | 89231-370 |
| Set includes: Bromphenol Blue Powder Pillows (for Methyl Orange endpoint), Phenolphthalein Powder Pillows and Sodium Hydroxide Digital Titrator Cartridges (0.1600 N and 1.600N). |                       |          |                                                                                |                                        |          |           |
| Replacement Reagents                                                                                                                                                              |                       |          |                                                                                |                                        |          |           |
| Bromphenol Blue Indicator Powder Pillows, 100/pk                                                                                                                                  |                       | PP       |                                                                                |                                        | 100      | 89230-976 |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                                                                                  |                       | PP       |                                                                                |                                        | 100      | 97026-726 |
| Sodium Hydroxide Digital Titrator Cartridge, 0.1600 N                                                                                                                             |                       | DT       | 10 - 160 mg/L CaCO <sub>3</sub>                                                |                                        | 40 - 100 | 89231-290 |
| Sodium Hydroxide Digital Titrator Cartridge, 1.600 N                                                                                                                              |                       | DT       | 100 - 4,000 mg/L CaCO <sub>3</sub>                                             |                                        | 40 - 100 | 89231-292 |
| Water, Deionized, 4 L                                                                                                                                                             |                       | S        |                                                                                |                                        |          | 89230-866 |
| <b>OPTIONAL REAGENTS</b>                                                                                                                                                          |                       |          |                                                                                |                                        |          |           |
| Bromphenol Blue Indicator Solution, 100 mL MDB                                                                                                                                    |                       | S        |                                                                                |                                        |          | 97026-248 |
| Phenolphthalein Indicator Solution, 5 g/L, 100 mL MDB (APHA)                                                                                                                      |                       | S        |                                                                                |                                        |          | 97026-170 |
| <sup>†</sup> Equivalent to 40 CFR 136.3 Standard Method 2310 B                                                                                                                    |                       |          |                                                                                |                                        |          |           |

## Accessories Required to Run Tests

| Product Description | Prod. No. |
|---------------------|-----------|
| Digital Titrator    | 97026-774 |

## Acid-Base

## Reagents

| Description                                          | Method                     | Platform | Range            | # Tests  | Prod. No. |
|------------------------------------------------------|----------------------------|----------|------------------|----------|-----------|
| <b>BURET TITRATION</b>                               | 8288 (Acid)<br>8289 (Base) |          | 0 - 25,000 meq/L |          |           |
| Phenolphthalein Indicator Powder Pillows, 100/pk     |                            | PP       |                  | 100      | 97026-726 |
| Water, Deionized, 4 L                                |                            | S        |                  |          | 89230-866 |
| <b>DIGITAL TITRATOR TITRATION</b>                    | 8200 (Acid)<br>8233 (Base) |          | 1 - 4,000 meq/L  |          |           |
| Phenolphthalein Indicator Powder Pillows, 100/pk     |                            | PP       |                  | 100      | 97026-726 |
| Water, Deionized, 4 L                                |                            | S        |                  |          | 89230-866 |
| For acid measurement:                                |                            |          |                  |          |           |
| Sodium Hydroxide Digital Titrator Cartridge, 1.600 N |                            | DT       | 1 - 10 meq/L     | 40 - 100 | 89231-292 |
| Sodium Hydroxide Digital Titrator Cartridge, 8.00 N  |                            | DT       | 10 - 4,000 meq/L | 40 - 100 | 97026-606 |
| For base measurement:                                |                            |          |                  |          |           |
| Hydrochloric Acid Digital Titrator Cartridge, 8.00 N |                            | DT       | 10 - 4,000 meq/L | 40 - 100 | 97026-546 |
| Sulfuric Acid Digital Titrator Cartridge, 1.600 N    |                            | DT       | 1 - 10 meq/L     | 40 - 100 | 97026-514 |
| Sulfuric Acid Digital Titrator Cartridge, 8.00 N     |                            | DT       | 10 - 4,000 meq/L | 40 - 100 | 97026-646 |

## Accessories Required to Run Tests

| Product Description | Prod. No. |
|---------------------|-----------|
| Digital Titrator    | 97026-774 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Reagents

| Description          | Method | Platform | Range                    | Instrument | # Tests | Prod. No. |
|----------------------|--------|----------|--------------------------|------------|---------|-----------|
| Alachlor Reagent Set | 10202  | IA       | 0.1 , 0.5 ppb Thresholds | PC II      | 18      | 97026-276 |

## Test Kits

| Description                       | Method | Platform | Range                                     | # Tests | Prod. No. |
|-----------------------------------|--------|----------|-------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II - Alachlor | 10202  | PCII/IA  | 0.1 0.5 ppb thresholds Kit includes PC II | 18      | 97026-848 |

## Alkalinity

- Four reagent platforms to choose from (buret, digital titration, drop count, or test strips)
- EPA accepted buret methods
- Determines Phenolphthalein or Total Alkalinity
- Extended ranges meet your testing demands

**EPA  
COMPLIANT**  
WHERE INDICATED

## Reagents

| Description                                                                                                                                                                                               | Method | Platform | Range                                 | EPA<br>Compliant | # Tests  | Prod. No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------------------|------------------|----------|-----------|
| <b>BURET TITRATION</b>                                                                                                                                                                                    | 8221   |          | 0 - 5,000 mg/L CaCO <sub>3</sub>      |                  |          |           |
| Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk                                                                                                                                             |        | PP       |                                       |                  | 100      | 97026-224 |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                                                                                                          |        | PP       |                                       |                  | 100      | 97026-726 |
| Water, Deionized, 4 L                                                                                                                                                                                     |        | S        |                                       |                  |          | 89230-866 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                                         | 8203   |          |                                       |                  |          |           |
| <b>Alkalinity Reagent Set, Digital Titrator</b>                                                                                                                                                           |        | DT       | 10 - 4,000 mg/L as CaCO <sub>3</sub>  | WW†              | 100      | 97026-800 |
| Set includes: Bromocresol Green-Methyl Red Indicator Powder Pillows, Phenolphthalein Indicator Powder Pillows, Sulfuric Acid Titration Cartridge (1.600 N), Sulfuric Acid Titration Cartridge (0.1600 N). |        |          |                                       |                  |          |           |
| Replacement Reagents                                                                                                                                                                                      |        |          |                                       |                  |          |           |
| Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk                                                                                                                                             |        | PP       |                                       |                  | 100      | 97026-224 |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                                                                                                          |        | PP       |                                       |                  | 100      | 97026-726 |
| Sulfuric Acid Digital Titrator Cartridge, 1.600 N                                                                                                                                                         |        | DT       | 100 - 4,000 mg/L as CaCO <sub>3</sub> |                  | 40 - 100 | 97026-514 |
| Sulfuric Acid Digital Titrator Cartridge, 0.1600 N                                                                                                                                                        |        | DT       | 10 - 160 mg/L CaCO <sub>3</sub>       |                  | 40 - 100 | 97026-506 |
| Water, Deionized, 4 L                                                                                                                                                                                     |        | S        |                                       |                  |          | 89230-866 |

† Equivalent to 40 CFR 136.3 Standard Method 2320 B.

## Test Strips

| Description                 | Platform | Range                                               | # Tests | Prod. No. |
|-----------------------------|----------|-----------------------------------------------------|---------|-----------|
| Total Alkalinity Test Strip | TS       | 0 - 240 mg/L (ppm) (0, 40, 80, 120, 180, 240 steps) | 50      | 97026-316 |

## Test Kits

| Description                                             | Platform | Range                             | # Tests | Prod. No. |
|---------------------------------------------------------|----------|-----------------------------------|---------|-----------|
| P & Total (MO) as CaCO <sub>3</sub> (Model AL-AP, MG-L) | DCT, PP  | 5 - 100 mg/L / 20-400 mg/L        | 100     | 97026-832 |
| P & Total (MO) as CaCO <sub>3</sub> (Model AL-TA)       | DCT, PP  | 23 - 495 gpg / 385-8,500 mg/L     | 100     | 89231-036 |
| P & Total (MO) as CaCO <sub>3</sub> (Model AL-DT)       | DT, PP   | 10 - 4,000 mg/L CaCO <sub>3</sub> | 100     | 97026-850 |

(MO) = Methyl Orange

## Accessories Required to Run Tests

| Description                          | Prod. No. |
|--------------------------------------|-----------|
| Delivery Tubes, straight with J hook | 97027-100 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- Photometric determination of low levels of Aluminum

- 3 Methods:
  - Aluminon, highest range
  - Chromazurol S, mid range
  - Eriochrome Cyanine R (ECR), low range

## Reagents

| Description                                                                                                                   | Method | Platform | Range                     | # Tests | Prod. No. |
|-------------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------|---------|-----------|
| ECR Masking Reagent Solution, 25 mL SCDB                                                                                      |        | S        |                           | 100     | 89231-062 |
| <b>Aluminum Reagent Set, Eriochrome Cyanine R (ECR) Method, 50 mL</b>                                                         | 8326   | PP, S    | 0 - 0.220 mg/L Al         | 100     | 89231-086 |
| Set includes: ECR Reagent Powder Pillows, Hexamethylenetetramine Buffer Reagent Powder Pillows, ECR Masking Reagent Solution. |        |          |                           |         |           |
| Replacement Reagents                                                                                                          |        |          |                           |         |           |
| ECR Reagent Powder Pillows, 50 mL, 25/pk                                                                                      |        | PP       |                           | 25      | 89231-378 |
| Hexamethylenetetramine Buffer Reagent Powder Pillows, 50/pk                                                                   |        | PP       |                           | 50      | 97026-346 |
| <b>Aluminum Reagent Set, Aluminon</b>                                                                                         | 8012   | PP       | 0.008 - 0.800 mg/L Al All | 100     | 97009-488 |
| Set includes: AluVer® 3 Aluminum Reagent Powder Pillows, Ascorbic Acid Powder Pillows and Bleaching 3 Reagent Powder Pillows  |        |          |                           |         |           |
| Replacement Reagents                                                                                                          |        |          |                           |         |           |
| AluVer 3 Aluminum Reagent Powder Pillows, 100/pk                                                                              |        | PP       |                           | 100     | 89230-962 |
| Ascorbic Acid Powder Pillows, 100/pk                                                                                          |        | PP       |                           | Varies  | 89231-294 |
| Bleaching 3 Reagent Powder Pillows, 100/pk                                                                                    |        | PP       |                           | 100     | 89230-964 |

## Test Kits

| Description                       | Method | Platform | Range               | Instrument         | # Tests | Prod. No. |
|-----------------------------------|--------|----------|---------------------|--------------------|---------|-----------|
| Pocket Colorimeter™ II - Aluminum | 8012   | PCII, PP | 0.01 - 0.80 mg/L Al | Kit includes PC II | 100     | 97026-930 |

# Ammonia

Hach's complete line of Ammonia methods (Nessler and Salicylate) provides the right choice for your application.

- Multiple methods and reagent platforms available
- Nessler method is EPA accepted
- Salicylate ammonia tests are mercury-free

- All new TNTplus methods are barcoded for automatic method detection
- ISE also available, see pages 22 and 31



## Reagents

| Description                                                                                                             | Method | Platform | Range                               | EPA Compliant | # Tests  | Prod. No. |
|-------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------------------|---------------|----------|-----------|
| <b>Nitrogen-Ammonia Reagent Set, Salicylate, 10 mL</b>                                                                  | 8155   | PP       | 0.01 - 0.50 mg/L NH <sub>3</sub> -N |               | 100      | 97009-530 |
| Salicylate Method set includes: Ammonia Cyanurate Reagent Powder Pillows and Ammonia Salicylate Reagent Powder Pillows. |        |          |                                     |               |          |           |
| Replacement Reagents                                                                                                    |        |          |                                     |               |          |           |
| Ammonia Salicylate Reagent Powder Pillows, 10 mL, 100/pk                                                                |        | PP       |                                     |               | 100      | 89231-158 |
| Ammonia Cyanurate Reagent Powder Pillows, 10 mL, 100/pk                                                                 |        | PP       |                                     |               | 100      | 89231-156 |
| <b>Nitrogen-Ammonia Reagent Set, TNT, AmVer (Salicylate), LR</b>                                                        | 10023  | TNT      | 0.02 - 2.50 mg/L NH <sub>3</sub> -N |               | 25 - 50† | 97009-556 |
| <b>Nitrogen-Ammonia Reagent Set, TNT, AmVer (Salicylate), HR</b>                                                        | 10031  | TNT      | 0.4 - 50.0 mg/L NH <sub>3</sub> -N  |               | 25 - 50† | 97009-572 |

† Dependent on the number of performed reagent blanks.

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Ammonia

## Test Strips

| Description        | Platform | Range                                                       | # Tests | Prod. No. |
|--------------------|----------|-------------------------------------------------------------|---------|-----------|
| Ammonia Test Strip | TS       | 0 - 6 ppm NH <sub>3</sub> -N (0, 0.25, 0.5, 1, 3, 6, steps) | 25      | 97026-438 |

## Test Kits

| Description                                            | Method | Platform | Range                                             | # Tests | Prod. No. |
|--------------------------------------------------------|--------|----------|---------------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II - Ammonia                       | 8155   | PCII, PP | 0.01 - 0.80 NH <sub>3</sub> -N Kit includes PC II | 100     | 97009-566 |
| Nitrogen Ammonia Test Kit, For Freshwater (Model NI-8) |        | CD       | 0.1 - 3.0 NH <sub>3</sub> -N                      | 100     | 89231-272 |
| Ammonia Low Range Test Kit for Freshwater              |        | CC       | 0 - 0.8 mg/L NH <sub>3</sub> -N                   | 25      | 89231-026 |

## Standards

| Description                                                                                         | Concentration | Prod. No. |
|-----------------------------------------------------------------------------------------------------|---------------|-----------|
| Nitrogen-Ammonia Standard Solution, 1 mg/L as NH <sub>3</sub> -N, 500 mL                            |               | 97021-508 |
| Nitrogen-Ammonia Standard Solution, 10 mg/L as NH <sub>3</sub> -N, 500 mL                           |               | 97021-522 |
| Nitrogen-Ammonia Standard Solution, 50 mg/L as NH <sub>3</sub> -N, 16/pk - 10 mL Voluette® Ampules  |               | 97021-804 |
| Nitrogen-Ammonia Standard Solution, 50 mg/L as NH <sub>3</sub> -N, 20/pk - 2 mL PourRite® Ampules   |               | 97021-796 |
| Nitrogen-Ammonia Standard Solution, 100 mg/L as NH <sub>3</sub> -N, 500 mL                          |               | 97024-518 |
| Nitrogen-Ammonia Standard Solution, 150 mg/L NH <sub>3</sub> -N, 16/pk - 10 mL Voluette® Ampules    |               | 89173-996 |
| Nitrogen-Ammonia Standard Solution, 160 mg/L as NH <sub>3</sub> -N, 16/pk - 10 mL Voluette® Ampules |               | 97021-802 |
| Nitrogen-Ammonia Standard Solution, 1,000 mg/L as NH <sub>3</sub> -N, 1 L                           |               | 89231-230 |

## Ammonia, Free

- Fast method
- Increased accuracy
- Extended range
- Ideal for identifying nitrification excursions
- Available on Hach Spectrophotometers and Colorimeters for versatile use in field and lab environments

## Reagents

| Description                                           | Method | Platform | Range                               | # Tests | Prod. No. |
|-------------------------------------------------------|--------|----------|-------------------------------------|---------|-----------|
| Free Ammonia and Monochloramine Reagent Set, 50 tests | 10200  | PP, S    | 0.02 - 0.50 mg/L NH <sub>3</sub> -N | 50      | 89231-436 |

## Standards

| Description                                                          | Volume         | Concentration                                                       | Prod. No. |
|----------------------------------------------------------------------|----------------|---------------------------------------------------------------------|-----------|
| Spec✓ Secondary Gel Standards Set for Monochloramine & Free Ammonia. | Set of 4 Vials | 0.04-4.50 mg/L Cl <sub>2</sub><br>0.02-0.50 mg/L NH <sub>3</sub> -N | 97027-072 |

## Test Kits

| Description                                                     | Method | Platform | Range                                                                                      | # Tests                                  | Prod. No. |
|-----------------------------------------------------------------|--------|----------|--------------------------------------------------------------------------------------------|------------------------------------------|-----------|
| Pocket Colorimeter™ II Test Kit - Free Ammonia & Monochloramine | 10200  | PP, S    | 0.02 - 0.50 mg/L NH <sub>3</sub> -N<br>0.04 - 4.50 mg/L Cl <sub>2</sub> Kit includes PC II | 100 Monochloramine or<br>50 Free Ammonia | 89231-450 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Aqua Ammonia / HR Ammonium Hydroxide

- Measure Aqua Ammonia concentrations in delivered bulk solutions
- Portable system for control at chloramination facilities

## Reagents

| Description                                                                         | Method | Platform | Range                                | # Tests | Prod. No. |
|-------------------------------------------------------------------------------------|--------|----------|--------------------------------------|---------|-----------|
| <b>DIGITAL TITRATOR TITRATION</b>                                                   |        |          |                                      |         |           |
| <b>Aqua Ammonia Reagent Set, Digital Titrator</b>                                   | 10222  | DT       | 5 - 35% = 50-350 g/L NH <sub>3</sub> | 100     | 89231-438 |
| Set includes: Sulfuric Acid Digital Titrator Cartridge and Wide Range pH Indicator. |        |          |                                      |         |           |
| Replacement Reagents                                                                |        |          |                                      |         |           |
| Sulfuric Acid Digital Titrator Cartridge, 8.00 N                                    |        | DT       |                                      |         | 97026-646 |
| Wide Range pH Indicator Solution, 100 mL MDB                                        |        | S        |                                      |         | 97026-686 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

## Arsenic

- Portable method, ideal for field use
- Method eliminates interference from sulfide
- Specially designed cap eliminates exposure to arsine gas
- Kits include two reaction vessels for simultaneous testing

## Test Kits

| Description                     | Platform | Range                                               | # Tests | Prod. No. |
|---------------------------------|----------|-----------------------------------------------------|---------|-----------|
| Arsenic, Low Range Test Kit     | TS       | 0 - 500 ppb as (0, 10, 30, 50, 70, 300, 500 steps)  | 100     | 89231-430 |
| EZ Arsenic, High Range Test Kit | TS       | 0 - 500 ppb as (0, 35, 75, 175, 1,500, 4,000 steps) | 100     | 89231-434 |

## Atrazine

## Reagents

| Description                             | Method | Platform | Range                        | # Tests | Prod. No. |
|-----------------------------------------|--------|----------|------------------------------|---------|-----------|
| <b>Atrazine Immunoassay Reagent Set</b> | 10050  | IA       | 0.1, 0.5, 3.0 ppb thresholds | 18      | 97026-274 |

## Test Kits

| Description                             | Method | Platform | Range                        | # Tests  | Prod. No. |
|-----------------------------------------|--------|----------|------------------------------|----------|-----------|
| Atrazine Pocket Colorimeter II Test Kit | 10050  | IA       | 0.1, 0.5, 3.0 ppb thresholds | up to 18 | 97026-254 |

## Benzotriazole / Tolytriazole

## Reagents

| Description                             | Method | Platform | Range                                                         | # Tests | Prod. No. |
|-----------------------------------------|--------|----------|---------------------------------------------------------------|---------|-----------|
| Triazole Reagent Powder Pillows, 100/pk | 8079   | PP       | 1.0 - 16.0 mg/L Benzotriazole<br>1.0 - 20.0 mg/L Tolytriazole | 100     | 97026-574 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# BOD (Biochemical Oxygen Demand)

- Dilution method requires measurement of Dissolved Oxygen. See page 99 for titration reagents and pages 11-52 for water quality meters & probes
- Complete line of products for BOD preparation
- Prepackaged nutrient buffer
- Convenient, easy-to-use, pre-measured products

## Reagents

| Description                                                                                | Method | EPA Compliant | # Tests | Prod. No. |
|--------------------------------------------------------------------------------------------|--------|---------------|---------|-----------|
| <b>DILUTION METHOD</b>                                                                     | 8043   | WW            |         |           |
| Nitrification Inhibitor for BOD, Formula 2533™, TCMP, 35 g                                 |        |               | 200     | 97026-564 |
| Nitrification Inhibitor for BOD, Formula 2533™, TCMP, 500 g                                |        |               | 2500    | 97026-568 |
| <b>FOR DILUTION WATER PREPARATION</b>                                                      |        |               |         |           |
| BOD Nutrient Buffer Pillows, 300 mL, 50/pk                                                 |        |               |         | 97026-674 |
| BOD Nutrient Buffer Pillows, 3 liter, 50/pk                                                |        |               |         | 97026-670 |
| BOD Nutrient Buffer Pillows, 6 liter, 50/pk                                                |        |               |         | 97026-672 |
| BOD Nutrient Buffer Pillows, 19 liter, 25/pk                                               |        |               |         | 97026-668 |
| Reagents are packaged to the specifications in EPA-approved (405.1) Standard Method 5210B. |        |               |         |           |
| <b>BODTRAK RESPIROMETRIC METHOD 10099</b>                                                  | 10099  |               |         |           |
| Lithium Hydroxide Powder Pillows, 100/pk                                                   |        |               |         | 89231-284 |

## Standards

| Description                                                        | Prod. No. |
|--------------------------------------------------------------------|-----------|
| BOD Standard Solution, 300 mg/L, 16/pk - 10-mL Voluette® Ampules   | 97026-742 |
| BOD Standard Solution, 3,000 mg/L, 16/pk - 10-mL Voluette® Ampules | 89230-978 |

# Bromine

## Reagents

| Description                                              | Method | Platform | Range                            | Instrument*                 | # Tests | Prod. No. |
|----------------------------------------------------------|--------|----------|----------------------------------|-----------------------------|---------|-----------|
| <b>DPD METHOD</b>                                        | 8016   |          | 0.05 - 4.50 mg/L Br <sub>2</sub> |                             |         |           |
| DPD Total Chlorine Reagent AccuVac® Ampules, 25/pk       |        | AV       |                                  | All                         | 25      | 97009-498 |
| DPD Total Chlorine Reagent Powder Pillows, 10 mL, 100/pk |        | PP       |                                  | All except DR/3000, DR/2000 | 100     | 97009-464 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk |        | PP       |                                  | DR/3000, DR/2000            | 100     | 97009-470 |

## Test Kits

| Description                               | Method | Platform | Range                                                          | Instrument         | # Tests  | Prod. No. |
|-------------------------------------------|--------|----------|----------------------------------------------------------------|--------------------|----------|-----------|
| Pocket Colorimeter™ II Test Kit – Bromine | 8016   | PCII     | 0.05 - 4.50 mg/L Br <sub>2</sub><br>0.2 - 10.0 Br <sub>2</sub> | Kit includes PC II | 50 - 100 | 97026-968 |
| Bromine Test Kit (Model L-P Cube)         |        | CC       | 0.6 - 3.0 mg/L Br <sub>2</sub>                                 |                    | 50       | 89231-010 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Reagents

| Description                                                                                                                                                | Method | Platform | Range                                          | EPA Compliant | # Tests  | Prod. No. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|------------------------------------------------|---------------|----------|-----------|
| <b>BURET TITRATION</b>                                                                                                                                     | 8222   |          | 0 - 5,000 mg/L CaCO <sub>3</sub>               |               |          |           |
| <b>Hardness (Calcium) Reagent Set, Buret</b>                                                                                                               |        | PP, S    |                                                | WW            | 100      | 89231-090 |
| Set (Low Range) includes: CalVer® 2 Calcium Indicator Powder Pillows, Potassium Hydroxide Solution (8 N) and TitraVer® (EDTA) Hardness Titrant (0.0200 N). |        |          |                                                |               |          |           |
| Replacement Reagents                                                                                                                                       |        |          |                                                |               |          |           |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                  |        | S        |                                                |               | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 50 mL sample, 100/pk                                                                                           |        | PP       |                                                |               | 100      | 89230-888 |
| EDTA Standard Solution, 0.0200N, 1 L                                                                                                                       |        | S        | 0 - 5,000 mg/L CaCO <sub>3</sub>               |               | 40 - 100 | 97026-730 |
| Water, Deionized, 4 L                                                                                                                                      |        | S        |                                                |               |          | 89230-866 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                          | 8204   |          | 10 - 160 mg/L CaCO <sub>3</sub>                | WW*           |          |           |
| <b>Hardness (Calcium) Reagent Set, LR, Digital Titrator</b>                                                                                                |        | DT       |                                                |               | 40-100   | 89231-398 |
| Set for Digital Titrator (LR) includes: CalVer® 2 Indicator Powder Pillows, Potassium Hydroxide Solution (8 N), 0.0800 M TitraVer EDTA Cartridge.          |        |          |                                                |               |          |           |
| Replacement Reagents                                                                                                                                       |        |          |                                                |               |          |           |
| EDTA Digital Titrator Cartridge, 0.0800 M                                                                                                                  |        | DT       |                                                |               | 40 - 100 | 97026-590 |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                  |        | S        |                                                |               | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 50 mL sample, 100/pk                                                                                           |        | PP       |                                                |               | 100      | 89230-888 |
| <b>Calcium Hardness Reagents (Low Range)</b>                                                                                                               | 8204   |          | 1 - 16 mg/L CaCO <sub>3</sub>                  | WW*           |          |           |
| EDTA Digital Titrator Cartridge, 0.1428 M                                                                                                                  |        |          |                                                |               |          |           |
|                                                                                                                                                            |        | DT       |                                                |               | 40 - 100 | 97026-560 |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                  |        | S        |                                                |               | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 50 mL sample, 100/pk                                                                                           |        | PP       |                                                |               | 100      | 89230-888 |
| <b>Hardness (Calcium) Reagent Set, HR, Digital Titrator</b>                                                                                                | 8204   | DT       | 100 - 4,000 mg/L CaCO <sub>3</sub>             | WW*           | 40-100   | 89231-400 |
| Set for Digital Titrator (HR) includes: CalVer® 2 Indicator Powder Pillows, Potassium Hydroxide Solution (8 N) and 0.800 M TitraVer EDTA Cartridge.        |        |          |                                                |               |          |           |
| Replacement Reagents                                                                                                                                       |        |          |                                                |               |          |           |
| EDTA Digital Titrator Cartridge, 0.800 M                                                                                                                   |        | DT       |                                                |               | 40 - 100 | 97026-602 |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                  |        | S        |                                                |               | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 50 mL sample, 100/pk                                                                                           |        | PP       |                                                |               | 100      | 89230-888 |
| <b>Calcium Hardness Reagents (High Range)</b>                                                                                                              | 8204   |          | 10 - 100 G.d.h. CaCO <sub>3</sub> <sup>†</sup> | WW*           |          |           |
| EDTA Digital Titrator Cartridge, 0.714M                                                                                                                    |        |          |                                                |               |          |           |
|                                                                                                                                                            |        | DT       |                                                |               | 40 - 100 | 97026-528 |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                  |        | S        |                                                |               | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 50 mL sample, 100/pk                                                                                           |        | PP       |                                                |               | 100      | 89230-888 |
| Water, Deionized, 4 L                                                                                                                                      |        | S        |                                                |               |          | 89230-866 |

<sup>†</sup>G.d.h. = German degree hardness; 1 German degree hardness equals 17.9 mg/L CaCO<sub>3</sub>  
<sup>\*</sup>Equivalent to Standard Methods 3500 Ca B or D

## Test Strips

| Description                                        | Platform | Range                                                                        | # Tests            | Prod. No. |
|----------------------------------------------------|----------|------------------------------------------------------------------------------|--------------------|-----------|
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 1,000 <sup>†</sup> | 97026-520 |
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 250 <sup>†</sup>   | 97026-526 |
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 50                 | 97026-320 |

<sup>†</sup>Individually wrapped.

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows;  
 RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Carbon Dioxide

## Reagents

| Description                                                                                                                | Method | Platform | Range                           | # Tests  | Prod. No. |
|----------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------------|----------|-----------|
| <b>BURET TITRATION</b>                                                                                                     | 8233   |          | 0 - 250 mg/L CO <sub>2</sub>    |          |           |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                           |        | PP       |                                 | 100      | 97026-726 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                          | 8205   |          |                                 |          |           |
| <b>Carbon Dioxide Reagent Set, Digital Titrator</b>                                                                        |        | DT       | 10 - 1,000 mg/L CO <sub>2</sub> | 40-100   | 89231-368 |
| Set (Digital Titrator Method) includes: Phenolphthalein Pillows and two Sodium Hydroxide Cartridges: 0.3636 N and 3.636 N. |        |          |                                 |          |           |
| Replacement Reagents                                                                                                       |        |          |                                 |          |           |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                           |        | PP       |                                 | 100      | 97026-726 |
| Sodium Hydroxide Digital Titrator Cartridge, 0.3636 N                                                                      |        | DT       |                                 | 40 - 100 | 97026-240 |
| Sodium Hydroxide Digital Titrator Cartridge, 3.636 N                                                                       |        | DT       |                                 | 40 - 100 | 97026-488 |
| <b>Carbon Dioxide Reagents (Low Range)</b>                                                                                 |        |          | 10 - 100 mg/L                   |          |           |
| Sodium Hydroxide Digital Titrator Cartridge, 0.3636 N                                                                      |        | DT       |                                 | 40 - 100 | 97026-240 |
| <b>OPTIONAL REAGENTS</b>                                                                                                   |        |          |                                 |          |           |
| Phenolphthalein Indicator Solution, 5 g/L, 100 mL MDB (APHA)                                                               |        | S        |                                 |          | 97026-170 |

## Test Kits

| Description                           | Platform | Range                                       | # Tests | Prod. No. |
|---------------------------------------|----------|---------------------------------------------|---------|-----------|
| Carbon Dioxide Test Kit (Model CA-23) | DCT      | 1.25 - 25 mg/L CO <sub>2</sub> <sup>†</sup> | 200     | 97026-854 |
| Carbon Dioxide Test Kit (Model CA-DT) | DT       | 10.1 - 10,000 mg/L CO <sub>2</sub>          | 50      | 89230-992 |

†Three ranges available: 1.25 - 25 mg/L; 2 - 40 mg/L; 5 - 100 mg/L

# Chelant

## Reagents

| Description                                                      | Method | Platform | Range                              | # Tests  | Prod. No. |
|------------------------------------------------------------------|--------|----------|------------------------------------|----------|-----------|
| <b>FREE CHELANT- DIGITAL TITRATOR TITRATION</b>                  | 8352   |          | 0 - 20.0 mg/L CaCO <sub>3</sub>    |          |           |
| Hardness 1 Buffer Solution, 100 mL MDB                           |        | S        |                                    | 100      | 97026-364 |
| Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk |        | PP       |                                    | 100      | 89230-886 |
| Magnesium Chloride Digital Titrator Cartridge, 0.080 M           |        | DT       |                                    | 40 - 100 | 97026-348 |
| <b>OPTIONAL REAGENTS</b>                                         |        |          |                                    |          |           |
| Hardness 2 Indicator Solution, 100 mL MDB                        |        | S        |                                    | ~ 300    | 89230-872 |
| <b>TOTAL CHELANT- DIGITAL TITRATOR TITRATION</b>                 | 8350   |          | 0 - 40.0 mg/L Na <sub>4</sub> EDTA |          |           |
| Ascorbic Acid Powder Pillows, 100/pk                             |        | PP       |                                    | Varies   | 89231-294 |
| Bismuth Nitrate Digital Titrator Cartridge, 0.0200 M             |        | DT       |                                    | 40 - 100 | 97026-226 |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB              |        | S        |                                    | 100      | 97026-682 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

# Chloramine, Mono

See Monochloramine on page 84.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Reagents

| Description                                                                                                                                                  | Method | Platform | Range                           | EPA<br>Compliant | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------------|------------------|----------|-----------|
| <b>MERCURIC NITRATE DIGITAL TITRATOR TITRATION</b>                                                                                                           |        |          |                                 |                  |          |           |
| <b>Chloride Reagent Set, Mercuric Nitrate Digital Titrator</b>                                                                                               | 8206   | DT       | 10 - 8,000 mg/L Cl <sup>-</sup> | WW <sup>†</sup>  | 100      | 89231-366 |
| Set includes: Diphenylcarbazone Reagent Powder Pillows, Mercuric Nitrate Titration Cartridge (0.2256 N), and Mercuric Nitrate Titration Cartridge (2.256 N). |        |          |                                 |                  |          |           |
| Replacement Reagents                                                                                                                                         |        |          |                                 |                  |          |           |
| Diphenylcarbazone Reagent Powder Pillows, 100mL sample, 100/pk                                                                                               |        | PP       |                                 |                  | 100      | 97026-610 |
| Mercuric Nitrate Digital Titrator Cartridge, 0.2256 N                                                                                                        |        | DT       |                                 |                  | 40 - 100 | 97026-694 |
| Mercuric Nitrate Digital Titrator Cartridge, 2.256 N                                                                                                         |        | DT       |                                 |                  | 40 - 100 | 97026-360 |
| Water, Deionized, 4 L                                                                                                                                        |        | S        |                                 |                  |          | 89230-866 |

<sup>†</sup> Equivalent to Standard Methods 4500 Cl B

## Test Strips

| Description                               | Platform | Range                                                     | # Tests | Prod. No. |
|-------------------------------------------|----------|-----------------------------------------------------------|---------|-----------|
| Low Range Chloride Test Strip (Quantab®)  | TS       | 30 - 600 ppm Cl <sup>-</sup> (10-20 mg/L increments)      | 40      | 97009-460 |
| High Range Chloride Test Strip (Quantab®) | TS       | 300 - 6,000 ppm Cl <sup>-</sup> (100-200 mg/L increments) | 40      | 97009-462 |

## Test Kits

| Description                                       | Platform | Range                                                         | # Tests | Prod. No. |
|---------------------------------------------------|----------|---------------------------------------------------------------|---------|-----------|
| Chloride Test Kit (Model 8-P), Plastic Case       | DCT      | 5 - 100 mg/L Cl <sup>-</sup><br>20 - 400 mg/L Cl <sup>-</sup> | 100     | 89231-234 |
| Chloride Test Kit (Model CD-DT), Mercuric Nitrate | DT       | 10 - 8,000 mg/L Cl <sup>-</sup>                               | 100     | 89230-988 |

## Standards

| Description                                                                                         | Prod. No. |
|-----------------------------------------------------------------------------------------------------|-----------|
| Chloride Standard Solution, 12,500 mg/L as Cl <sup>-</sup> (NIST), 16/pk - 10 mL Volurette® Ampules | 89173-990 |
| Chloride Standard Solution, 1,000 mg/L Cl <sup>-</sup> (NIST), 500 mL                               | 97021-512 |
| Chloride Standard Solution, 100 mg/L as Cl <sup>-</sup> (NIST), 1 L                                 | 97021-488 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Chlorine

- Multiple reagent platforms available
- Hach's DPD formulation allows for high levels of sample hardness with no interference and unparalleled reagent stability

- EPA accepted DPD method
- Multiple ranges available—from ultra low range to high range



## Reagents

| Description                                                                           | Method | Platform | Range                                     | EPA Compliant | # Tests | Prod. No. |
|---------------------------------------------------------------------------------------|--------|----------|-------------------------------------------|---------------|---------|-----------|
| <b>ULTRA LOW RANGE</b>                                                                | 8370   |          |                                           | DW            |         |           |
|                                                                                       | 10014  |          |                                           | WW            |         |           |
| <b>Chlorine Reagent Set (Total), Ultra Low Range DPD</b>                              |        |          | 2 - 500 µg/L - as Cl <sub>2</sub>         |               | 20      | 89231-132 |
| Set includes: Buffer Solution, DPD Chlorine Indicator Solution, and Blanking Reagent. |        |          |                                           |               |         |           |
| Replacement Reagents                                                                  |        |          |                                           |               |         |           |
| Buffer Solution, ULR Chlorine, 20/pk                                                  | 8370   | S        |                                           |               | 20      | 97026-284 |
| DPD Chlorine Indicator Solution Ampules, ULR, 20/pk                                   | 8370   | S        |                                           |               | 20      | 97026-294 |
| Blanking Reagent for ULR Chlorine, 29 mL                                              |        | S        |                                           |               | 20      | 89231-106 |
| <b>FREE CHLORINE, LOW RANGE</b>                                                       |        |          |                                           |               |         |           |
| DPD Free Chlorine Reagent Powder Pillows, 10 mL, 1,000/pk                             | 8021   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | 1000    | 97009-518 |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk                               | 8021   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | Varies  | 97009-468 |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL 1,000/pk                              | 8021   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | 1000    | 97026-750 |
| DPD Free Chlorine Reagent AccuVac® Ampules, 25/pk                                     | 8021   | AV       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | 25      | 97009-494 |
| DPD Free Chlorine Reagent, SwifTest™ Dispenser                                        | 8021   | SW       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | 250     | 89231-194 |
| DPD Free Chlorine Reagent, SwifTest™ Dispenser Refill Vial, 250 Tests                 | 8021   | SW       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW            | 250     | 89231-302 |
| <b>TOTAL CHLORINE, LOW RANGE</b>                                                      |        |          |                                           |               |         |           |
| DPD Total Chlorine Reagent Powder Pillows, 10 mL, 100/pk                              | 8167   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW, WW        | 100     | 97009-464 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk                              | 8167   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW, WW        | 100     | 97009-470 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 1,000/pk                            | 8167   | PP       | 0.02 - 2.00 mg/L Cl <sub>2</sub>          | DW, WW        | 1000    | 97026-220 |
| DPD Total Chlorine Reagent AccuVac® Ampules, 25/pk                                    | 8167   | AV       | 0.02-2.00; 0.02-4.50 mg/L Cl <sub>2</sub> | DW, WW        | 25      | 97009-498 |
| DPD Total Chlorine Reagent, SwifTest™ Dispenser                                       | 8167   | SW       | 0.02-2.00; 0.02-4.50 mg/L Cl <sub>2</sub> | DW, WW        | 250     | 89231-196 |
| DPD Total Chlorine Reagent, SwifTest™ Dispenser Refill Vial, 250 Tests                | 8167   | SW       | 0.02 - 2.00 Cl <sub>2</sub>               | DW, WW        | 250     | 89231-304 |
| <b>HIGH RANGE</b>                                                                     |        |          |                                           |               |         |           |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk                               | 10069  | PP       | 0.1 - 10.0 mg/L Cl <sub>2</sub>           | DW, WW        | Varies  | 97009-468 |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL 1,000/pk                              | 10069  | PP       | 0.1 - 10.0 mg/L Cl <sub>2</sub>           | DW, WW        | 1000    | 97026-750 |
| DPD Free Chlorine Reagent, Test 'N Tube Vials, 50/pk                                  | 10102  | TNT      | 0.09 - 5.00 mg/L Cl <sub>2</sub>          | DW, WW        | 50      | 97026-566 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk                              | 10070  | PP       | 0.1 - 10.0 mg/L as Cl <sub>2</sub>        | DW, WW        | 100     | 97009-470 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 1,000/pk                            | 10070  | PP       | 0.1 - 10.0 mg/L as Cl <sub>2</sub>        | DW, WW        | 1000    | 97026-220 |
| DPD Total Chlorine Reagent, Test 'N Tube Vials, 50/pk                                 | 10101  | PP       | 0.09 - 5.00 mg/L Cl <sub>2</sub>          | DW, WW        | 50      | 97026-544 |
| <b>AMPEROMETRIC TITRATOR TITRATION</b>                                                | 8334   |          | 0.5 mg/L and above Cl <sub>2</sub>        | AutoCat™ 9000 | DW†, WW |           |
| Buffer, Phosphate, pH 7, for Amperometric Chlorine, 100 mL MDB                        |        | S        |                                           |               | 100     | 97026-638 |
| <b>AMPEROMETRIC DIGITAL TITRATOR TITRATION</b>                                        | 10024  |          | 0 - 1,000 µg/L Cl <sub>2</sub>            |               |         |           |
| Buffer, Phosphate, pH 7, for Amperometric Chlorine, 100 mL MDB                        |        | S        |                                           |               | 100     | 97026-638 |
| <b>AMPEROMETRIC TITRATOR TITRATION</b> (Back Titration for Total Chlorine)            | 10025  |          | 0.0051 - 5.00 mg/L Cl <sub>2</sub>        | AutoCat™ 9000 | WW      |           |
| Acetate Buffer Solution, pH 4.0, 100 mL                                               |        | S        |                                           |               | 100     | 97026-592 |
| Iodine Standard Solution, 0.0282 N, 1 L                                               |        | S        |                                           |               | 100     | 97026-296 |
| Buffer, Phosphate, pH 7, for Amperometric Chlorine, 100 mL MDB                        |        | S        |                                           |               | 100     | 97026-638 |

†AutoCat™ 9000 performs Standard Methods 4500 Cl D

## Reagents (Continued)

| Description                                                                                                                                                                                              | Method | Platform | Range                               | EPA Compliant | # Tests  | Prod. No. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------------------|---------------|----------|-----------|
| <b>AMPEROMETRIC TITRATOR TITRATION</b><br>(Forward Titration for Total Chlorine)                                                                                                                         | 8168   |          | 0.0012 - 5,000 mg/L Cl <sub>2</sub> | AutoCat™ 9000 | DW, WW   |           |
| Acetate Buffer Solution, pH 4.0, 100 mL                                                                                                                                                                  |        | S        |                                     |               | 100      | 97026-592 |
| <b>AMPEROMETRIC DIGITAL TITRATOR TITRATION</b><br>(Back Titration for Total Chlorine)                                                                                                                    | 10025  |          | 0.0051 - 5.00 mg/L Cl <sub>2</sub>  | AutoCat™ 9000 | WW       |           |
| Acetate Buffer Solution, pH 4.0, 100 mL                                                                                                                                                                  |        | S        |                                     |               | 100      | 97026-592 |
| Potassium Iodide Powder Pillows, 100/pk                                                                                                                                                                  |        | PP       |                                     |               | 100      | 97026-720 |
| Iodine Standard Solution Digital Titrator Cartridge, 0.0282 N                                                                                                                                            |        | DT       |                                     |               |          | 97026-228 |
| <b>AMPEROMETRIC DIGITAL TITRATOR TITRATION</b><br>(Forward Titration for Total Chlorine)                                                                                                                 | 10026  |          | 15 - 1,000 µg/L Cl <sub>2</sub>     |               | DW       |           |
| Phenylarsine Oxide (PAO) Digital Titrator Cartridge, 0.00564 N                                                                                                                                           |        | DT       |                                     |               |          | 97026-230 |
| Acetate Buffer Solution, pH 4.0, 100 mL                                                                                                                                                                  |        | S        |                                     |               | 100      | 97026-592 |
| Potassium Iodide Powder Pillows, 100/pk                                                                                                                                                                  |        | PP       |                                     |               | 100      | 97026-720 |
| <b>IODOMETRIC</b><br>(Using Sodium Thiosulfate)                                                                                                                                                          | 8161   |          | 0 - 40,000 mg/L                     |               |          |           |
| Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                                                                                                                                                        |        | PP       |                                     |               | 100      | 89230-906 |
| Potassium Iodide Powder Pillows, 100/pk                                                                                                                                                                  |        | PP       |                                     |               | 100      | 97026-720 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                                    |        | S        |                                     |               | 50 - 100 | 97026-746 |
| <b>DPD - FEAS</b>                                                                                                                                                                                        | 8210   |          | 0 - 3.00 mg/L Cl <sub>2</sub>       |               |          |           |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk                                                                                                                                                  |        | PP       |                                     |               | Varies   | 97009-468 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk                                                                                                                                                 |        | PP       |                                     |               | 100      | 97009-470 |
| Ferrous Ethylenediammonium Sulfate Digital Titrator Cartridge, 0.00564 N                                                                                                                                 |        | DT       |                                     |               |          | 97026-252 |
| Potassium Iodide solution, 30 g/L, 100 mL                                                                                                                                                                |        | S        |                                     |               |          | 97026-676 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                                        | 8209   |          | 1 - 400 mg/L Cl <sub>2</sub>        |               |          |           |
| <b>Total Chlorine Reagents, Digital Titrator, (LR)</b>                                                                                                                                                   |        |          |                                     |               |          |           |
| Acetate Buffer Solution, pH 4.0, 100 mL                                                                                                                                                                  |        | S        |                                     |               | 100      | 97026-592 |
| Potassium Iodide Powder Pillows, 100/pk                                                                                                                                                                  |        | PP       |                                     |               | 100      | 97026-720 |
| Sodium Thiosulfate Digital Titrator Cartridge, Stabilized, 0.02256 N                                                                                                                                     |        | DT       |                                     |               | 40 - 100 | 97026-550 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                                    |        | S        |                                     |               | 50 - 100 | 97026-746 |
| <b>Chlorine (Total) Reagent Set, Digital Titrator, Mid-Range</b>                                                                                                                                         |        | DT       | 20 - 2,000 mg/L Cl <sub>2</sub>     |               | 100      | 89231-364 |
| Set includes: Dissolved Oxygen 3 Reagent Powder Pillows, Potassium Iodide Powder Pillows, Sodium Thiosulfate Digital Titrator Cartridge, and Starch Indicator Solution.                                  |        |          |                                     |               |          |           |
| Replacement Reagents                                                                                                                                                                                     |        |          |                                     |               |          |           |
| Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                                                                                                                                                        |        | PP       |                                     |               | 100      | 89230-906 |
| Potassium Iodide Powder Pillows, 100/pk                                                                                                                                                                  |        | PP       |                                     |               | 100      | 97026-720 |
| Sodium Thiosulfate Digital Titrator Cartridge, 0.113 N                                                                                                                                                   |        | DT       |                                     |               | 40 - 100 | 97026-432 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                                    |        | S        |                                     |               | 50 - 100 | 97026-746 |
| <b>Chlorine (Total) Reagent Set, HR Digital Titrator</b>                                                                                                                                                 |        | DT       | 2,000 - 70,000 mg/L Cl <sub>2</sub> |               | 100      | 89231-392 |
| Set includes: Dissolved Oxygen 3 Reagent Powder Pillows, Potassium Iodide Powder Pillows, Potassium Iodide Powder Pillows, Sodium Thiosulfate Digital Titrator Cartridge, and Starch Indicator Solution. |        |          |                                     |               |          |           |
| Replacement Reagents                                                                                                                                                                                     |        |          |                                     |               |          |           |
| Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                                                                                                                                                        |        | PP       |                                     |               | 100      | 89230-906 |
| Sodium Thiosulfate Digital Titrator Cartridge, 2.00 N                                                                                                                                                    |        | DT       |                                     |               | 40 - 100 | 97026-242 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                                    |        | S        |                                     |               | 50 - 100 | 97026-746 |

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Chlorine

## Test Strips

| Description                                  | Platform | Range                                                              | # Tests                        | Prod. No. |
|----------------------------------------------|----------|--------------------------------------------------------------------|--------------------------------|-----------|
| Free & Total Chlorine Test Strips, Low Range | TS       | 0 - 10 mg/L Cl <sub>2</sub> (0, 0.5, 1, 2, 4, 10 steps)            | 50                             | 97026-504 |
| Free & Total Chlorine Test Strips, Low Range | TS       | 0 - 10 mg/L Cl <sub>2</sub> (0, 0.5, 1, 2, 4, 10 steps)            | 250<br>individually<br>wrapped | 97026-358 |
| Free Chlorine Test Strips, High Range        | TS       | 0 - 600 mg/L Cl <sub>2</sub> (0, 25, 50, 100, 200, 400, 600 steps) | 100                            | 97026-782 |

## Test Kits

| Description                                                                             | Method             | Platform | Range                                                                  | EPA<br>Compliant | # Tests         | Prod. No. |
|-----------------------------------------------------------------------------------------|--------------------|----------|------------------------------------------------------------------------|------------------|-----------------|-----------|
| <b>TEST KITS-LOW RANGE</b>                                                              |                    |          |                                                                        |                  |                 |           |
| Free Chlorine Test Kit (CN-66F)                                                         |                    | CD       | 0.1 - 3.4 mg/L                                                         |                  | 100             | 97026-896 |
| Total Chlorine Test Kit (CN-66T)                                                        |                    | CD       | 0.1 - 3.5 mg/L Cl <sub>2</sub>                                         |                  | 100             | 97026-860 |
| Free Chlorine Test Kit (CN-70F)                                                         |                    | CD       | 0.02 - 0.7 mg/L<br>0.1 - 3.5 mg/L Cl <sub>2</sub>                      |                  | 200             | 89230-972 |
| Total Chlorine Test Kit (CN-70T)                                                        |                    | CD       | 0.02 - 0.7 mg/L<br>0.1 - 3.5 mg/L Cl <sub>2</sub>                      |                  | 200†            | 89230-974 |
| Free & Total Chlorine Test Kit (Model CN-70)                                            |                    | CD       | 0.02 - 0.7 mg/L<br>0.1 - 3.5 mg/L                                      |                  | 100 F,<br>100 T | 97027-080 |
| Free & Total Chlorine Test Kit (Model CN-80)                                            |                    | CD       | 0.02 - 0.7 mg/L<br>0.1 - 3.0 mg/L<br>0.5 - 10 (Total) mg/L             |                  | 100             | 89231-330 |
| Free Chlorine Color Cube Kit                                                            |                    | CC       | 0.5 - 2.5 mg/L Cl <sub>2</sub>                                         |                  | 50              | 97026-868 |
| Total Chlorine Color Cube Kit                                                           |                    | CC       | 0.5 - 2.5 mg/L Cl <sub>2</sub>                                         |                  | 50              | 97026-866 |
| Pocket Colorimeter™ II, Chlorine, F&T                                                   | 8021 (F), 8167 (T) | PP       | 0.02 - 2.00 mg/L F&T Cl <sub>2</sub><br>0.1 - 8.0 mg/L Cl <sub>2</sub> | DW, WW           | 50-100          | 97009-564 |
| <b>TEST KITS-MID AND HIGH RANGE</b>                                                     |                    |          |                                                                        |                  |                 |           |
| Pocket Colorimeter™ II, Chlorine, F&T                                                   | 8021 (F), 8167 (T) | PP       | 0.02 - 2.00 mg/L F&T Cl <sub>2</sub><br>0.1 - 8.0 mg/L Cl <sub>2</sub> | DW, WW           | 50-100          | 97009-564 |
| Pocket Colorimeter™ II – Chlorine, Free & Total & pH<br>(Not for regulatory reporting.) |                    | PCII, PP | 0.1 - 10.0 mg/L Cl <sub>2</sub><br>6.0 - 8.5 pH                        |                  | 100             | 97026-970 |
| <b>CHLORINE, SWIFTEST™ DISPENSER KITS</b>                                               |                    |          |                                                                        |                  |                 |           |
| Pocket Colorimeter™ II, Free Chlorine                                                   | 8021               | SW       | 0.02 - 2.00 mg/L Cl <sub>2</sub><br>0.1 - 8.0 mg/L Cl <sub>2</sub>     | DW, WW           | 125-250         | 97026-950 |
| Pocket Colorimeter™ II, Total Chlorine                                                  | 8167               | SW       | 0.02 - 2.00 mg/L Cl <sub>2</sub><br>0.1 - 8.0 mg/L Cl <sub>2</sub>     |                  | 125-250         | 97026-948 |

†100 tests each of Total and Free Chlorine.

- Spec✓ colored gels provide a stable simulation of the colors produced by the analytical method.  
Use them for a convenient check on instrument performance.

## Standards

| Description                                          | Volume                      | Concentration                | Instrument                          | Prod. No. |
|------------------------------------------------------|-----------------------------|------------------------------|-------------------------------------|-----------|
| Gel Secondary Standard Kit-LR Chlorine, DPD          | Set of 4 Vials              | 0 - 2.0 mg/L Cl <sub>2</sub> | Includes values for all instruments | 97026-500 |
| Gel Secondary Standard Kit-HR Chlorine, DPD          | Set of 4 Vials              | 0 - 8.0 mg/L Cl <sub>2</sub> | Includes values for all instruments | 97027-074 |
| Chlorine Standard Solution as Cl <sub>2</sub> (NIST) | 2 mL / 20 PourRite Ampoules | 25 - 30 mg/L                 |                                     | 97026-286 |
| Chlorine Standard Solution as Cl <sub>2</sub> (NIST) | 2 mL / 20 PourRite Ampoules | 50 - 75 mg/L                 |                                     | 97026-480 |
| Chlorine Standard Solution as Cl <sub>2</sub> (NIST) | 10 mL / 16 Voluette Ampouls | 50 - 75 mg/L                 |                                     | 97026-540 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows;  
RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Chlorine Demand / Requirement

- Determine chlorine demand and chlorine requirements for drinking water production

- Establish background data and chlorine demand constants
- Determine chlorine demand on distributed waters

## Reagents

| Description                                             | Method | Platform | Range  | # Tests | Prod. No. |
|---------------------------------------------------------|--------|----------|--------|---------|-----------|
| DPD Free Chlorine Reagent Powder Pillows, 10 mL, 100/pk | 10223  | PP       | Varies | 100     | 97009-454 |
| DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk |        | PP       |        | Varies  | 97009-468 |

## Chlorine Dioxide

- Multiple methods available

- Available in multiple test formats

- Available in different reagent formats

## Reagents

| Description                                                                                    | Method | Platform | Range                              | EPA Compliant | # Tests | Prod. No. |
|------------------------------------------------------------------------------------------------|--------|----------|------------------------------------|---------------|---------|-----------|
| <b>COLORIMETRIC</b>                                                                            |        |          |                                    |               |         |           |
| <b>Chlorine Dioxide Reagent Set, Chlorophenol Red</b>                                          | 8065   | PP, S    | 0.01 - 1.00 mg/L ClO <sub>2</sub>  |               | 100     | 89231-338 |
| Set includes: Chlorine Dioxide Reagent 1, 2, and 3, and Dechlorinating Reagent Powder Pillows. |        |          |                                    |               |         |           |
| Replacement Reagents                                                                           |        |          |                                    |               |         |           |
| Chlorine Dioxide Reagent 1, 100 mL                                                             |        | S        |                                    |               | 50      | 89230-994 |
| Chlorine Dioxide Reagent 2, 100 mL                                                             |        | S        |                                    |               | 50      | 89230-996 |
| Chlorine Dioxide Reagent 3, 100 mL                                                             |        | S        |                                    |               | 50      | 89230-998 |
| Dechlorinating Reagent Powder Pillows, 100/pk                                                  |        | PP       |                                    |               | 100     | 89231-288 |
| <b>Chlorine Dioxide Reagent Set, DPD Glycine, 10 mL</b>                                        | 10126  | PP, S    | 0.04 - 5.00 mg/L ClO <sub>2</sub>  | DW            | 100     | 97009-500 |
| Set includes: DPD Free Chlorine Reagent Powder Pillows and Glycine Reagent.                    |        |          |                                    |               |         |           |
| Replacement Reagents                                                                           |        |          |                                    |               |         |           |
| DPD Free Chlorine Reagent Powder Pillows, 10 mL, 100/pk                                        |        | PP       |                                    | DW            | 100     | 97009-454 |
| <b>Chlorine Dioxide Reagent Set, DPD Glycine AccuVac® Ampules</b>                              | 10126  | AV, S    | 0.04 - 5.00 mg/L ClO <sub>2</sub>  | DW            | 25      | 97009-540 |
| Set includes: DPD Free Chlorine Reagent AccuVac® Ampules, Glycine Reagent.                     |        |          |                                    |               |         |           |
| Replacement Reagents                                                                           |        |          |                                    |               |         |           |
| DPD Free Chlorine Reagent AccuVac® Ampules, 25/pk                                              |        | AV       |                                    | DW            | 25      | 97009-494 |
| Glycine Reagent, 10%, 29 mL SCDB                                                               |        | S        |                                    |               | 100     | 89231-184 |
| <b>AMPEROMETRIC TITRATOR TITRATION (Buret Titration for Chlorine Dioxide and Chlorite)</b>     |        |          |                                    |               |         |           |
| Hydrochloric Acid Standard Solution, 2.5 N, 100 mL MDB                                         |        | S        |                                    |               |         | 97026-604 |
| Buffer, Phosphate, pH 7, for Amperometric Chlorine, 100 mL MDB                                 |        | S        | 0.5 mg/L and above Cl <sub>2</sub> |               | 100     | 97026-638 |
| Potassium Iodide, ACS, 100 g                                                                   |        | Jar      | 0.10 - 5.00 mg/L                   |               | 50      | 97026-588 |

## Test Kits

| Description                                           | Method | Platform | Range                             | EPA Compliant | # Tests | Prod. No. |
|-------------------------------------------------------|--------|----------|-----------------------------------|---------------|---------|-----------|
| Pocket Colorimeter™ II – Chlorine Dioxide, DPD Method | 10126  | PP       | 0.05 - 5.00 mg/L ClO <sub>2</sub> | DW            | 100     | 97009-536 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=Swiftest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Chromate

## Reagents

| Description                                                                                                                                                       | Method | Platform | Range                                        | # Tests  | Prod. No. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|----------------------------------------------|----------|-----------|
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                 |        |          |                                              |          |           |
| <b>Chromate Reagent Set, Digital Titrator</b>                                                                                                                     | 8211   | PP, DT   | 20 - 400 mg/L CrO <sub>4</sub> <sup>2-</sup> | 40-100   | 89231-362 |
| Set includes: Dissolved Oxygen 3 Reagent Powder Pillows, Potassium Iodide Powder Pillows, Sodium Thiosulfate Cartridge (0.2068 N), and Starch Indicator Solution. |        |          |                                              |          |           |
| Replacement Reagents                                                                                                                                              |        |          |                                              |          |           |
| Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                                                                                                                 |        | PP       |                                              | 100      | 89230-906 |
| Sodium Thiosulfate Digital Titrator Cartridge, 0.2068N                                                                                                            |        | DT       |                                              | 40 - 100 | 97026-496 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                             |        | S        |                                              | 50 - 100 | 97026-746 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

# Chromium, Hexavalent and Total

- Hexavalent Chromium method EPA accepted for wastewater analysis
- Rapid, accurate results
- Easily monitor total chromium for process control



## Reagents

| Description                                                                                                                                | Method | Platform | Range                               | EPA Compliant | # Tests | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------------------|---------------|---------|-----------|
| ChromaVer® 3 Chromium Reagent Powder Pillows, 5 or 10 mL, 100/pk                                                                           | 8023   | PP       | 0.010 - 0.700 mg/L Cr <sup>6+</sup> | WW            | 100     | 97026-582 |
| ChromaVer® 3 Chromium Reagent AccuVac® Ampules, 25/pk                                                                                      | 8023   | AV       | 0.010 - 0.700 mg/L Cr <sup>6+</sup> | WW            | 25      | 97026-552 |
| <b>Chromium Total Reagent Set</b>                                                                                                          | 8024   | PP       | 0.01 - 0.70 mg/L Cr                 |               | 100     | 89231-340 |
| Set includes: Acid Reagent Powder Pillows, ChromaVer® 3 Chromium Reagent Powder Pillows, Chromium 1 and Chromium 2 Reagent Powder Pillows. |        |          |                                     |               |         |           |

## Test Kits

| Description                                  | Method | Platform | Range                             | # Tests | Prod. No. |
|----------------------------------------------|--------|----------|-----------------------------------|---------|-----------|
| Chromium Test Kit, as Hexavalent Cr          |        | CC       | 0.2 - 1.0 mg/L Cr <sup>6+</sup>   | 50      | 89230-950 |
| Pocket Colorimeter™ II - Chromium Hexavalent | 8023   | PCII     | 0.01 - 0.70 mg/L Cr <sup>6+</sup> | 100     | 97026-932 |

# Cobalt

- 0 - 2 mg/L range
- Easy-to-use colorimetric method
- Determine both cobalt and nickel concentrations with one test
- Low cost alternative

## Reagents

| Description                                                                                                              | Method | Platform | Range               | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------|----------|-----------|
| <b>Cobalt / Nickel Reagent Set, PAN Method, 10 mL</b>                                                                    | 8078   | PP, S    | 0.01 - 2.00 mg/L Co | 100      | 97026-266 |
| Set includes: EDTA Reagent Powder Pillows, Phthalate-Phosphate Reagent Powder Pillows and PAN Indicator Solution (0.3%). |        |          |                     |          |           |
| Replacement Reagents                                                                                                     |        |          |                     |          |           |
| EDTA Reagent Powder Pillows, 100/pk                                                                                      |        | PP       |                     | 50       | 89230-942 |
| Phthalate-Phosphate Reagent Powder Pillows, 10 mL, 100/pk                                                                |        | PP       |                     | 50       | 89231-150 |
| PAN Indicator Solution, 0.3%, 100 mL                                                                                     |        | S        |                     | 50 - 100 | 97026-648 |

## Test Kits

| Description                                | Platform    | Range                                      | # Tests | Prod. No. |
|--------------------------------------------|-------------|--------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II - Nickel and Cobalt | PCII, PP, S | 0.01 - 1.00 mg/L Ni<br>0.02 - 2.00 mg/L Co | 100     | 97026-942 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# COD (Chemical Oxygen Demand)

- EPA approved, can be used for NPDES reporting
- Accurate, rapid method

- Allows you to respond to changing operational conditions
- COD 2 reagents are Mercury-free

**EPA**  
**COMPLIANT**  
WHERE INDICATED

## Reagents

| Description                                  | Method | Platform | Range             | EPA Compliant | Digestion Required | # Tests | Prod. No. |
|----------------------------------------------|--------|----------|-------------------|---------------|--------------------|---------|-----------|
| <b>COD DIGESTION VIALS - 16 mm</b>           |        |          |                   |               |                    |         |           |
| COD Digestion Vials, Low Range, 25/pk        | 8000   | TNT/COD  | 3 - 150 mg/L      | WW            | Yes                | 25      | 97009-532 |
| COD Digestion Vials, Low Range, 150/pk       |        |          | 3 - 150 mg/L      | WW            | Yes                | 150     | 97009-592 |
| COD Digestion Vials, High Range, 25/pk       |        |          | 20 - 1,500 mg/L   | WW            | Yes                | 25      | 97009-538 |
| COD Digestion Vials, High Range, 150/pk      |        |          | 20 - 1,500 mg/L   | WW            | Yes                | 150     | 97009-590 |
| COD Digestion Vials, High Range Plus, 25/pk  |        |          | 200 - 15,000 mg/L |               | Yes                | 25      | 97009-542 |
| COD Digestion Vials, High Range Plus, 150/pk |        |          | 200 - 15,000 mg/L |               | Yes                | 150     | 97009-594 |

## Standards

| Description                                             | Prod. No. |
|---------------------------------------------------------|-----------|
| COD Standard Solution, 300 mg/L as COD (NIST), 200 mL   | 97026-292 |
| COD Standard Solution, 1,000 mg/L as COD (NIST), 200 mL | 97026-290 |
| COD Standard Solution, 800 mg/L as COD (NIST), 200 mL   | 97026-288 |

Parameters

## COD, Manganese III

An alternative "green" method for determining COD.

- Eliminates heavy metals from your waste stream
- Minimizes or completely eliminates disposal costs

- Proven as a fast and reliable alternative to BOD for process control
- Optional Chloride Removal System—up to 1,000 mg/L Chloride
- Shows good correlation to BOD and COD (dichromate) methods

## Reagents

| Description                               | Method | Platform | Range           | Digestion Required | # Tests | Prod. No. |
|-------------------------------------------|--------|----------|-----------------|--------------------|---------|-----------|
| COD Digestion Vials, Manganese III, 25/pk | 10067  | TNT      | 30 - 1,000 mg/L | Yes                | 25      | 97026-430 |

## Color

## Test Kits

| Description                 | Platform | Range                           | # Tests  | Prod. No. |
|-----------------------------|----------|---------------------------------|----------|-----------|
| Color Test Kit (Model CO-1) | CD       | 5 - 100 units<br>25 - 500 units | No Limit | 97026-898 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=Swiftest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Copper

- Several ranges and methods available
- Field or laboratory testing

- Bicinchoninate method—EPA approved with digestion; Hach's mid range
- Porphyrin method—quick and easy; Hach's lowest range



## Reagents

| Description                                                                                              | Method | Platform | Range               | EPA<br>Compliant | # Tests | Prod. No. |
|----------------------------------------------------------------------------------------------------------|--------|----------|---------------------|------------------|---------|-----------|
| <b>COLORIMETRIC METHOD</b>                                                                               |        |          |                     |                  |         |           |
| Copper Reagent Set, Porphyrin, 10 mL                                                                     | 8143   | PP       | 2 - 210 µg/L        |                  | 100     | 89231-416 |
| Set includes: Copper Masking Reagent Powder Pillows, Porphyrin 1 and Porphyrin 2 Reagent Powder Pillows. |        |          |                     |                  |         |           |
| CuVer® 1 Copper Reagent Powder Pillows, 10 mL, 100/pk                                                    | 8506   | PP       | 0.04 - 5.00 mg/L Cu | WW               | 100     | 97014-526 |
| CuVer® 2 Copper Reagent AccuVac® Ampules, 25/pk                                                          | 8026   | AV       | 0.04 - 5.00 mg/L Cu |                  | 25      | 97009-502 |

## Test Strips

| Description                       | Platform | Range                                  | # Tests | Prod. No. |
|-----------------------------------|----------|----------------------------------------|---------|-----------|
| Copper Test Strips (Free & Total) | TS       | 0 - 3 ppm Cu (0, 0.2, 0.5, 1, 3 steps) | 25      | 97026-366 |

## Test Kits

| Description                     | Method | Platform | Range               | EPA<br>Compliant | # Tests | Prod. No. |
|---------------------------------|--------|----------|---------------------|------------------|---------|-----------|
| Pocket Colorimeter™ II - Copper | 8506   | PCII, PP | 0.04 - 5.00 mg/L Cu | WW               | 100     | 97026-972 |

# Cyanide

- Stable, 3-reagent system

- Sensitive—for low level determinations

- Low range is ideal for drinking water and wastewater

## Reagents

| Description                                                 | Method | Platform | Range                              | # Tests | Prod. No. |
|-------------------------------------------------------------|--------|----------|------------------------------------|---------|-----------|
| Cyanide Reagent Set, CyaniVer, 10 mL                        | 8027   | PP       | 0.002 - 0.240 mg/L CN <sup>-</sup> | 100     | 97009-478 |
| Set includes: CyaniVer® 3, 4, and 5 Reagent Powder Pillows. |        |          |                                    |         |           |

## Test Kits

| Description                    | Platform | Range                           | # Tests | Prod. No. |
|--------------------------------|----------|---------------------------------|---------|-----------|
| Cyanide Test Kit (Model CYN-3) | CD       | 0.01 - 0.3 mg/L CN <sup>-</sup> | 100     | 89230-922 |

# Cyanuric Acid

## Reagents

| Description                                   | Method | Platform | Range       | Instrument*                        | # Tests | Prod. No. |
|-----------------------------------------------|--------|----------|-------------|------------------------------------|---------|-----------|
| <b>TURBIDIMETRIC METHOD</b>                   |        |          |             |                                    |         |           |
| Cyanuric Acid 2 Reagent Powder Pillows, 50/pk | 8139   | PP       | 5 - 50 mg/L | All except DR 5000, DR/4000, PC II | 50      | 97026-542 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Detergents / Surfactants

## Reagents

| Description                                                                                                                                                  | Method | Platform | Range                   | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------|----------|-----------|
| <b>Detergents Reagent Set (No Air Shipments)</b>                                                                                                             | 8028   | PP, S    | 0.002 0.275 mg/L as LAS | 70 - 100 | 89231-396 |
| Set includes: Benzene, Buffer Solution, Detergents Reagent Powder Pillows. Note: No Air Shipments, see Prod. No. 2446801 that has Air Freight Configuration. |        |          |                         |          |           |

## Dissolved Oxygen

- Colorimetric and titration methods available
- AccuVac® ampules are ideal for volatile analytes like dissolved oxygen—just snap and measure!

## Reagents

| Description                                                                                                                                                                                  | Method | Platform | Range                          | Instrument*              | EPA Compliant | # Tests  | Prod. No. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|--------------------------------|--------------------------|---------------|----------|-----------|
| <b>COLORIMETRIC METHOD</b>                                                                                                                                                                   |        |          |                                |                          |               |          |           |
| Dissolved Oxygen AccuVac® Ampules, LR, 25/pk                                                                                                                                                 | 8316   | AV       | 6 - 800 µg/L O <sub>2</sub>    | All except DR/820, PC II |               | 25       | 97026-684 |
| Dissolved Oxygen AccuVac® Ampules, High Range, 25/pk                                                                                                                                         | 8166   | AV       | 0.3 - 15.0 mg/L O <sub>2</sub> | All                      |               | 25       | 97014-596 |
| Dissolved Oxygen AccuVac® Ampules, High Range, 25/pk                                                                                                                                         | 8333   | AV       | 1.0 - 40.0 mg/L O <sub>2</sub> | All                      |               | 25       | 97014-596 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                            |        |          |                                |                          |               |          |           |
| <b>Dissolved Oxygen Reagent Set, Digital Titrator, 300 mL</b>                                                                                                                                | 8215   | DT       | 1 - 10 mg/L O <sub>2</sub>     |                          | WW†           | 50       | 89231-358 |
| Set includes: Alkaline Iodide-Azide Powder Pillows, Manganous Sulfate Powder Pillows, Sodium Thiosulfate Titrant Cartridge (0.2 N), Starch Indicator Solution, Sulfamic Acid Powder Pillows. |        |          |                                |                          |               |          |           |
| Replacement Reagents                                                                                                                                                                         |        |          |                                |                          |               |          |           |
| Alkaline Iodide-Azide Reagent Powder Pillows, 50/pk                                                                                                                                          |        | PP       |                                |                          |               | 50       | 97026-268 |
| Manganous Sulfate Powder Pillows, 50/pk                                                                                                                                                      |        | PP       |                                |                          |               | 50       | 97026-680 |
| Sodium Thiosulfate Digital Titrator Cartridge, 0.200 N                                                                                                                                       |        | DT       |                                |                          |               | 40 - 100 | 97026-536 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                        |        | S        |                                |                          |               | 50 - 100 | 97026-746 |
| Sulfamic Acid Powder Pillows, 50/pk                                                                                                                                                          |        | PP       |                                |                          |               | 50       | 89231-000 |
| Sodium Thiosulfate Digital Titrator Cartridge, 2.00 N                                                                                                                                        |        | DT       | 1 - > 10 mg/L O <sub>2</sub>   |                          |               | 40 - 100 | 97026-242 |
| <b>BURET TITRATION</b>                                                                                                                                                                       |        |          |                                |                          |               |          |           |
| <b>Dissolved Oxygen Reagent Set, Buret, 300 mL sample</b>                                                                                                                                    | 8229   | PP, S    | 1 - 10 mg/L O <sub>2</sub>     |                          | WW            | 100      | 89231-044 |
| Set includes: Alkaline Iodide-Azide Powder Pillows, Manganous Sulfate Powder Pillows, Sodium Thiosulfate Standard Solution (0.025 N), Starch Indicator, and Sulfamic Acid Powder Pillows.    |        |          |                                |                          |               |          |           |
| Replacement Reagents                                                                                                                                                                         |        |          |                                |                          |               |          |           |
| Sodium Thiosulfate Standard Solution, Stabilized, 0.0250 N, 1 L                                                                                                                              |        | S        |                                |                          |               | Varies   | 89231-070 |
| Alkaline Iodide-Azide Reagent Powder Pillows, 50/pk                                                                                                                                          |        | PP       |                                |                          |               | 50       | 97026-268 |
| Manganous Sulfate Powder Pillows, 50/pk                                                                                                                                                      |        | PP       |                                |                          |               | 50       | 97026-680 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                        |        | S        |                                |                          |               | 50 - 100 | 97026-746 |
| Sulfamic Acid Powder Pillows, 100/pk                                                                                                                                                         |        | PP       |                                |                          |               | 100      | 97026-174 |
| Alkaline Iodide-Azide Reagent Powder Pillows, 50/pk                                                                                                                                          |        | PP       |                                |                          |               | 50       | 97026-268 |
| Manganous Sulfate Powder Pillows, 50/pk                                                                                                                                                      |        | PP       |                                |                          |               | 50       | 97026-680 |
| Starch Indicator Solution, 100 mL MDB                                                                                                                                                        |        | S        |                                |                          |               | 50 - 100 | 97026-746 |
| Sulfamic Acid Powder Pillows, 100/pk                                                                                                                                                         |        | PP       |                                |                          |               | 100      | 97026-174 |

†Equivalent to Standard Methods 4500 O C.

## Test Kits

| Description                             | Platform | Range                          | Instrument*        | # Tests | Prod. No. |
|-----------------------------------------|----------|--------------------------------|--------------------|---------|-----------|
| Pocket Colorimeter™ II - DO System      | PCII, AV | 0.2 - 10.0 mg/L O <sub>2</sub> | Kit Includes PC II | 50      | 97026-920 |
| Dissolved Oxygen Test Kit (Model OX-2P) | DCT      | 0.2 - 4 mg/L O <sub>2</sub>    |                    | 100     | 89231-240 |
|                                         |          | 1 - 20 mg/L O <sub>2</sub>     |                    |         |           |
| Dissolved Oxygen Test Kit (AccuVac) HR  | CD, AV   | 0 - 15 mg/L O <sub>2</sub>     |                    | 25      | 89231-116 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Fluoride

Hach's SPADNS Fluoride tests—for the simplicity & reliability you expect.

- Available in multiple reagent platforms (AccuVac® and bulk solution)
- Easy-to-use one reagent test
- EPA compliant, distillation required for reporting purposes
- Hach method can analyze samples with up to 5 mg/L chlorine with no interference

**NEW! ARSENIC-FREE SPADNS 2 Reagent!**

- Removes chlorine interference without sodium arsenite
- Simplify waste disposal and minimize potential exposure
- Use as a direct replacement for SPADNS Reagent Solution or AccuVacs. SPADNS 2 Reagents can be used with existing Fluoride procedures.

**EPA  
COMPLIANT**  
WHERE INDICATED

## Reagents

| Description                                                   | Method | Platform | Range                           | EPA<br>Compliant† | # Tests | Prod. No. |
|---------------------------------------------------------------|--------|----------|---------------------------------|-------------------|---------|-----------|
| <b>SPADNS 2 REAGENT - ARSENIC - FREE FORMULA!</b>             |        |          |                                 |                   |         |           |
| SPADNS 2 Fluoride Reagent AccuVac® Ampules, 25/pk             | 10225  | AV       | 0.02 - 2.00 mg/L F <sup>-</sup> | DW, WW‡           | 25      | 97009-514 |
| SPADNS 2 Fluoride Reagent Solution, 500 mL                    | 10225  | S        | 0.02 - 2.00 mg/L F <sup>-</sup> | DW, WW‡           | 125     | 97027-020 |
| SPADNS Fluoride Reagent AccuVac® Ampules, 25/pk               | 8029   | AV       | 0.02 - 2.00 mg/L F <sup>-</sup> | DW, WW            | 25      | 97009-512 |
| SPADNS Fluoride Reagent Solution, 500 mL                      | 8029   | S        | 0.02 - 2.00 mg/L F <sup>-</sup> | DW, WW            | 125     | 97026-692 |
| SPADNS Fluoride Reagent Solution, 1 L                         | 8029   | S        | 0.02 - 2.00 mg/L F <sup>-</sup> | DW, WW            | 250     | 89230-876 |
| <b>ION SELECTIVE ELECTRODE METHOD</b>                         |        |          |                                 |                   |         |           |
| Fluoride Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk |        | PP       | 0.01 mg/L to saturated          | DW, WW            | 100     | 97021-786 |
| Fluoride Ionic Strength Adjustor (ISA), 454 g                 |        | Jar      | 0.01 mg/L to saturated          |                   |         | 97026-578 |
| Fluoride Ionic Strength Adjustor (ISA), 3.78 L                |        | S        | 0.01 mg/L to saturated          |                   | 750     | 97021-526 |

†Distillation may be required. Methods on DR/890 and DR/850 are not EPA compliant.

‡Equivalent to USEPA Method 340.1 and Standard methods 4500 F

## Test Kits

| Description                                                | Method | Platform | Range                                            | EPA<br>Compliant | # Tests | Prod. No. |
|------------------------------------------------------------|--------|----------|--------------------------------------------------|------------------|---------|-----------|
| Pocket Colorimeter™ II - Fluoride                          | 8029   | PCII, AV | 0.1 - 2.0 mg/L F <sup>-</sup> Kit includes PC II | DW, WW           | 50      | 89231-446 |
| Pocket Colorimeter™ II - Fluoride SPADNS2 (Arsenic - free) | 10225  | PCII, AV | 0.1 - 2.0 mg/L <sup>†</sup> Kit includes PC II   | DW, WW‡          | 50      | 89231-412 |

†Greater sensitivity (0.01 mg/L) is achieved by substituting bottled SPADNS reagent solution for the AccuVac® ampules in the kit.

‡Equivalent to Standard Methods 4500 F B or C

## Standards

| Description                                               | Volume         | Concentration                | Prod. No. |
|-----------------------------------------------------------|----------------|------------------------------|-----------|
| Spec✓ Gel Secondary Standard Set, Fluoride                | Set of 4 Vials | 0 - 2.00 mg/L F <sup>-</sup> | 97026-450 |
| Fluoride Standard Solution, 0.5 mg/L as F (NIST), 500 mL  |                |                              | 97021-490 |
| Fluoride Standard Solution, 1.0 mg/L as F (NIST), 500 mL  |                |                              | 97021-484 |
| Fluoride Standard Solution, 1.0 mg/L as F (NIST), 1 L     |                |                              | 97021-514 |
| Fluoride Standard Solution, 5.0 mg/L as F (NIST), 500 mL  |                |                              | 97021-466 |
| Fluoride Standard Solution, 10.0 mg/L as F (NIST), 500 mL |                |                              | 97021-494 |
| Fluoride Standard Solution, 100 mg/L as F (NIST), 500 mL  |                |                              | 97021-498 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- Determine Magnesium by difference: Magnesium is the difference between Total Hardness and Calcium
- Multiple titration and colorimetric methods available
- A wide variety of reagent platforms available
- Calcium hardness methods (CalVer2) are highly sensitive and have sharp end points for accurate results. See Calcium Hardness, page 65.

- Total hardness methods (Calmagite) are formulated for enhanced stability and are free from most interferences
- Ultra low range method (Chlorophosphonazo) developed specifically to be used with Hach spectrophotometers for ultrapure and boiler feed water analysis



## Reagents

| Description                                                                                                                                    | Method | Platform | Range                                        | EPA<br>Compliant | # Tests  | Prod. No. |
|------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|----------------------------------------------|------------------|----------|-----------|
| <b>ULTRA LOW RANGE</b>                                                                                                                         |        |          |                                              |                  |          |           |
| COLORIMETRIC                                                                                                                                   |        |          |                                              |                  |          |           |
| <b>Hardness (ULR) Reagent Set, Bulk Solution</b>                                                                                               | 8374   | S        | 4 - 1,000 µg/L CaCO <sub>3</sub>             |                  | 250      | 89231-140 |
| CDTA Reagent, 10 mL SCDB                                                                                                                       |        | S        |                                              |                  | 100      | 97026-468 |
| <b>LOW RANGE</b>                                                                                                                               |        |          |                                              |                  |          |           |
| COLORIMETRIC                                                                                                                                   |        |          |                                              |                  |          |           |
| <b>Hardness Reagent Set, Calmagite Colorimetric</b>                                                                                            | 8030   | S        | 0.05 - 4.00 mg/L Ca as CaCO <sub>3</sub>     |                  | 100      | 97009-524 |
|                                                                                                                                                |        |          | 0.05 - 4.00 mg/L Mg as CaCO <sub>3</sub>     |                  |          |           |
| Set includes: Alkali Solution (100 mL), Calcium/Magnesium Indicator Solution (100 mL), EDTA Solution (1 M, 50 mL), EGTA Solution (50 mL).      |        |          |                                              |                  |          |           |
| Replacement Reagents                                                                                                                           |        |          |                                              |                  |          |           |
| EGTA Solution, 50 mL SCDB                                                                                                                      |        | S        |                                              |                  | 100      | 89231-018 |
| Alkali Solution for Calcium and Magnesium, 100 mL MDB                                                                                          |        | S        |                                              |                  | 100      | 89231-336 |
| Calcium/Magnesium Indicator Solution, 100 mL MDB                                                                                               |        | S        |                                              |                  | 100      | 97026-250 |
| EDTA Solution, 1M, 50 mL SCDB                                                                                                                  |        | S        |                                              |                  | 100      | 97026-666 |
| <b>MID-RANGE</b>                                                                                                                               |        |          |                                              |                  |          |           |
| DIGITAL TITRATOR TITRATION                                                                                                                     |        |          |                                              |                  |          |           |
| <b>Hardness (Total) Reagent Set, LR, Digital Titrator</b>                                                                                      | 8213   | DT       | 10 - 160 mg/L CaCO <sub>3</sub>              | WW <sup>†</sup>  | 100      | 97027-038 |
| Set ( Total LR) includes: Buffer Solution (Hardness 1) 100 mL, EDTA Titrant Cartridge (0.0800 M), ManVer® 2 Hardness Indicator Powder Pillows. |        |          |                                              |                  |          |           |
| Replacement Reagents                                                                                                                           |        |          |                                              |                  |          |           |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                         |        | S        |                                              |                  | 100      | 97026-364 |
| Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk                                                                               |        | PP       |                                              |                  | 100      | 89230-886 |
| EDTA Digital Titrator Cartridge, 0.0800 M                                                                                                      |        | DT       |                                              |                  | 40 - 100 | 97026-590 |
| <b>Hardness Reagents (Total LR)</b>                                                                                                            | 8213   | DT       | 1 - 16 G.d.h. CaCO <sub>3</sub> <sup>†</sup> | WW <sup>†</sup>  |          |           |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                         |        | S        |                                              |                  | 100      | 97026-364 |
| Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk                                                                               |        | PP       |                                              |                  | 100      | 89230-886 |
| EDTA Digital Titrator Cartridge, 0.1428 M                                                                                                      |        | DT       |                                              |                  | 40 - 100 | 97026-560 |

<sup>†</sup>G.d.h. = German degrees hardness; 1 German degree hardness equals 17.9 mg/L CaCO<sub>3</sub>.

<sup>‡</sup>Equivalent to EPA Reference Method 130.2.

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Hardness

## Reagents (Continued)

| Description                                                                                                                                                                                                                   | Method | Platform | Range                                | EPA<br>Compliant | # Tests  | Prod. No. |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|--------------------------------------|------------------|----------|-----------|
|                                                                                                                                                                                                                               |        |          |                                      |                  |          |           |
| <b>Hardness (Ca and Total Sequential) LR Reagent Set, Digital Titrator</b>                                                                                                                                                    | 8329   | DT       | 10 - 160 mg/L CaCO <sub>3</sub>      |                  | 100      | 89231-402 |
| Set includes: Buffer Solution (Hardness 1), CalVer® 2 Calcium Indicator Powder Pillows, ManVer® 2 Hardness Indicator Powder Pillows, Potassium Hydroxide Solution (8 N), Sulfuric Acid (5.25 N) and EDTA Titration Cartridge. |        |          |                                      |                  |          |           |
| Replacement Reagents                                                                                                                                                                                                          |        |          |                                      |                  |          |           |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                                                                                     |        | S        |                                      |                  | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 100/pk                                                                                                                                                                            |        | PP       |                                      |                  | 100      | 89230-898 |
| ManVer® 2 Hardness Indicator Powder Pillows, 100/pk                                                                                                                                                                           |        | PP       |                                      |                  | 100      | 89230-896 |
| EDTA Digital Titrator Cartridge, 0.0800 M                                                                                                                                                                                     |        | DT       |                                      |                  | 40 - 100 | 97026-590 |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB                                                                                                                                                                           |        | S        |                                      |                  | 100      | 97026-682 |
| <b>HIGH RANGE</b>                                                                                                                                                                                                             |        |          |                                      |                  |          |           |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                                                             |        |          |                                      |                  |          |           |
| <b>Hardness (Total) Reagent Set, HR, Digital Titrator</b>                                                                                                                                                                     | 8213   | DT       | 100 - 4,000 mg/L CaCO <sub>3</sub>   | WW†              | 100      | 97027-042 |
| Set (Total HR) includes: Buffer Solution (Hardness 1) 100 mL, EDTA Titrant Cartridge (0.800 M), ManVer® 2 Hardness Indicator Powder Pillows.                                                                                  |        |          |                                      |                  |          |           |
| Replacement Reagents                                                                                                                                                                                                          |        |          |                                      |                  |          |           |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                                                                                                        |        | S        |                                      |                  | 100      | 97026-364 |
| Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk                                                                                                                                                              |        | PP       |                                      |                  | 100      | 89230-886 |
| EDTA Digital Titrator Cartridge, 0.800 M                                                                                                                                                                                      |        | DT       |                                      |                  | 40 - 100 | 97026-602 |
| <b>Hardness Reagents (Total HR)</b>                                                                                                                                                                                           | 8213   |          | 10 - 100+ G.d.h. CaCO <sub>3</sub> † | WW†              |          |           |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                                                                                                        |        | S        |                                      |                  | 100      | 97026-364 |
| Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk                                                                                                                                                              |        | PP       |                                      |                  | 100      | 89230-886 |
| EDTA Digital Titrator Cartridge, 0.714M                                                                                                                                                                                       |        | DT       |                                      |                  | 40 - 100 | 97026-528 |
| <b>Hardness (Ca and Total Sequential) HR Reagent Set, Digital Titrator</b>                                                                                                                                                    | 8329   | DT       | 100 - 4,000 mg/L CaCO <sub>3</sub>   |                  | 100      | 89231-404 |
| Set includes: Buffer Solution (Hardness 1), CalVer® 2 Calcium Indicator Powder Pillows, ManVer® 2 Hardness Indicator Powder Pillows, Potassium Hydroxide Solution (8 N), Sulfuric Acid (5.25 N) and EDTA Titration Cartridge. |        |          |                                      |                  |          |           |
| Replacement Reagents                                                                                                                                                                                                          |        |          |                                      |                  |          |           |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB                                                                                                                                                                           |        | S        |                                      |                  | 100      | 97026-682 |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                                                                                     |        | S        |                                      |                  | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 100/pk                                                                                                                                                                            |        | PP       |                                      |                  | 100      | 89230-898 |
| ManVer® 2 Hardness Indicator Powder Pillows, 100/pk                                                                                                                                                                           |        | PP       |                                      |                  | 100      | 89230-896 |
| EDTA Digital Titrator Cartridge, 0.800 M                                                                                                                                                                                      |        | DT       |                                      |                  | 40 - 100 | 97026-602 |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                                                                                                        |        | S        |                                      |                  | 100      | 97026-364 |
| <b>Hardness, Total Sequential Reagents</b>                                                                                                                                                                                    | 8329   | DT       | 1 - 16 G.d.h. CaCO <sub>3</sub> †    |                  |          |           |
| Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB                                                                                                                                                                     |        | S        |                                      |                  | varies   | 97026-728 |
| CalVer® 2 Calcium Indicator Powder Pillows, 100/pk                                                                                                                                                                            |        | PP       |                                      |                  | 100      | 89230-898 |
| ManVer® 2 Hardness Indicator Powder Pillows, 100/pk                                                                                                                                                                           |        | PP       |                                      |                  | 100      | 89230-896 |
| EDTA Digital Titrator Cartridge, 0.714M                                                                                                                                                                                       |        | DT       |                                      |                  | 40 - 100 | 97026-528 |
| Hardness 1 Buffer Solution, 100 mL MDB                                                                                                                                                                                        |        | S        |                                      |                  | 100      | 97026-364 |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB                                                                                                                                                                           |        | S        |                                      |                  | 100      | 97026-682 |

†G.d.h. = German degree hardness; 1 German degree hardness equals 17.9 mg/L CaCO<sub>3</sub>.†Equivalent to EPA Reference Method 130.2.

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Reagents (Continued)

| Description                               | Method | Platform | Range                              | EPA<br>Compliant | # Tests | Prod. No. |
|-------------------------------------------|--------|----------|------------------------------------|------------------|---------|-----------|
| <b>TITRANTS, BUFFERS, INDICATORS</b>      |        |          |                                    |                  |         |           |
| EDTA Standard Solution, 0.0200N, 1 L      |        | S        | 0 - 5,000 mg/L CaCO <sub>3</sub>   |                  |         | 97026-730 |
| EDTA Standard Solution, 0.0200N, 4L       |        | S        | 0 - 5,000 mg/L CaCO <sub>3</sub>   |                  |         | 97026-712 |
| EDTA Digital Titrator Cartridge, 0.0800 M |        | DT       | 10 - 160 mg/L CaCO <sub>3</sub>    |                  |         | 97026-590 |
| EDTA Digital Titrator Cartridge, 0.800 M  |        | DT       | 100 - 4,000 mg/L CaCO <sub>3</sub> |                  |         | 97026-602 |
| Hardness 1 Buffer Solution, 100 mL MDB    |        | S        |                                    |                  |         | 97026-364 |
| Hardness 1 Buffer Solution, 500 mL        |        | S        |                                    |                  |         | 97026-664 |
| Hardness 1 Buffer Solution, 1 L           |        | S        |                                    |                  |         | 97026-632 |
| Manver 2 Hardness Indicator               |        | PP       |                                    |                  | 100     | 89230-886 |
| Powder Pillows, 50 mL Sample, 100/pk      |        |          |                                    |                  |         |           |
| ManVer® 2 Hardness Indicator              |        | PP       |                                    |                  | 100     | 89230-896 |
| Powder Pillows, 100/pk                    |        |          |                                    |                  |         |           |

## Test Strips

| Description                                        | Platform | Range                                                                        | # Tests | Prod. No. |
|----------------------------------------------------|----------|------------------------------------------------------------------------------|---------|-----------|
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 1,000†  | 97026-520 |
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 250†    | 97026-526 |
| Total Hardness Test Strips (as CaCO <sub>3</sub> ) | TS       | 0 - 425 ppm<br>0 - 25 gpg CaCO <sub>3</sub> (0, 25, 50, 120, 250, 425 steps) | 50      | 97026-320 |

†Individually wrapped.

## Test Kits

| Description                                | Platform | Range                                                         | # Tests | Prod. No. |
|--------------------------------------------|----------|---------------------------------------------------------------|---------|-----------|
| <b>HARDNESS, TOTAL</b>                     |          |                                                               |         |           |
| Total Hardness Test Kit (Model 5-B)        | DCT      | 1 - 30 gpg CaCO <sub>3</sub>                                  | 100     | 97026-826 |
| Total Hardness Test Kit (Model HA-71A)     | DCT      | 1 - 20 mg/L CaCO <sub>3</sub><br>1 - 20 gpg CaCO <sub>3</sub> | 100     | 89231-236 |
| Total Hardness Test Kit (Model 5-EP)       | PP       | 1 - 30 gpg CaCO <sub>3</sub><br>(Powder Pillow Reagents)      | 100     | 97026-828 |
| Total Hardness Test Kit (Model 5-EP, MG-L) | DCT      | 20 - 400 mg/L CaCO <sub>3</sub>                               | 100     | 97026-844 |
| <b>HARDNESS, TOTAL &amp; CALCIUM</b>       |          |                                                               |         |           |
| Total Hardness Test Kit (Model HA-DT)      | DT       | 10 - 4,000 mg/L CaCO <sub>3</sub>                             | 50      | 89230-990 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

# Hydrazine

- Easy-to-use one reagent test
- Concentration ranges ideal for boiler water analysis

- Easy AccuVac® configuration for limiting oxygen exposure of sample

## Reagents

| Description                               | Method | Platform | Range                                      | # Tests | Prod. No. |
|-------------------------------------------|--------|----------|--------------------------------------------|---------|-----------|
| HydraVer® 2 Hydrazine Reagent, 100 mL     | 8141   | S        | 4 - 600 µg/L N <sub>2</sub> H <sub>4</sub> | 100     | 97026-508 |
| Hydrazine Reagent AccuVac® Ampules, 25/pk | 8141   | AV       | 4 - 600 µg/L N <sub>2</sub> H <sub>4</sub> | 25      | 97026-448 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Hydrogen Peroxide

- Simple drop count titration provides quantitative measurement

## Test Kits

| Description                              | Platform | Range                                                       | # Tests | Prod. No. |
|------------------------------------------|----------|-------------------------------------------------------------|---------|-----------|
| Hydrogen Peroxide Test Kit (Model HYP-1) | DCT      | 0.2 - 2.0 mg/L<br>1 - 10 mg/L H <sub>2</sub> O <sub>2</sub> | 100     | 89231-374 |

# Hydrogen Sulfide

Also see Sulfide on page 93.

## Test Kits

| Description                                                                 | Platform   | Range                                                                                                                              | # Tests | Prod. No. |
|-----------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|
| Hydrogen Sulfide Test Kit (Model HS-C)<br>Effervescence of H <sub>2</sub> S | Color Card | 0 - 5 mg/L H <sub>2</sub> S (0.0, 0.1, 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 steps)                                                         | 18      | 89231-120 |
| Hydrogen Sulfide Test Kit (Model HS-WR)<br>Methylene blue                   | CD         | 0.01 - 0.55 mg/L S <sup>2-</sup> (0.01 smallest increment)<br>0.5 - 2.25 mg/L S <sup>2-</sup><br>0.25 - 11.25 mg/L S <sup>2-</sup> | 30 - 60 | 89231-270 |

# Hydroquinone

See Oxygen Scavengers, page 88.

# Hypochlorite / Bleach Solutions

- Measure activity of hypochlorite-based disinfectants
- Digital Titrator or Drop Count kits provide a choice of methods
- Portable system allows determinations in the field or in the lab

## Reagents

| Description                                                                                                                                                                                                                                                                                                                                                                                                           | Method | Platform | Range                    | # Tests  | Prod. No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|--------------------------|----------|-----------|
| <b>DIGITAL TITRATOR TITRATION</b><br><b>Hypochlorite (Bleach) Reagent Set (HR), for Digital Titrator</b><br>Set includes: Acid Reagent Powder Pillows, Potassium Iodide Powder Pillows, Sodium Thiosulfate Titrant Cartridge (2.26 N), and Starch Indicator Solution (100 mL).<br>Replacement Reagents<br>Sodium Thiosulfate (Stabilized) Digital Titrator Cartridge, 2.26 N<br>Starch Indicator Solution, 100 mL MDB | 10100  | DT       | 5 - 15 % Cl <sub>2</sub> | 100      | 97027-060 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |        | DT       |                          | 40 - 100 | 97026-356 |
|                                                                                                                                                                                                                                                                                                                                                                                                                       |        | S        |                          | 50 - 100 | 97026-746 |

# Iodine

## Reagents

| Description                                                                   | Method | Platform | Range                           | Instrument*                                | # Tests | Prod. No. |
|-------------------------------------------------------------------------------|--------|----------|---------------------------------|--------------------------------------------|---------|-----------|
| <b>DPD METHOD</b><br>DPD Total Chlorine Reagent Powder Pillows, 10 mL, 100/pk | 8031   | PP       | 0.07 - 7.00 mg/L I <sub>2</sub> | All except DR/3000, DR/2000                | 100     | 97009-464 |
| DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk                      |        | PP       | 0.07 - 7.00 mg/L I <sub>2</sub> | DR/3000, DR/2000                           | 100     | 97009-470 |
| DPD Total Chlorine Reagent AccuVac® Ampules, 25/pk                            |        | AV       | 0.07 - 7.00 mg/L I <sub>2</sub> | All except DR/3000, DR/2000, DR/800, PC II | 25      | 97009-498 |

## Test Kits

| Description     | Platform | Range                         | # Tests | Prod. No. |
|-----------------|----------|-------------------------------|---------|-----------|
| Iodine Test Kit | CC       | 0.5 - 2.5 mg/L I <sub>2</sub> | 50      | 89231-008 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## An Understanding of Iron—Its Forms and Analysis Methods

See the following guidance for selecting the right iron method for your application.

### Ferrous Iron Reagent

Determines iron in the ferrous ( $\text{Fe}^{2+}$ ) form. Digestion or other sample pretreatment may cause ferrous iron to be lost.

### FerroVer® Iron Reagent

For determination of total soluble iron including all ferric ( $\text{Fe}^{3+}$ ) and ferrous iron ( $\text{Fe}^{2+}$ ) as well as complexed iron compounds ( $\text{Fe-EDTA}$ ). EPA approved for reporting total iron when an acid digestion is used. Total FerroVer – Ferrous Iron = Ferric Iron. Perfect for many applications and a wide range of concentrations. Determines iron in the presence of copper.

### TPTZ Iron Reagent

More sensitive than FerroVer.

### FerroZine™ Iron Reagent

Determines soluble ferric ( $\text{Fe}^{3+}$ ) and ferrous ( $\text{Fe}^{2+}$ ) iron. Digestion is needed for strongly chelated iron complexes (such as those with EDTA) and Total Iron. Use where trace level iron analysis is required.

### FerroMo™ Iron Reagent

Determines iron in the presence of molybdenum compounds in cooling tower waters. Eliminates the reduction of molybdenum which forms a black solution. No pretreatment necessary. Available as a two-powder pillow reagent system.

### Iron Titration Method

Determines high levels of soluble ferrous ( $\text{Fe}^{2+}$ ) and ferric ( $\text{Fe}^{3+}$ ) iron in industrial or oil field applications, usually without any sample pretreatment. Uses three unit-dose powder reagents and a Digital Titrator titration cartridge.

## Reagents

| Description                                                                                                                                             | Method | Platform | Range                             | EPA Compliant | # Tests  | Prod. No. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-----------------------------------|---------------|----------|-----------|
| <b>COLORIMETRIC</b>                                                                                                                                     |        |          |                                   |               |          |           |
| <b>FerroMo™ Iron Reagent Set</b>                                                                                                                        | 8365   | PP       | 0.01 - 1.80 mg/L Fe               |               | 100      | 97026-982 |
| Set includes: FerroMo™ Reagent 1 Powder Pillows and FerroMo™ Reagent 2 Powder Pillows.                                                                  |        |          |                                   |               |          |           |
| Replacement Reagents                                                                                                                                    |        |          |                                   |               |          |           |
| FerroMo™ Iron Reagent 1 Powder Pillows, 25/pk                                                                                                           |        | PP       |                                   |               | 25       | 89231-122 |
| FerroMo™ Iron Reagent 2 Powder Pillows, 50/pk                                                                                                           |        | PP       |                                   |               | 50       | 89231-124 |
| Ferrous Iron Reagent Powder Pillows, 100/pk                                                                                                             | 8146   | PP       | 0.02 - 3.00 mg/L $\text{Fe}^{2+}$ |               | 100      | 97009-458 |
| Ferrous Iron Reagent AccuVac® Ampules, 25/pk                                                                                                            | 8146   | AV       | 0.02 - 3.00 mg/L $\text{Fe}^{2+}$ |               | 25       | 97026-628 |
| FerroVer® Iron Reagent Powder Pillows, 10 mL, 100/pk                                                                                                    | 8008   | PP       | 0.02 - 3.00 mg/L Fe               | WW            | 100      | 97026-696 |
| FerroVer® Iron Reagent Powder Pillows, 10 mL, 1,000/pk                                                                                                  | 8008   | PP       | 0.02 - 3.00 mg/L Fe               | WW            | 1000     | 97026-466 |
| FerroZine® Iron Reagent Solution Pillows, 50/pk                                                                                                         | 8147   | SP       | 0.009 - 1.400 mg/L Fe             |               | 50       | 89231-276 |
| TPTZ Iron Reagent Powder Pillows, 10 mL, 100/pk                                                                                                         | 8112   | PP       | 0.012 - 1.800 mg/L Fe             |               | 100      | 89231-148 |
| TPTZ Iron Reagent AccuVac® Ampules, 25/pk                                                                                                               | 8112   | AV       | 0.012 - 1.800 mg/L Fe             |               | 25       | 89231-114 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                       |        |          |                                   |               |          |           |
| <b>Iron (Total) Reagent Set, LR, Digital Titrator</b>                                                                                                   | 8214   | DT       | 10 - 100 mg/L Fe                  |               | 100      | 97027-062 |
| Set includes: Citrate Buffer Powder Pillows, Sodium Periodate Powder Pillows, Sulfosalicylic Acid Powder Pillows and EDTA Titrant Cartridge (0.0716 M). |        |          |                                   |               |          |           |
| Replacement Reagents                                                                                                                                    |        |          |                                   |               |          |           |
| EDTA Digital Titrator Cartridge, 0.0716 M                                                                                                               |        | DT       | 10 - 100 mg/L Fe                  |               | 40 - 100 | 97026-548 |
| Sodium Periodate Powder Pillows for Manganese, 25 mL, 100/pk                                                                                            |        | PP       |                                   |               | 100      | 89230-904 |
| <b>Iron (Total) Reagent Set, HR, Digital Titrator</b>                                                                                                   | 8214   | DT       | 100 - 1,000 mg/L Fe               |               | 100      | 97027-058 |
| Set includes: Citrate Buffer Powder Pillows, Sodium Periodate Powder Pillows, Sulfosalicylic Acid Powder Pillows, and EDTA Titrant Cartridge (0.716 M). |        |          |                                   |               |          |           |
| Replacement Reagents                                                                                                                                    |        |          |                                   |               |          |           |
| EDTA Digital Titrator Cartridge, 0.716 M                                                                                                                |        | DT       | 100 - 1000 mg/L Fe                |               | 40 - 100 | 97026-246 |
| Sodium Periodate Powder Pillows for Manganese, 25 mL, 100/pk                                                                                            |        | PP       |                                   |               | 100      | 89230-904 |

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Iron

## Test Strips

| Description                               | Platform | Range                                               | # Tests | Prod. No. |
|-------------------------------------------|----------|-----------------------------------------------------|---------|-----------|
| Iron Test Strips,<br>Total Dissolved Iron | TS       | 0 - 5 ppm ppm Fe (0, 0.15, 0.3, 0.6, 1, 2, 5 steps) | 25      | 97026-440 |

## Test Kits

| Description                              | Method | Platform | Range                                  | EPA<br>Compliant<br>WW | # Tests | Prod. No. |
|------------------------------------------|--------|----------|----------------------------------------|------------------------|---------|-----------|
| Pocket Colorimeter™ II – Iron, FerroVer® | 8008   | PCII, PP | 0.02 - 5.00 mg/L Fe Kit includes PC II |                        | 100     | 97026-934 |
| Pocket Colorimeter™ II – Iron, TPTZ      | 8112   | PCII, PP | 0.01 - 1.70 mg/L Fe Kit includes PC II |                        | 50-100  | 97026-974 |
| Iron Test Kit (Model IR-18)              |        | CD       | 0.1 - 5 mg/L                           |                        | 100     | 97026-882 |
| Iron Test Kit (Model IR-18B)             |        | CD       | 0.2 - 10 mg/L Fe                       |                        | 100     | 97026-884 |
| Iron Test Kit                            |        | CC       | 1 - 5 mg/L Fe                          |                        | 50      | 97026-862 |

# Lead

- Dithizone method EPA accepted for NPDES reporting of total lead (digestion required for reporting)
- Low range suitable for trace analysis
- LeadTrak™ is a convenient field deployable method for drinking water only

## Reagents

| Description                                                                                                                                                                                                                 | Method | Platform | Range           | EPA<br>Compliant | # Tests | Prod. No.              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-----------------|------------------|---------|------------------------|
| <b>LeadTrak™ Reagent Set, Fast Column<br/>Extraction Method, 20 tests</b>                                                                                                                                                   | 8317   | PP, S    | 5 - 150 µg/L Pb |                  | 20      | 89231-376              |
| Set Includes: pPb-1 Preservative, pPb-2 Fixer Solution, pPb-3 Eluant, pPb-4 Neutralizer, pPb-5 Indicator Powder Pillows, pPb-6 Decolorizer, Dropper LDPE, Pipette Tips, Lead Standard Solution, pPb Fast Column Extractors. |        |          |                 |                  |         |                        |
| Replacement Reagents                                                                                                                                                                                                        |        |          |                 |                  |         |                        |
| pPb-1 Acid Preservative Solution, 236 mL                                                                                                                                                                                    |        | S        |                 |                  | 20      | 89231-048              |
| pPb-2, Fixer Reagent Solution, 43 mL                                                                                                                                                                                        |        | S        |                 |                  | 20      | 89231-050              |
| pPb-3, Eluant, 500 mL                                                                                                                                                                                                       |        | S        |                 |                  | 20      | 89231-052              |
| pPb-4, Neutralizer, 22 mL                                                                                                                                                                                                   |        | S        |                 |                  | 20      | 89231-054              |
| pPb-5, Indicator Reagent<br>Powder Pillows, 20/pk                                                                                                                                                                           |        | PP       |                 |                  | 20      | 89231-056              |
| pPb-6, Decolorizer, 10 mL SCDB<br>Dropper, Plastic, 0.5 & 1 mL, 20/pk                                                                                                                                                       |        | S        |                 |                  | 20      | 89231-056<br>89231-328 |
| Pipette Tips (10/pk)                                                                                                                                                                                                        |        |          |                 |                  |         | 89231-030              |
| Lead Standard Solution, 10 mg/L as<br>Pb (NIST), 25mL                                                                                                                                                                       |        | S        |                 |                  |         | 89231-060              |

## Test Kits

| Description                               | Method | Platform | Range           | Instrument         | # Tests | Prod. No. |
|-------------------------------------------|--------|----------|-----------------|--------------------|---------|-----------|
| Pocket Colorimeter™ II – LeadTrak™ System | 8317   | PCII     | 5 - 150 µg/L Pb | Kit includes PC II | 20      | 97026-914 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Magnesium, Hardness

- Determine Magnesium by difference: Magnesium is difference between Total Hardness and Calcium
- See "Hardness" pages 77-79 for reagent sets

## Manganese



- High range method is EPA approved for wastewater analysis (digestion required for reporting purposes)
- Low range PAN method is highly sensitive and ideal for drinking water samples

### Reagents

| Description                                                                                          | Method | Platform | Range                 | EPA Compliant | # Tests | Prod. No. |
|------------------------------------------------------------------------------------------------------|--------|----------|-----------------------|---------------|---------|-----------|
| <b>Manganese Reagent Set, LR, PAN, 10 mL</b>                                                         | 8149   | PP, S    | 0.006 - 0.700 mg/L Mn |               | 50      | 89231-420 |
| Set includes: Alkaline Cyanide Reagent, Ascorbic Acid Powder Pillows, PAN Indicator Solution (0.1%). |        |          |                       |               |         |           |
| Replacement Reagents                                                                                 |        |          |                       |               |         |           |
| Alkaline Cyanide Reagent, 50 mL SCDB                                                                 |        | S        |                       |               | 50      | 89231-322 |
| PAN Indicator Solution, 0.1%, 50 mL SCDB                                                             |        | S        |                       |               | 50      | 97026-624 |
| <b>Manganese Reagent Set, LR, PAN, 25 mL</b>                                                         | 8149   | PP, S    | 0.006 - 0.700 mg/L Mn |               | 100     | 89231-020 |
| Set includes: Ascorbic Acid Powder Pillows, Alkaline-Cyanide Reagent, PAN Indicator Solution (0.1%). |        |          |                       |               |         |           |
| Replacement Reagents                                                                                 |        |          |                       |               |         |           |
| Alkaline Cyanide Reagent, 100 mL MDB                                                                 |        | S        |                       |               | 50      | 89231-324 |
| PAN Indicator Solution, 0.1%, 100 mL                                                                 |        | S        |                       |               | 50      | 97026-644 |
| <b>Manganese Reagent Set, HR, 10 mL, Periodate Oxidation</b>                                         | 8034   | PP       | 0.1 - 20.0 mg/L Mn    | WW            | 100     | 97009-436 |
| Set includes: Citrate Buffer Powder Pillows and Sodium Periodate Powder Pillows.                     |        |          |                       |               |         |           |
| Replacement Reagents                                                                                 |        |          |                       |               |         |           |
| Citrate Buffer Powder Pillows for Manganese, 10 mL, 100/pk                                           |        | PP       |                       |               | 100     | 97026-660 |
| Sodium Periodate Powder Pillows for Manganese, 10 mL, 100/pk                                         |        | PP       |                       |               | 100     | 89231-312 |

### Test Kits

| Description                           | Method | Platform | Range               | Instrument         | EPA Compliant | # Tests | Prod. No. |
|---------------------------------------|--------|----------|---------------------|--------------------|---------------|---------|-----------|
| Pocket Colorimeter™ II – Manganese LR | 8149   | PCII     | 0.01 - 0.70 mg/L Mn | Kit includes PC II |               | 50      | 97026-936 |
| Pocket Colorimeter™ II – Manganese HR | 8034   | PCII     | 0.2 - 20.0 mg/L Mn  | Kit includes PC II | WW            | 100     | 97009-560 |
| Manganese Test Kit (Model MN-5)       |        | CD       | 0.1 - 3.0 mg/L Mn   |                    |               | 100     | 89230-910 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Molybdenum

- Choice of ranges and methods to meet testing needs, lab and portable methods available

- Two reagent platforms
- Low range ternary complex method is specifically designed for boiler and cooling water

## Reagents

| Description                                                                  | Method | Platform | Range               | # Tests | Prod. No. |
|------------------------------------------------------------------------------|--------|----------|---------------------|---------|-----------|
| <b>TERNARY COMPLEX METHOD</b>                                                |        |          |                     |         |           |
| Molybdenum Reagent Set, LR, 20mL                                             | 8169   | PP, S    | 0.02 - 3.00 mg/L Mo | 100     | 97026-990 |
| Set includes: Molybdenum 1 Powder Pillows and Molybdenum 2 Reagent Solution. |        |          |                     |         |           |
| <b>MERCAPTOACETIC ACID METHOD</b>                                            |        |          |                     |         |           |
| Molybdenum Reagent Set, HR, 10 mL                                            | 8036   | PP       | 0.3 - 40.0 mg/L Mo  | 100     | 97026-984 |
| Set includes: MolyVer® 1, 2 and 3 Molybdenum Reagent Powder Pillows.         |        |          |                     |         |           |
| Replacement Reagents                                                         |        |          |                     |         |           |
| MolyVer® 1 Reagent Powder Pillows, 10 mL, 100/pk                             |        | PP       |                     | 100     | 89231-142 |
| MolyVer® 2 Reagent Powder Pillows, 10 mL, 100/pk                             |        | PP       |                     | 100     | 89231-144 |
| MolyVer® 3 Reagent Powder Pillows, 10 mL, 100/pk                             |        | PP       |                     | 100     | 89231-146 |
| Molybdenum Reagent Set, HR, 25 mL                                            | 8036   | PP       | 0 - 35.0 mg/L Mo    | 100     | 89231-342 |
| Set includes: MolyVer® 1, 2 and 3 Molybdenum Reagent Powder Pillows.         |        |          |                     |         |           |
| Replacement Reagents                                                         |        |          |                     |         |           |
| MolyVer® 1 Reagent Powder Pillows, 25 mL, 100/pk                             |        | PP       |                     | 100     | 97026-352 |
| MolyVer® 2 Reagent Powder Pillows, 25 mL, 100/pk                             |        | PP       |                     | 100     | 97026-270 |
| MolyVer® 3 Reagent Powder Pillows, 25 mL, 100/pk                             |        | PP       |                     | 100     | 97026-354 |

## Test Kits

| Description                        | Method | Platform | Range                                     | # Tests | Prod. No. |
|------------------------------------|--------|----------|-------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II - Molybdate | 8169   | PCII, PP | 0.02 - 3.00 mg/L Mo<br>0.1 - 12.0 mg/L Mo | 100     | 97026-940 |
| Kit includes PC II                 |        |          |                                           |         |           |
| Molybdenum Test Kit (Model MO-LR)  |        | CD       | 0.1 - 3.0 mg/L Mo                         | 100     | 97026-888 |
| Molybdenum Test Kit (Model MO-2)   |        | CD       | 0.2 - 10.0 mg/L Mo<br>1 - 50 mg/L Mo      | 100     | 89231-386 |

# Monochloramine

- Measure monochloramine without interferences from other chlorine species

- Control your chloramination facility by pairing with the new Free Ammonia test

- 5 minute test

## Reagents

| Description                               | Method | Platform | Range                            | # Tests | Prod. No. |
|-------------------------------------------|--------|----------|----------------------------------|---------|-----------|
| Monochlor F Reagent Powder Pillows, 50/pk | 10171  | PP       | 0.04 - 4.50 mg/L Cl <sub>2</sub> | 50      | 97009-456 |

## Test Kits

| Description                                                     | Method | Platform | Range                                                                   | # Tests                                  | Prod. No. |
|-----------------------------------------------------------------|--------|----------|-------------------------------------------------------------------------|------------------------------------------|-----------|
| Pocket Colorimeter™ II Test Kit - Free Ammonia & Monochloramine | 10200  | PP, S    | 0.02 - 0.50 mg/L NH <sub>3</sub> -N<br>0.04 - 4.50 mg/L Cl <sub>2</sub> | 100 Monochloramine<br>or 50 Free Ammonia | 89231-450 |
| Kit includes PC II                                              |        |          |                                                                         |                                          |           |

## Standards

| Description                                                          | Volume         | Concentration                                                           | Prod. No. |
|----------------------------------------------------------------------|----------------|-------------------------------------------------------------------------|-----------|
| Spec✓ Secondary Gel Standards Set for Monochloramine & Free Ammonia. | Set of 4 Vials | 0.04 - 4.50 mg/L Cl <sub>2</sub><br>0.01 - 0.50 mg/L NH <sub>3</sub> -N | 97027-072 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- *Heptoxime method—EPA approved for wastewater analysis (digestion required for reporting purposes)*
- *NEW for high range—TNTplus (Prod. No. TNT856) barcoded vials for automatic method detection*

- *PAN method—Hach's lowest range Nickel test—a quick and easy method*
- *PAN method measures Nickel and Cobalt on the same sample (with a spectrophotometer)*

## Reagents

| Description                                                                                                              | Method | Platform | Range                 | EPA<br>Compliant | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------|--------|----------|-----------------------|------------------|----------|-----------|
| <b>Cobalt / Nickel Reagent Set, PAN Method, 10 mL</b>                                                                    | 8150   | PP, S    | 0.006 - 1.000 mg/L Ni |                  | 100      | 97026-266 |
| Set includes: EDTA Reagent Powder Pillows, Phthalate-Phosphate Reagent Powder Pillows and PAN Indicator Solution (0.3%). |        |          |                       |                  |          |           |
| Replacement Reagents                                                                                                     |        |          |                       |                  |          |           |
| EDTA Reagent Powder Pillows, 100/pk                                                                                      |        | PP       |                       |                  | 50       | 89230-942 |
| PAN Indicator Solution, 0.3%, 100 mL                                                                                     |        | S        |                       |                  | 50 - 100 | 97026-648 |
| Phthalate-Phosphate Reagent Powder Pillows, 10 mL, 100/pk                                                                |        | PP       |                       |                  | 50       | 89231-150 |

## Test Kits

| Description                                       | Method | Platform    | Range                                      | # Tests | Prod. No. |
|---------------------------------------------------|--------|-------------|--------------------------------------------|---------|-----------|
| <b>Pocket Colorimeter™ II - Nickel and Cobalt</b> | 8150   | PCII, PP, S | 0.01 - 1.00 mg/L Ni<br>0.02 - 2.00 mg/L Co | 100     | 97026-942 |

## Nitrate

- *Cadmium reduction method—quick and easy, three ranges available*
- *Test strips are easy to use, disposable, and inexpensive*
- *Chromotropic acid method—high range, convenient Test 'N Tube™ platform*
- *Dimethylphenol TNTplus™ Method now USEPA compliant for Drinking Water*

## Reagents

| Description                                                                               | Method       | Platform | Range                                                        | EPA<br>Compliant | # Tests | Prod. No. |
|-------------------------------------------------------------------------------------------|--------------|----------|--------------------------------------------------------------|------------------|---------|-----------|
| <b>CD REDUCTION METHOD</b>                                                                |              |          |                                                              |                  |         |           |
| <b>Nitrogen-Nitrate Reagent Set, LR, 10 mL, Cadmium Reduction</b>                         | 8192         | PP       | 0.01 - 0.50 mg/L NO <sub>3</sub> <sup>-</sup> -N             |                  | 100     | 97027-008 |
| Set Includes: NitraVer 6 Powder Pillows and NitraVer 3 Powder Pillows.                    |              |          |                                                              |                  |         |           |
| Replacement Reagents                                                                      |              |          |                                                              |                  |         |           |
| NitriVer® 3 Nitrite Reagent Powder Pillows, 10 mL, 100/pk                                 |              | PP       |                                                              |                  | 100     | 97009-466 |
| <b>Nitrogen-Nitrate Reagent Set, LR, 25 mL, Cadmium Reduction</b>                         | 8192         | PP       | 0 - 0.5 mg/L NO <sub>3</sub> <sup>-</sup> -N                 |                  | 100     | 89231-022 |
| Sets includes: NitriVer® 3 Reagent Powder Pillows and NitraVer® 6 Reagent Powder Pillows. |              |          |                                                              |                  |         |           |
| Replacement Reagents                                                                      |              |          |                                                              |                  |         |           |
| NitriVer® 3 Nitrite Reagent Powder Pillows, 25 mL, 100/pk                                 |              | PP       |                                                              |                  | 100     | 97026-586 |
| NitraVer® 6 Nitrate Reagent Powder Pillows, 30 mL, 100/pk                                 |              | PP       |                                                              |                  | 100     | 89230-956 |
| NitraVer® 5 Nitrate Reagent Powder Pillows, 10 mL, 100/pk                                 | 8039         | PP       | 0.3-30.0 or<br>0.1-10.0 mg/L NO <sub>3</sub> <sup>-</sup> -N |                  | 100     | 97009-474 |
| NitraVer® 5 Nitrate Reagent Powder Pillows, 25 mL, 100/pk                                 | 8039<br>8171 | PP       | 0.3-30.0 or<br>0.1-10.0 mg/L NO <sub>3</sub> <sup>-</sup> -N |                  | 100     | 97026-580 |
| NitraVer® 5 Nitrate Reagent AccuVac® Ampules, 25/pk                                       | 8039<br>8171 | AV       | 0.3-30.0 or<br>0.1-10.0 mg/L NO <sub>3</sub> <sup>-</sup> -N |                  | 25      | 97009-506 |
| <b>CHROMOTROPIC ACID METHOD</b>                                                           |              |          |                                                              |                  |         |           |
| <b>NitraVer X Nitrogen-Nitrate Reagent Set, HR</b>                                        | 10020        | TNT      | 0.2 - 30.0 mg/L NO <sub>3</sub> <sup>-</sup> -N              |                  | 50      | 97009-576 |
| <b>ION SELECTIVE ELECTRODE METHOD</b>                                                     |              |          |                                                              |                  |         |           |
| Nitrate Ionic Strength Adjustor (ISA) Powder Pillows, 100/pk                              |              | PP       | 0.05-14,000 mg/L                                             |                  | 100     | 97021-788 |
| Nitrate Ionic Strength Adjustor (ISA) Buffer Solution, 500 mL                             |              | S        |                                                              |                  |         | 97021-528 |

*\*MR method cannot be performed on the DR/850, DR/820, or PC II.*

*Continued on next page.*

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Nitrate

## Test Strips

| Description                     | Platform | Range                                                                                                                                                    | # Tests | Prod. No. |
|---------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|
| Nitrate and Nitrite Test Strips | TS       | Nitrate 0 - 50 mg/L ppm NO <sub>3</sub> -N (0, 1, 2, 5, 10, 20, 50 steps)<br>Nitrite 0 - 3.0 mg/L ppm NO <sub>2</sub> -N (0, 0.15, 0.3, 1, 1.5, 3 steps) | 25      | 97026-442 |

## Test Kits

| Description                            | Method | Platform | Range                                                                | # Tests | Prod. No. |
|----------------------------------------|--------|----------|----------------------------------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II – Nitrate       | 8039   | PCII, PP | 0.4 - 30.0 NO <sub>3</sub> -N<br>Kit includes PC II                  | 100     | 97009-558 |
| Nitrate Test Kit (Model NI-14)         |        | CD       | 0.02 - 1 mg/L NO <sub>3</sub> -N<br>0.2 - 10 mg/L NO <sub>3</sub> -N | 50      | 97026-822 |
| Nitrate Test Kit (Model NI-11)         |        | CD       | 1 - 50 mg/L NO <sub>3</sub> -N                                       | 100     | 89230-912 |
| Nitrate Test Kit                       |        | CC       | 0 - 50 mg/L NO <sub>3</sub> -N                                       | 50      | 97026-834 |
| Nitrate/Nitrite Test Kit (Model NI-12) |        | CD       | 1 - 50 mg/L NO <sub>3</sub> -N                                       | 100     | 89230-912 |

## Standards

| Description                                                                                                | Prod. No. |
|------------------------------------------------------------------------------------------------------------|-----------|
| Nitrogen-Nitrate Standard Solution, 1 mg/L as NO <sub>3</sub> -N (NIST), 500 mL                            | 97021-500 |
| Nitrogen-Nitrate Standard Solution, 10 mg/L as NO <sub>3</sub> -N (NIST), 500 mL                           | 97021-478 |
| Nitrogen-Nitrate Standard Solution, 100 mg/L as NO <sub>3</sub> -N (NIST), 500 mL                          | 97021-468 |
| Nitrogen-Nitrate Standard Solution, 500 mg/L as NO <sub>3</sub> -N (NIST), 16/pk - 10 mL Voluette® Ampules | 97021-790 |
| Nitrogen-Nitrate Standard Solution, 1,000 mg/L as NO <sub>3</sub> -N (NIST), 500 mL                        | 97021-442 |
| Nitrogen-Nitrate Standard Solution, 5 mg/L as NO <sub>3</sub> -N (NIST), 16/pk - 10 mL Voluette® Ampules   | 97021-794 |

# Nitrite

- Multiple ranges and methods available for lab or field use
- Ferrous Sulfate (NitriVer 2)—Hach's highest range Nitrite method, simple one reagent method

- Diazotization (NitriVer 3)—Hach's lowest range Nitrite method, EPA accepted for wastewater analysis

**EPA  
COMPLIANT**  
WHERE INDICATED

## Reagents

| Description                                                    | Method | Platform | Range                                 | EPA Compliant | # Tests | Prod. No. |
|----------------------------------------------------------------|--------|----------|---------------------------------------|---------------|---------|-----------|
| <b>NitriVer 3 TNT Reagent Set, Nitrogen-Nitrite, Low Range</b> | 10019  | TNT      | 0.002 - 0.500 mg/L NO <sub>2</sub> -N |               | 50      | 97026-522 |
| NitriVer® 3 Nitrite Reagent Powder Pillows, 10 mL, 100/pk      | 8507   | PP       | 0.002 - 0.300 mg/L NO <sub>2</sub> -N | WW            | 100     | 97009-466 |
| NitriVer® 3 Nitrite Reagent AccuVac® Ampules, 25/pk            | 8507   | AV       | 0.002 - 0.300 mg/L NO <sub>2</sub> -N | WW            | 25      | 97009-508 |
| NitriVer® 3 Nitrite Reagent Powder Pillows, 25 mL, 100/pk      | 8507   | PP       | 0.002 - 0.300 mg/L NO <sub>2</sub> -N |               | 100     | 97026-586 |
| NitriVer® 2 Nitrite Reagent Powder Pillows, 10 mL, 100/pk      | 8153   | PP       | 2 - 250 mg/L NO <sub>2</sub> -        |               | 100     | 97026-608 |
| NitriVer® 2 Nitrite Reagent Powder Pillows, 25 mL, 100/pk      | 8153   | PP       | 2 - 150 mg/L NO <sub>2</sub> -        |               | 100     | 89231-264 |
| <b>DIGITAL TITRATOR TITRATION</b>                              | 8351   | DT       | 100 - 2,500 mg/L NaNO <sub>2</sub>    |               |         |           |
| Ceric Standard Solution Digital Titrator Cartridge, 0.500 N    |        |          |                                       |               |         | 97026-234 |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB            |        |          |                                       |               |         | 97026-682 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Test Strips

| Description                     | Platform | Range                                                                                                                                                    | # Tests | Prod. No. |
|---------------------------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|
| Nitrate and Nitrite Test Strips | TS       | Nitrate 0 - 50 mg/L ppm NO <sub>3</sub> -N (0, 1, 2, 5, 10, 20, 50 steps)<br>Nitrite 0 - 3.0 mg/L ppm NO <sub>2</sub> -N (0, 0.15, 0.3, 1, 1.5. 3 steps) | 25      | 97026-442 |

## Test Kits

| Description                    | Platform | Range                                                                                    | # Tests | Prod. No. |
|--------------------------------|----------|------------------------------------------------------------------------------------------|---------|-----------|
| Nitrite Test Kit (Model NI-6)  | CD       | 0 - 100 mg/L NO <sub>2</sub> <sup>-</sup><br>0 - 2,000 mg/L NO <sub>2</sub> <sup>-</sup> | 100     | 89230-934 |
| Nitrite Test Kit (Model NI-15) | CD       | 0.01 - 0.50 mg/L NO <sub>2</sub> <sup>-</sup> -N                                         | 100     | 89231-004 |
| Test Kit, Cube Nitrate         | CC       | 0.2 - 1.0 mg/L NO <sub>2</sub> <sup>-</sup> -N                                           | 50      | 89230-986 |

## Nitrogen, Total

- Rapid, easy-to-use methods

## Reagents

| Description                                                                                                                                                                                                                           | Method | Platform | Range                               | Digestion Required | # Tests              | Prod. No. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------------------|--------------------|----------------------|-----------|
| Total Nitrogen Reagent Set, LR, TNT                                                                                                                                                                                                   | 10071  | TNT      | 0.5 - 25.0 mg/L N                   | Yes                | 25 - 50 <sup>†</sup> | 97009-596 |
| Total Nitrogen Reagent Set, HR, TNT                                                                                                                                                                                                   | 10072  | TNT      | 10 - 150 mg/L N                     | Yes                | 25 - 50 <sup>†</sup> | 89231-422 |
| <b>TOTAL KJELDAHL NITROGEN</b>                                                                                                                                                                                                        |        |          |                                     |                    |                      |           |
| Nitrogen (Total Kjeldahl) Reagent Set                                                                                                                                                                                                 | 8075   | PP       | 1 - 150 mg/L N                      | Yes <sup>†</sup>   | 250                  | 97026-688 |
| Set includes: Nessler Reagent, Hydrogen Peroxide 50%, TKN Indicator Solution, Potassium Hydroxide Standard (1.0 N), Polyvinyl Alcohol Dispersing Reagent, Mineral Stabilizer, Potassium Hydroxide Standard (8 N), and Sulfuric Acid). |        |          |                                     |                    |                      |           |
| <b>TOTAL INORGANIC NITROGEN (TIN)</b>                                                                                                                                                                                                 |        |          |                                     |                    |                      |           |
| Requires both Prod. No. 2604945 and Prod. No. 2604545.                                                                                                                                                                                |        |          |                                     |                    |                      |           |
| Total Inorganic Nitrogen Pretreatment Reagent Set                                                                                                                                                                                     | 10021  | TNT      | 0.2 - 25.0 mg/L N                   |                    | 25 - 50 <sup>†</sup> | 89231-418 |
| Nitrogen-Ammonia Reagent Set, TNT, AmVer (Salicylate), LR                                                                                                                                                                             |        | TNT      | 0.02 - 2.50 mg/L NH <sub>3</sub> -N |                    | 25 - 50 <sup>†</sup> | 97021-522 |

<sup>†</sup>Dependent on the number of performed reagent blanks.

## Standards

| Description                                                                | Prod. No. |
|----------------------------------------------------------------------------|-----------|
| Nitrogen-Ammonia Standard Solution, 10 mg/L as NH <sub>3</sub> -N, 500 mL  | 97021-522 |
| Nitrogen-Ammonia Standard Solution, 100 mg/L as NH <sub>3</sub> -N, 500 mL | 97024-518 |
| Nitrogen-Ammonia Standard Solution, 1,000 mg/L as NH <sub>3</sub> -N, 1 L  | 89231-230 |

## ORP

For information about Hach laboratory and field ORP instruments, please see pages 2-39.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titration; EX=Extraction; IA=Immunoassay; PCIL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=Swiftest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Oxygen Scavengers

Methods available for a wide variety of oxygen scavengers:

- carbohydrazide
- DEHA
- hydroquinone

- iso-ascorbic (erythorbic) acid
- methylethylketoxime
- Ferrous Iron values also determined

## Reagents

| Description                                              | Method | Platform | Range                                                                                                                                                                                           | # Tests | Prod. No. |
|----------------------------------------------------------|--------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|
| Oxygen Scavenger Reagent Set                             | 8140   | PP, S    | 5 - 600 µg/L carbohydrazide<br>3 - 450 µg/L DEHA<br>9 - 1,000 µg/L hydroquinone<br>13 - 1,500 µg/L erythorbic acid<br>iso-ascorbic acid (ISA)<br>15 - 1,000 µg/L<br>methylethyl ketoxime (MEKO) | 100     | 89231-394 |
| Set includes: DEHA 1 Powder Pillows and DEHA 2 Solution. |        |          |                                                                                                                                                                                                 |         |           |
| DEHA Reagent 1 Powder Pillows, 100/pk                    |        | PP       |                                                                                                                                                                                                 | 50      | 97026-654 |
| DEHA Reagent 2 Solution, 100 mL                          |        | S        |                                                                                                                                                                                                 | 100     | 97026-596 |

## Ozone

- Easy-to-use AccuVac® reagents are ideally suited for ozone analysis
- Indigo Trisulfonate Method
- Multiple ranges available
- Hach's reagent formulation prevents chlorine interference

## Reagents

| Description                       | Method | Platform | Range                           | # Tests | Prod. No. |
|-----------------------------------|--------|----------|---------------------------------|---------|-----------|
| Ozone AccuVac® Ampules, LR, 25/pk | 8311   | AV       | 0.01 - 0.25 mg/L O <sub>3</sub> | 25      | 97026-460 |
| Ozone AccuVac® Ampules, MR, 25/pk |        | AV       | 0.01 - 0.75 mg/L O <sub>3</sub> | 25      | 97026-172 |
| Ozone AccuVac® Ampules, HR, 25/pk |        | AV       | 0.01 - 1.50 mg/L O <sub>3</sub> | 25      | 97026-462 |

## Test Kits

| Description                    | Method | Platform  | Range                                                              | # Tests | Prod. No. |
|--------------------------------|--------|-----------|--------------------------------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II – Ozone | 8311   | PC II, AV | 0.01 - 0.25 mg/L O <sub>3</sub><br>0.01 - 0.75 mg/L O <sub>3</sub> | 25      | 97026-916 |
| Kit includes PC II             |        |           |                                                                    |         |           |

## Standards

| Description                                        | Volume         | Concentration                | Prod. No. |
|----------------------------------------------------|----------------|------------------------------|-----------|
| Spec✓ Gel Secondary Standard Set, Ozone, Mid-Range | Set of 4 vials | 0 - 0.75 mg/L O <sub>3</sub> | 97026-524 |

# PCB (Polychlorinated Biphenyls)

- Portable systems allow on-site evaluation

## Reagents

| Description     | Method | Platform | Range                       | # Tests  | Prod. No. |
|-----------------|--------|----------|-----------------------------|----------|-----------|
| PCB Reagent Set | 10050  | IA       | 1, 5, 10, 50 ppm thresholds | Up to 18 | 97026-278 |

## Test Kits

| Description                          | Method | Platform  | Range                       | Instrument         | # Tests  | Prod. No. |
|--------------------------------------|--------|-----------|-----------------------------|--------------------|----------|-----------|
| Pocket Colorimeter™ II - PCB in Soil | 10050  | PC II, IA | 1, 5, 10, 50 ppm thresholds | Kit includes PC II | Up to 18 | 97027-078 |

## Accessories Required to Run Tests (All are included in Pocket Colorimeter II Kit.)

| Description                  | Prod. No. |
|------------------------------|-----------|
| Pipet, TenSette®, 0.1-1.0 mL | 89230-982 |

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## Test Strips

| Description    | Platform | Range                                | # Tests | Prod. No. |
|----------------|----------|--------------------------------------|---------|-----------|
| pH Test Strips | TS       | 4 - 9 pH pH (4, 5, 6, 7, 8, 9 steps) | 50      | 97026-444 |

## Test Kits

| Description                                                                                                     | Platform | Range                                           | Instrument         | # Tests | Prod. No. |
|-----------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------|--------------------|---------|-----------|
| <b>pH, NARROW RANGE</b><br>pH Test Kit, Phenol Red                                                              | CC       | 6.5 - 8.5 pH                                    |                    | 50      | 89230-948 |
| <b>pH, MID-RANGE</b><br>Pocket Colorimeter™ II – Chlorine, Free & Total & pH<br>(Not for regulatory reporting.) | PCII, PP | 0.1 - 10.0 mg/L Cl <sub>2</sub><br>6.0 - 8.5 pH | Kit includes PC II | 100     | 97026-970 |
| pH Test Kit, Bromthymol Blue (Model 17F)                                                                        | CD       | 5.5 - 8.5 pH                                    |                    | 100     | 89231-242 |
| pH Test Kit, Thymol Blue (Model 17J)                                                                            | Cd       | 7.8 - 10.0 pH                                   |                    | 200     | 89230-914 |
| <b>pH, WIDE RANGE</b><br>pH Test Kit (Model 17N)                                                                | CD       | 4 - 10 pH                                       |                    | 300     | 89231-244 |

## Standards (Buffers)

| Description                                                                     | Prod. No. |
|---------------------------------------------------------------------------------|-----------|
| <b>COLOR-CODED</b>                                                              |           |
| Buffer Solution, pH 4.01 (NIST), Color-coded red, 500 mL                        | 97021-520 |
| Buffer Solution, pH 4.01 (NIST), Color-coded red, 4 L                           | 97021-510 |
| Buffer Solution, pH 4.01 (NIST), Color-coded red, 20 L                          | 97021-556 |
| Buffer Powder Pillows, pH 4.01 (NIST), Color-coded red, 50/pk                   | 97021-744 |
| Buffer Powder Pillows, pH 4.01 (NIST), Color-coded red, 250/pk                  | 97021-742 |
| Buffer Solution, pH 7.00 (NIST), Color-coded yellow, 500 mL                     | 97021-458 |
| Buffer Solution, pH 7.00 (NIST), Color-coded yellow, 4 L                        | 97021-440 |
| Buffer Solution, pH 7.00 (NIST), Color-coded yellow, 20 L                       | 97021-558 |
| Buffer Powder Pillows, pH 7.00 (NIST), Color-coded yellow, 50/pk                | 97021-748 |
| Buffer Powder Pillows, pH 7.00 (NIST), Color-coded yellow, 250/pk               | 97021-746 |
| Buffer Solution, pH 10.01 (NIST), Color-coded blue, 500 mL                      | 97021-552 |
| Buffer Solution, pH 10.01 (NIST), Color-coded blue, 4 L                         | 97021-406 |
| Buffer Solution, pH 10.01 (NIST), Color-coded blue, 20 L                        | 97021-554 |
| Buffer Powder Pillows, pH 10.00 (NIST), Color-coded blue, 50/pk                 | 89231-016 |
| Buffer Powder Pillows, pH 10.00 (NIST), Color-coded blue, 250/pk                | 97021-808 |
| Buffer Powder Pillows, pH 4.01 & pH 7.00 (NIST), 10 Powder Pillows of each      | 97021-806 |
| <b>COLOR-CODED 3-PACKS</b>                                                      |           |
| pH Buffer Solution Kit, Color-coded, pH 4.01, pH 7.00 and pH 10.01, 500 mL each | 97021-452 |
| pH Buffer Solution Kit, Color-coded, pH 4.01, pH 7.00 and pH 10.01, 4 L each    | 97021-450 |
| pH Buffer Solution Kit, Color-coded, pH 4.01, pH 7.00 and pH 10.01, 20 L each   | 97021-448 |
| <b>COLORLESS</b>                                                                |           |
| Buffer Solution, pH 4.01 (NIST), Colorless, 500 mL                              | 97021-438 |
| Buffer Solution, pH 4.01 (NIST), Colorless, 4 L                                 | 97021-444 |
| Buffer Powder Pillows, pH 6.00 (NIST), 50/pk†                                   | 97021-800 |
| Buffer Powder Pillows, pH 6.86 (NIST), 15/pk†                                   | 97021-784 |
| Buffer Solution, pH 7.00 (NIST), Colorless, 500 mL                              | 97021-426 |
| Buffer Solution, pH 7.00 (NIST), Colorless, 4 L                                 | 97021-432 |
| Buffer Powder Pillows, pH 8.00 (NIST), 15/pk†                                   | 97021-798 |
| Buffer Powder Pillows, pH 9.00 (NIST), 15/pk†                                   | 97021-792 |
| Buffer Solution, pH 10.01 (NIST), Colorless, 500 mL                             | 97021-408 |
| Buffer Solution, pH 10.01 (NIST), Colorless, 4 L                                | 97021-410 |
| <b>SINGLET™ SOLUTION PACKS</b>                                                  |           |
| SINGLET™ Single-Use pH Buffer, Combination Pack, pH 7.00 & 10.01, 10 of each    | 97021-730 |
| SINGLET™ Single-Use pH Buffer, Combination Pack, pH 4.01 & 7.00, 10 of each     | 97021-728 |
| SINGLET™ Single-Use pH Buffer, pH 4.01 (NIST), 20/pk                            | 97021-462 |
| SINGLET™ Single-Use pH Buffer, pH 7.00 (NIST), 20/pk                            | 97021-424 |
| SINGLET™ Single-Use pH Buffer, pH 10.01 (NIST), 20/pk                           | 97021-404 |

†NOTE: one Powder Pillow of buffer prepares 50 mL.

Continued on next page.

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Indicators

| Description                                                  | Prod. No. |
|--------------------------------------------------------------|-----------|
| Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk | 97026-224 |
| Bromcresol Green-Methyl Red Indicator Solution, 15 mL SCDB   | 89231-038 |
| Bromcresol Green-Methyl Red Indicator Solution, 100 mL MDB   | 97026-600 |
| Bromcresol Green-Methyl Red Indicator Solution, 500 mL       | 89231-040 |
| Phenolphthalein Indicator Powder Pillows, 100/pk             | 97026-726 |
| Bromphenol Blue Indicator Powder Pillows, 100/pk             | 89230-976 |
| Bromphenol Blue Indicator Solution, 100 mL MDB               | 97026-248 |
| Bromthymol Blue Indicator Solution, 100 mL MDB               | 89230-862 |
| Phenol Red Indicator Solution, 15 mL SCDB                    | 89230-858 |
| Phenol Red Indicator Solution, 50 mL SCDB                    | 89230-856 |
| Phenol Red Indicator Solution, 100 mL MDB                    | 97026-640 |
| Phenol Red Indicator Solution, Spec. Grade, 50 mL            | 97026-490 |
| Phenol Red Indicator Solution, 500 mL                        | 89230-860 |
| Thymol Blue Indicator Solution, 100 mL MDB                   | 97026-732 |
| Wide Range pH Indicator Solution, 100 mL MDB                 | 97026-686 |
| Wide Range pH Indicator Solution, 1 L                        | 89231-042 |

## Phenols



## Reagents

| Description                                                                                                              | Method | Platform | Range                     | EPA Compliant<br>WW† | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------|----------------------|----------|-----------|
| <b>Phenols Reagent Set</b><br>(No Air Shipments)                                                                         | 8047   | PP, S    | 0.002 - 0.200 mg/L Phenol |                      | 100      | 89231-344 |
| Set includes: Hardness 1 Buffer Solution, Chloroform, Phenol Reagent Powder Pillows and Phenol 2 Reagent Powder Pillows. |        |          |                           |                      |          |           |
| Replacement Reagents                                                                                                     |        |          |                           |                      |          |           |
| Hardness 1 Buffer Solution, 500 mL                                                                                       |        | S        |                           |                      | 50       | 97026-664 |
| Chloroform, 4 L                                                                                                          |        | S        |                           |                      | 60 - 100 | 89230-970 |
| Phenol Reagent Powder Pillows, 100/pk                                                                                    |        | PP       |                           |                      | 50       | 89230-890 |
| Phenol 2 Reagent Powder Pillows, 100/pk                                                                                  |        | PP       |                           |                      | 50       | 97026-610 |

†Distillation required.

## Phosphonates

- Hach's unique UV Oxidation provides quick determination of phosphonates, without hot plate digestions

## Reagents

| Description                                                                     | Method | Platform | Range                                         | # Tests | Prod. No. |
|---------------------------------------------------------------------------------|--------|----------|-----------------------------------------------|---------|-----------|
| <b>Phosphonate Reagent Set, 10 mL</b>                                           | 8007   | PP       | 0.02 - 125 mg/L PO <sub>4</sub> <sup>3-</sup> | 100     | 89231-388 |
| Set includes: Potassium Persulfate Powder Pillows and PhosVer 3 Powder Pillows. |        |          |                                               |         |           |
| Replacement Reagents                                                            |        |          |                                               |         |           |
| Potassium Persulfate Powder Pillows, 100/pk                                     |        | PP       |                                               | 100     | 97026-350 |
| PhosVer® 3 Phosphate Reagent Powder Pillows, 10 mL, 100/pk                      |        | PP       |                                               | 100     | 97009-438 |

## Test Kits

| Description                                            | Method | Platform | Range                                                          | # Tests                   | Prod. No. |
|--------------------------------------------------------|--------|----------|----------------------------------------------------------------|---------------------------|-----------|
| Phosphonate Test Kit (Model PN-10), with UV Lamp, 220V |        | CD       | 0.1 - 5 mg/L<br>1 - 125 mg/L                                   | 100                       | 89231-318 |
| Phosphonate Test Kit (Model PN-10), without Lamp       |        | CD       | 0.1 - 5 mg/L<br>1 - 125 mg/L                                   | 100                       | 89231-316 |
| Pocket Colorimeter™ II – Phosphonate                   | 8007   | PP       | 0.1 - 2.5 mg/L PO <sub>4</sub><br>1 - 125 mg/L PO <sub>4</sub> | Kit includes PC II<br>100 | 89231-448 |

## Standards

| Description                                                           | Prod. No. |
|-----------------------------------------------------------------------|-----------|
| Phosphate Standard Solution, 1 mg/L as PO <sub>4</sub> (NIST), 500 mL | 97026-656 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

## Reagents

| Description                                                                                      | Method | Platform | Range                             | EPA Compliant | Digestion Required | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------|--------|----------|-----------------------------------|---------------|--------------------|----------|-----------|
| <b>PHOSPHORUS</b>                                                                                |        |          |                                   |               |                    |          |           |
| PhosVer® 3 Phosphate Reagent Powder Pillows, 10 mL, 100/pk                                       | 8048   | PP       | 0.02 - 2.50 mg/L PO <sub>4</sub>  | DW, WW        |                    | 100      | 97009-438 |
| Phosphorus (Reactive) TNT Reagent Set, LR                                                        | 8048   | TNT      | 0.06 - 5.00 mg/L PO <sub>4</sub>  | DW, WW        |                    | 25 - 50† | 97026-534 |
| Phosphorus, Reactive, Reagent Set, Amino Acid                                                    | 8178   | S        | 0.23 - 30.00 mg/L PO <sub>4</sub> |               |                    | 100      | 89231-346 |
| Set includes Amino Acid Reagent (100 mL) and Molybdate Reagent (100 mL).                         |        |          |                                   |               |                    |          |           |
| Replacement Reagents                                                                             |        |          |                                   |               |                    |          |           |
| Amino Acid Reagent, 100 mL MDB                                                                   |        | S        |                                   |               |                    | 100      | 97026-538 |
| Molybdovanadate Reagent, 100 mL MDB                                                              | 8114   | S        | 0.3 - 45.0 mg/L PO <sub>4</sub>   |               |                    | 50       | 97026-744 |
| Phosphorus (Phosphate) AccuVac® Ampules, Molybdovanadate, 25/pk                                  | 8114   | AV       | 0.3 - 45.0 mg/L PO <sub>4</sub>   |               |                    | 25       | 97026-572 |
| Phosphorus (Reactive) TNT Reagent Set, HR Molybdovanadate                                        | 8114   | TNT      | 1.0 - 100.0 mg/L PO <sub>4</sub>  |               |                    | 25 - 50† | 89231-428 |
| Phosphorus (Total) TNT Reagent Set, HR Molybdovanadate                                           | 10127  | TNT      | 1.0 - 100.0 mg/L PO <sub>4</sub>  |               | Yes                | 25 - 50† | 97009-570 |
| Phosphorus (Total) TNT Reagent Set, LR                                                           | 8190   | TNT      | 0.06 - 3.50 mg/L PO <sub>4</sub>  | WW            | Yes                | 25 - 50† | 97009-568 |
| Phosphorus Digestion Reagent Set                                                                 | 8190   | PP, S    |                                   |               |                    | 100      | 89231-092 |
| Set includes: Sulfuric Acid 5.25 N, Sodium Hydroxide 5.0 N, Potassium Persulfate Powder Pillows. |        |          |                                   |               |                    |          |           |
| Replacement Reagents                                                                             |        |          |                                   |               |                    |          |           |
| Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB                                              |        | S        |                                   |               |                    | 100      | 97026-682 |
| Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB                                            |        | S        |                                   |               |                    | 100      | 97026-576 |
| Potassium Persulfate Powder Pillows, 100/pk                                                      |        | PP       |                                   |               |                    | 100      | 89230-940 |

†Dependent on the number of performed reagent blanks.

## Test Strips

| Product Description                    | Platform | Range                                                | # Tests | Prod. No. |
|----------------------------------------|----------|------------------------------------------------------|---------|-----------|
| Phosphate, Ortho (as PO <sub>4</sub> ) | TS       | 0 - 50 mg/L PO <sub>4</sub> (0, 5, 15, 30, 50 steps) | 50      | 97026-446 |

## Test Kits

| Description                                                                                | Method | Platform | Range                                                                                             | # Tests | Prod. No. |
|--------------------------------------------------------------------------------------------|--------|----------|---------------------------------------------------------------------------------------------------|---------|-----------|
| Pocket Colorimeter™ II - Phosphate                                                         | 8048   | PC II    | 0.02 - 3.00 mg/L PO <sub>4</sub>                                                                  | 100     | 97009-562 |
| Orthophosphate Test Kit (reactive) (Model PO-19)<br>For clean samples                      |        | CD       | 0.02 - 1.00 mg/L PO <sub>4</sub><br>0.1 - 5.0 mg/L PO <sub>4</sub><br>1 - 50 mg/L PO <sub>4</sub> | 100     | 97026-892 |
| Orthophosphate Test Kit (reactive) ( Model PO-19A)<br>For clean samples and turbid samples |        | CD       | 0.1 - 5.0 mg/L PO <sub>4</sub><br>1 - 50 mg/L PO <sub>4</sub>                                     | 100     | 97027-076 |
| Orthophosphate Test Kit                                                                    |        | CC       | 1 - 5 mg/L PO <sub>4</sub>                                                                        | 50      | 97026-864 |

# Potassium

## Reagents

| Description                                 | Method | Platform | Range | # Tests | Prod. No. |
|---------------------------------------------|--------|----------|-------|---------|-----------|
| Potassium 2 Reagent Solution Pillows, 25/pk |        | SP       |       | 25      | 89230-966 |
| Potassium 3 Reagent Powder Pillows, 100/pk  |        | PP       |       | 100     | 89230-968 |

## Standards

| Description                                               | Prod. No. |
|-----------------------------------------------------------|-----------|
| Potassium Standard Solution, 100 mg/L as K (NIST), 500 mL | 97021-422 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

Also see *Water Quality Meters & Probes Section, pages 2-39.*

## Reagents

| Description                                          | Method | Platform | Range                | # Tests          | Prod. No. |
|------------------------------------------------------|--------|----------|----------------------|------------------|-----------|
| <b>MERCURIC NITRATE METHOD</b>                       | 10073  |          |                      |                  |           |
| Diphenylcarbazone Powder Pillows, 100/pk             |        | PP       | 0 - 100 ppt salinity | 100              | 89230-902 |
| Mercuric Nitrate Digital Titrator Cartridge, 2.570 N |        | DT       | 0 - 100 ppt salinity | Digital Titrator | 40 - 100  |
| Water, Deionized, 4 L                                |        | S        |                      |                  | 89230-866 |

## Accessories Required to Run Tests

| Description      | Prod. No. |
|------------------|-----------|
| Digital Titrator | 97026-774 |

## Silica

- Hach's Silica analyzers have set the standard for monitoring trace Silica concentrations in boiler water for many years, and our laboratory solutions provide a great complement to these reliable products
- Hach's multiple Silica analysis methods and ranges offer a more complete solution to your Silica testing needs
- Silicomolybdate—Hach's highest range Silica method
- Heteropoly Blue—Hach's lowest range Silica method, two ranges available (low and ultra low range), developed specifically for boiler and ultra pure water analysis

## Reagents

| Description                                                                                                                           | Method | Platform | Range                               | # Tests | Prod. No. |
|---------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------------------------|---------|-----------|
| <b>Silica Reagent Set, Ultra Low Range Rapid Liquid™</b>                                                                              | 8282   | S        | 3 - 1,000 µg/L SiO <sub>2</sub>     | 250     | 89231-166 |
| Set includes: Molybdate 3 Reagent Solution, Citric Acid Reagent Solution, Amino Acid F Dilution Solvent, Amino Acid F Reagent Powder. |        |          |                                     |         |           |
| Replacement Reagents                                                                                                                  |        |          |                                     |         |           |
| Molybdate 3 Reagent, 500 mL                                                                                                           |        | S        |                                     | 250     | 89231-258 |
| Citric Acid F Reagent Solution, 500 mL                                                                                                |        | S        |                                     | 250     | 89231-356 |
| Amino Acid F Dilution Solvent, for Rapid Liquid Silica, 475 mL                                                                        |        | S        |                                     | 250     | 89231-046 |
| Amino Acid F Reagent Powder, for Rapid Liquid Silica, 55 g                                                                            |        | Jar      |                                     | 250     | 89231-154 |
| <b>Silica Reagent Set, Ultra Low Range, Bulk Solution</b>                                                                             | 8282   | S        | 3 - 1,000 µg/L SiO <sub>2</sub>     | 100     | 89231-126 |
| Set includes: Molybdate 3 Reagent Solution, Citric Acid F Reagent Solution, Amino Acid F Reagent Solution.                            |        |          |                                     |         |           |
| Replacement Reagents                                                                                                                  |        |          |                                     |         |           |
| Molybdate 3 Reagent, 100 mL                                                                                                           |        | S        |                                     | 100     | 89231-256 |
| Citric Acid F Reagent Solution, 100 mL                                                                                                |        | S        |                                     | 100     | 89231-354 |
| Amino Acid F Reagent Solution, 100 mL                                                                                                 |        | S        |                                     | 100     | 89231-380 |
| <b>Silica, Low Range, Reagent Set, 10 mL</b>                                                                                          | 8186   | PP, S    | 0.010 - 1.600 mg/L SiO <sub>2</sub> | 100     | 89231-406 |
| Set includes: Molybdate 3 Reagent, Citric Acid Powder Pillows for Silica and Amino Acid F Powder Pillows                              |        |          |                                     |         |           |
| Replacement Reagents                                                                                                                  |        |          |                                     |         |           |
| Molybdate 3 Reagent Solution, 50 mL SCDB                                                                                              |        | S        |                                     | 50      | 89231-254 |
| <b>Silica Reagent Set, High Range, 10 mL</b>                                                                                          | 8185   | PP       | 1 - 100 mg/L SiO <sub>2</sub>       | 100     | 89231-386 |
| Set includes: Acid Reagent Powder Pillows for HR Silica, Citric Acid Reagent Powder Pillows and Molybdate Reagent Powder Pillows.     |        |          |                                     |         |           |
| Replacement Reagents                                                                                                                  |        |          |                                     |         |           |
| Acid Reagent Powder Pillows for HR Silica, 10-mL, 100/pk                                                                              |        | PP       |                                     | 100     | 89231-310 |
| Molybdate Reagent Powder Pillows for HR Silica, 10 mL, 100/pk                                                                         |        | PP       |                                     | 100     | 89231-308 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

- Single reagent systems

- SulfaVer® 4 method is EPA compliant for wastewater

## Reagents

| Description                                               | Method | Platform | Range                                     | EPA Compliant | # Tests | Prod. No. |
|-----------------------------------------------------------|--------|----------|-------------------------------------------|---------------|---------|-----------|
| <b>SULFAVER 4 METHOD</b>                                  |        |          |                                           |               |         |           |
| SulfaVer® 4 Sulfate Reagent Powder Pillows, 10 mL, 100/pk | 8051   | PP       | 2 - 70 mg/L SO <sub>4</sub> <sup>2-</sup> | WW            | 100     | 97026-704 |
| SulfaVer® 4 Sulfate Reagent AccuVac® Ampules, 25/pk       |        | AV       | 2 - 70 mg/L SO <sub>4</sub> <sup>2-</sup> | WW            | 25      | 97009-510 |
| SulfaVer® 4 Sulfate Reagent Powder Pillows, 25-mL, 100/pk |        | PP       | 2 - 70 mg/L SO <sub>4</sub> <sup>2-</sup> | WW            | 100     | 97026-716 |

## Test Kits

| Description                     | Method | Platform | Range         | # Tests | Prod. No. |
|---------------------------------|--------|----------|---------------|---------|-----------|
| Pocket Colorimeter™ II –Sulfate | 8051   | PCII, PP | 2 - 70 mg/L   | 100     | 97009-554 |
| Sulfate Test Kit (Model SF-1)   |        |          | 50 - 200 mg/L | 100     | 89230-936 |

# Sulfide / Hydrogen Sulfide

- Quick, easy test kits available for field use

- Stable formulations

## Reagents

| Description                                             | Method | Platform | Range                        | EPA Compliant | # Tests | Prod. No. |
|---------------------------------------------------------|--------|----------|------------------------------|---------------|---------|-----------|
| <b>Sulfide Reagent Set, Methylene Blue</b>              | 8131   | S        | 5 - 800 µg/L S <sup>2-</sup> | WW            | 100     | 97009-546 |
| Set includes: Sulfide 1 Reagent, and Sulfide 2 Reagent. |        |          |                              |               |         |           |
| Replacement Reagents                                    |        |          |                              |               |         |           |
| Sulfide 1 Reagent, 100 mL MDB                           |        | S        |                              |               | 50      | 97026-630 |
| Sulfide 2 Reagent, 100 mL MDB                           |        | S        |                              |               | 50      | 97026-280 |

## Test Kits

| Description                                                              | Platform   | Range                                                                                                                              | # Tests | Prod. No. |
|--------------------------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------|---------|-----------|
| Hydrogen Sulfide Test Kit (Model HS-C) Effervescence of H <sub>2</sub> S | Color Card | 0 - 5 mg/L H <sub>2</sub> S (0.0, 0.1, 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 steps)                                                         | 18      | 89231-120 |
| Hydrogen Sulfide Test Kit (Model HS-WR) Methylene blue                   | CD         | 0.01 - 0.55 mg/L S <sup>2-</sup> (0.01 smallest increment)<br>0.5 - 2.25 mg/L S <sup>2-</sup><br>0.25 - 11.25 mg/L S <sup>2-</sup> | 30 - 60 | 89231-270 |

# Sulfite

- Choice of titration method (buret titration, Digital Titrator)

- Reagents formulated for boiler water analysis

## Reagents

| Description                                                                                                              | Method | Platform | Range                                        | EPA Compliant | # Tests  | Prod. No. |
|--------------------------------------------------------------------------------------------------------------------------|--------|----------|----------------------------------------------|---------------|----------|-----------|
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                        |        |          |                                              |               |          |           |
| <b>Sulfite Reagent Set, Digital Titrator</b>                                                                             | 8216   | DT       | 4 - > 400 mg/L SO <sub>3</sub> <sup>2-</sup> | WW†           | 100      | 89231-360 |
| Set includes: Starch Indicator Solution, Dissolved Oxygen 3 Powder Pillows and Iodate-Iodide Digital Titrator Cartridge. |        |          |                                              |               |          |           |
| Replacement Reagents                                                                                                     |        |          |                                              |               |          |           |
| Starch Indicator Solution, 100 mL MDB                                                                                    |        | S        |                                              |               | 50 - 100 | 97026-746 |
| Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                                                                        |        | PP       |                                              |               | 100      | 89230-906 |
| Iodate-Iodide Digital Titrator Cartridge, 0.3998 N                                                                       |        | DT       |                                              |               | 40 - 100 | 97026-236 |

†Equivalent to Standard Methods 4500 SO<sub>3</sub> B

## Standards

| Description                                                     | Prod. No. |
|-----------------------------------------------------------------|-----------|
| Sodium Thiosulfate Standard Solution, Stabilized, 0.0250 N, 1 L | 89231-070 |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# TOC (Total Organic Carbon)

- Eliminates hazardous Mercury, Chromium and Silver waste
- Correlates well to instrumental TOC methods
- Effective means to monitor disinfection by-product precursors

## Reagents

| Description                                                                                                                                               | Method | Platform | Range             | Digestion Required | # Tests              | Prod. No.        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|-------------------|--------------------|----------------------|------------------|
| <b>Total Organic Carbon (TOC) Reagent Set, LR</b>                                                                                                         | 10129  | TNT      | 0.3 - 20.0 mg/L C | Yes                | 25 - 50              | <b>89231-426</b> |
| Set includes: Acid Digestion Solution Vials Low Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules Low Range TOC, and TOC Persulfate PP.       |        |          |                   |                    |                      |                  |
| <b>Total Organic Carbon (TOC) Reagent Set, MR</b>                                                                                                         | 10173  | TNT      | 15 - 150 mg/L C   | Yes                | 25 - 50 <sup>†</sup> | <b>89231-432</b> |
| Set includes: Acid Digestion Solution Vials Mid Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules Mid/High Range TOC, and TOC Persulfate PP.  |        |          |                   |                    |                      |                  |
| <b>Total Organic Carbon (TOC) Reagent Set, HR</b>                                                                                                         | 10128  | TNT      | 100 - 700 mg/L C  | Yes                | 25 - 50 <sup>†</sup> | <b>97026-422</b> |
| Set includes: Acid Digestion Solution Vials High Range TOC, Sulfate Buffer Solution, Funnel, Indicator Ampules Mid/High Range TOC, and TOC Persulfate PP. |        |          |                   |                    |                      |                  |

<sup>†</sup>Dependent on the number of performed reagent blanks.

## Accessories Required to Run Tests

| Description                             | Prod. No.        |
|-----------------------------------------|------------------|
| Pipet, TenSette®, 0.1-1.0 mL            | <b>89230-982</b> |
| Pipet, TenSette®, 1-10 mL               | <b>89230-984</b> |
| Stir Bar, Teflon-coated, 2.22 x 0.48 cm | <b>97021-740</b> |

# TPH in Soil (Total Petroleum Hydrocarbons)

- Portable systems allow on-site evaluation
- Detect TPH in soil or water

## Reagents

| Description            | Method | Platform | Range                                        | # Tests  | Prod. No.        |
|------------------------|--------|----------|----------------------------------------------|----------|------------------|
| <b>TPH Reagent Set</b> | 10050  | IA       | Threshold ppm 20, 50, 100, 200 ppm threshold | Up to 18 | <b>97026-584</b> |

## Test Kits

| Description                       | Method | Platform | Range                          | # Tests  | Prod. No.        |
|-----------------------------------|--------|----------|--------------------------------|----------|------------------|
| Pocket Colorimeter™ - TPH in Soil | 10050  | PCII, IA | 20, 50, 100, 200 ppm threshold | Up to 18 | <b>97027-082</b> |

# TPH in Water (Total Petroleum Hydrocarbons)

## Reagents

| Description            | Method | Platform | Range                                        | # Tests  | Prod. No.        |
|------------------------|--------|----------|----------------------------------------------|----------|------------------|
| <b>TPH Reagent Set</b> | 10050  | IA       | Threshold ppm 20, 50, 100, 200 ppm threshold | Up to 18 | <b>97026-584</b> |

## Test Kits

| Description                        | Method | Platform | Range                       | # Tests  | Prod. No.        |
|------------------------------------|--------|----------|-----------------------------|----------|------------------|
| Pocket Colorimeter™ - TPH in Water | 10050  | PCII, IA | 2, 5, 10, 20 ppm thresholds | Up to 18 | <b>97027-084</b> |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Trihalomethane Formation Potential

- Determine the potential of source waters to form disinfection by-products when chlorinated

- Evaluate water treatment processes and water sources
- Predict THM formation in distribution systems

## Reagents

| Description                                                           | Method | Range | # Tests | Prod. No. |
|-----------------------------------------------------------------------|--------|-------|---------|-----------|
| DPD Free Chlorine Reagent Powder Pillows, 25 mL                       |        |       | Varies  | 97009-468 |
| <b>THM Plus Reagent Set</b>                                           |        |       | 50 - 99 | 89231-192 |
| Set includes: THM 1, 2, 3 Reagent Solutions and THM 4 Powder Pillows. |        |       |         |           |

## TTHM (Total Trihalomethanes)

- Fast results
- Detection limit of 10 ppb
- Use to screen for hot spots in distribution systems

- Designed specifically for drinking water plants
- More cost effective than GC method
- Use to optimize plant operations for DBP control

## Reagents

| Description                                                           | Method | Platform | Range                           | Digestion Required | # Tests | Prod. No. |
|-----------------------------------------------------------------------|--------|----------|---------------------------------|--------------------|---------|-----------|
| <b>COLORIMETRIC</b>                                                   |        |          |                                 |                    |         |           |
| <b>Total Trihalomethanes (THM) Reagent Set</b>                        | 10132  | PP, S    | 10 - 600 µg/L CHCl <sub>3</sub> | Yes                | 50 - 99 | 89231-192 |
| Set includes: THM 1, 2, 3 Reagent Solutions and THM 4 Powder Pillows. |        |          |                                 |                    |         |           |

## Accessories Required to Run Tests

| Description               | Prod. No. |
|---------------------------|-----------|
| Pipet, TenSette®, 1-10 mL | 89230-984 |

This TTHM test requires heating and the use of transfer pipets and several other common lab items. Please refer to the Hach Procedure at [www.hach.com](http://www.hach.com) for a complete list.

## Turbidity



2100 Series Laboratory Turbidimeters

For lab and portable turbidimeters, see pages 47-51.



2100Q Portable Turbidimeter

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCL=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Volatile Acids

## Reagents

| Description                                                                                                                                                                                        | Method | Platform | Range                                 | Digestion Required | # Tests  | Prod. No. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------|---------------------------------------|--------------------|----------|-----------|
| <b>COLORIMETRIC</b>                                                                                                                                                                                |        |          |                                       |                    |          |           |
| <b>Volatile Acids Reagent Set, Esterification</b>                                                                                                                                                  | 8196   | S        | 27 - 2,800 mg/L Acetic Acid           |                    | 100      | 89231-350 |
| Set includes: Hydroxylamine Hydrochloride Solution, Sulfuric Acid Standard Solution 19.2 N, Ethylene Glycol, Sodium Hydroxide Standard Solution 4.5 N, and Ferric Chloride-Sulfuric Acid Solution. |        |          |                                       |                    |          |           |
| Replacement Reagents                                                                                                                                                                               |        |          |                                       |                    |          |           |
| Hydroxylamine Hydrochloride Solution, 100 g/L, 100 mL                                                                                                                                              |        | S        |                                       |                    | 100      | 89230-882 |
| Ferric Chloride-Sulfuric Acid Solution, 1 L                                                                                                                                                        |        | S        |                                       |                    | 50       | 89230-928 |
| Sulfuric Acid Standard Solution, 19.2 N, 100 mL MDB                                                                                                                                                |        | S        |                                       |                    | 250      | 97026-748 |
| Ethylene Glycol, 1 L                                                                                                                                                                               |        | S        |                                       |                    | 333      | 89230-924 |
| Sodium Hydroxide Standard Solution, 4.5 N, 1 L                                                                                                                                                     |        | S        |                                       |                    | 250      | 89230-926 |
| <b>DIGITAL TITRATOR TITRATION</b>                                                                                                                                                                  |        |          |                                       |                    |          |           |
| Distillation required. See Accessories Required below.                                                                                                                                             |        |          |                                       |                    |          |           |
| <b>Volatile Acids Reagent Set, Digital Titrator</b>                                                                                                                                                | 8218   | DT, PP   | 100 - 2,400 mg/L CH <sub>3</sub> COOH |                    | 100      | 89231-408 |
| Replacement Reagents                                                                                                                                                                               |        |          |                                       |                    |          |           |
| Sodium Hydroxide Digital Titrator Cartridge, 0.9274 N                                                                                                                                              |        | DT       |                                       |                    | 40 - 100 | 97026-238 |
| Phenolphthalein Indicator Powder Pillows, 100/pk                                                                                                                                                   |        | PP       |                                       |                    | 100      | 97026-726 |

## Zinc

- Zincon method EPA approved for NPDES reporting after digestion
- Accurate, reliable results
- Easy to use



## Reagents

| Description                                                       | Method | Platform | Range               | EPA Compliant | # Tests | Prod. No. |
|-------------------------------------------------------------------|--------|----------|---------------------|---------------|---------|-----------|
| <b>Zinc Reagent Set, 20 mL</b>                                    | 8009   | PP, S    | 0.01 - 3.00 mg/L Zn | WW            | 100     | 97014-598 |
| Set includes: Cyclohexanone and ZincoVer® Reagent Powder Pillows. |        |          |                     |               |         |           |
| Replacement Reagents                                              |        |          |                     |               |         |           |
| Cyclohexanone, ACS, 100 mL                                        |        | S        |                     |               |         | 97026-216 |
| ZincoVer® 5 Zinc Reagent Powder Pillows, 20 mL, 100/pk            |        | PP       |                     |               |         | 97026-642 |

## Test Kits

| Description                   | Platform | Range               | EPA Compliant | # Tests | Prod. No. |
|-------------------------------|----------|---------------------|---------------|---------|-----------|
| Pocket Colorimeter™ II - Zinc | PCII, PP | 0.02 - 3.00 mg/L Zn | WW            | 100     | 97009-434 |
| Kit includes PC II            |          |                     |               |         |           |

PLATFORM KEY: AV=AccuVac®; CC=Color Cube; CD=Color Disc; DCT=Drop Count Titration; DT=Digital Titrator; EX=Extraction; IA=Immunoassay; PCII=Pocket Colorimeter™ II; PP=Powder Pillows; RL=Rapid Liquid; S=Solution; SP=Solution Pillow; SW=SwiftTest™; TNT=Test 'N Tube™; TNT+=TNTplus™; TRB=Turbidity; TS=Test Strip

# Single Parameter Standards

## Single Parameter Standard Solutions

| Prod. No. | Standard Solution Parameter                       | Concentration | Volume | Ampule Volume/Qty | Application*      |
|-----------|---------------------------------------------------|---------------|--------|-------------------|-------------------|
| 97026-742 | BOD (NIST) (Glucose plus Glutamic Acid)           | 300 mg/L      |        | 10 mL/16          | DW, WM, WI, E     |
| 89230-978 |                                                   | 3000 mg/L     |        | 10 mL/16          |                   |
| 97021-400 | (NIST) (for Hardness)                             | 100 mg/L      | 500 mL |                   |                   |
| 97021-402 |                                                   | 1000 mg/L     | 500 mL |                   |                   |
| 97021-488 | Chloride as Cl <sup>-</sup> (NIST)                | 100 mg/L      | 1 L    |                   | DW, WM, WI, BC, E |
| 97021-512 |                                                   | 1000 mg/L     | 500 mL |                   |                   |
| 89173-990 |                                                   | 12,500 mg/L   |        | 10 mL/16          |                   |
| 97026-286 | Chlorine as Cl <sub>2</sub> (NIST)                | 25 to 30 mg/L |        | 2 mL/20           | DW, WM, WI, BC, E |
| 97026-480 |                                                   | 50 to 75 mg/L |        | 2 mL/20           |                   |
| 97026-540 |                                                   | 50 to 75 mg/L |        | 10 mL/16          |                   |
| 97026-292 | COD (NIST)                                        | 300 mg/L      | 200 mL |                   | DW, WM, WI, E     |
| 97026-288 |                                                   | 800 mg/L      | 200 mL |                   |                   |
| 97026-290 |                                                   | 1000 mg/L     | 200 mL |                   |                   |
| 97021-490 | Fluoride as F <sup>-</sup> (NIST)                 | 0.5 mg/L      | 500 mL |                   |                   |
| 97021-484 |                                                   | 1.0 mg/L      | 500 mL |                   |                   |
| 97021-514 |                                                   | 1.0 mg/L      | 1 L    |                   |                   |
| 97021-530 |                                                   | 2.0 mg/L      | 500 mL |                   |                   |
| 97021-466 |                                                   | 5.0 mg/L      | 500 mL |                   |                   |
| 97021-494 |                                                   | 10 mg/L       | 500 mL |                   |                   |
| 97021-498 |                                                   | 100 mg/L      | 500 mL |                   |                   |
| 97026-482 | Iron as Fe (NIST)                                 | 1 mg/L        | 500 mL |                   | DW, WM, WI, BC, E |
| 89231-060 | Lead as Pb (NIST)                                 | 10 mg/L       | 25 mL  |                   | DW, WM, WI, E     |
| 97021-508 | Nitrogen-Ammonia as NH <sub>3</sub> -N            | 1 mg/L        | 500 mL |                   | DW, WM, BC, E     |
| 97021-522 |                                                   | 10 mg/L       | 500 mL |                   |                   |
| 97021-796 |                                                   | 50 mg/L       |        | 2 mL/20           |                   |
| 97021-804 |                                                   | 50 mg/L       |        | 10 mL/16          |                   |
| 97024-518 |                                                   | 100 mg/L      | 500 mL |                   |                   |
| 89173-996 |                                                   | 150 mg/L      |        | 10 mL/16          |                   |
| 97021-802 |                                                   | 160 mg/L      |        | 10 mL/16          |                   |
| 89231-230 |                                                   | 1000 mg/L     | 1 L    |                   |                   |
| 97021-500 | Nitrogen-Nitrate as NO <sub>3</sub> -N (NIST)     | 1 mg/L        | 500 mL |                   | DW, WM, WI, BC, E |
| 97021-794 |                                                   | 5 mg/L        |        | 10 mL/16          |                   |
| 97024-478 |                                                   | 10 mg/L       | 500 mL |                   |                   |
| 97021-460 |                                                   | 15 mg/L       | 100 mL |                   |                   |
| 97021-468 |                                                   | 100 mg/L      | 500 mL |                   |                   |
| 97021-790 |                                                   | 500 mg/L      |        | 10 mL/16          |                   |
| 97021-442 |                                                   | 1000 mg/L     | 500 mL |                   |                   |
| 97026-656 | Phosphate as PO <sub>4</sub> <sup>3-</sup> (NIST) | 1 mg/L        | 500 mL |                   | DW, WM, WI, BC, E |
| 97021-422 | Potassium as K (NIST)                             | 100 mg/L      | 500 mL |                   | DW, E             |
| 97021-428 | Sodium as Na                                      | 100 mg/L      | 1 L    |                   | DW, WM, WI, BC, E |
| 97021-434 |                                                   | 1000 mg/L     | 500 mL |                   |                   |

\* DW = Drinking Water; WM = Wastewater, Municipal; WI = Wastewater, Industrial; BC = Boiler/Cooling Water; E = Environmental  
NOTE: These are only suggested applications. Other applications may apply.

## Spec✓ Standards

### Spec✓ Gel Secondary Standard Kits

| Prod. No. | Description                 | Concentration                                                          | Unit           |
|-----------|-----------------------------|------------------------------------------------------------------------|----------------|
| 97026-500 | Chlorine, DPD LR            | 0 to 2.0 mg/L Cl <sub>2</sub>                                          | Set of 4 Vials |
| 97027-074 | Chlorine, DPD HR            | 0 to 6.5 mg/L Cl <sub>2</sub>                                          | Set of 4 Vials |
| 97026-450 | Fluoride                    | 0 to 2.00 mg/L F <sup>-</sup>                                          | Set of 4 Vials |
| 97027-072 | Monochloramine/Free Ammonia | 0 to 4.5 mg/L Cl <sub>2</sub> and<br>0 to 0.50 mg/L NH <sub>3</sub> -N | Set of 4 Vials |
| 97026-524 | Ozone, MR                   | 0 to 0.75 mg/L                                                         | Set of 4 Vials |

# Acid – Bromthymol Blue

## A

### Acid Reagent Solution

For sulfite, 2.5N HCl  
**97026-604** 100 mL MDB

### Acidity Reagent Sets

*Digital Titrator Method*  
 Methyl Orange Endpoint- Bromphenol Blue Indicator; Methyl Orange and Phenolphthalein Endpoints, 10-4,000 mg/L as CaCO<sub>3</sub>  
**89231-370** 100 tests

### Alachlor in Water Reagent Set

*Immunoassay Method*  
 0.1, 0.5 ppb Thresholds  
**97026-276** 18 tests

### Alkali Solution

For colorimetric calcium and magnesium determination  
**89231-336** 100 mL MDB

### Alkaline Cyanide Reagent

For determination of low level manganese  
**89231-322** 50 mL SCDB  
**89231-324** 100 mL MDB

### Alkaline Iodide-Azide Reagent Powder Pillows

For dissolved oxygen, 300 mL sample  
**97026-268** 50

### Alkalinity Reagent Set

*Digital Titrator*  
 Phenolphthalein and Total Alkalinity  
 10-4,000 mg/L as CaCO<sub>3</sub>  
**97026-800** 100

### AlkaSeltzer Tablets

Without aspirin, for hydrogen sulfide test  
**97026-904** 36

### Aluminum Reagent Set

*Aluminon Method*  
 0.008-0.800 mg/L Al  
**97009-488** 100 tests

*ECR Method*  
**89231-086** 100 tests

### AluVer® 3 Aluminum Reagent Powder Pillows

**89230-962** 100

### Amino Acid Reagent

For silica and phosphate  
**97026-538** 100 mL MDB  
**97026-516** 500 mL

### Amino Acid F Dilution Solvent

For ultra low range silica  
**89231-046** 475 mL

### Amino Acid F Reagent Powder

For ultra low range silica  
**89231-154** 55 g

### Amino Acid F Reagent Solution

For ultra low range silica analysis  
**89231-380** 100 mL

### Ammonia Analysis

Also see Nitrogen-Ammonia

### Ammonia Cyanurate Reagent

For Nitrogen, Ammonia Salicylate Method  
 5-mL sample  
**89231-384** 50  
 10-mL sample  
**89231-156** 100

### Ammonia Electrode Filling Solution

For Model 50250 electrode  
**97021-474** 50 mL

### Ammonia Ionic Strength Adjustor

Powder Pillows  
**97021-772** 100  
 Solution  
**97021-492** 500 mL

### Ammonia Reagent Sets

*Salicylate Method*  
 10 mL sample, 0.01-0.50 mg/L NH<sub>3</sub>-N  
**97009-530** 100 tests  
*AmVer LR (Salicylate) TNT Method*  
 0.02-2.50 mg/L NH<sub>3</sub>-N  
**97009-556** 25-50 tests  
*AmVer HR (Salicylate) TNT Method*  
 0.4-50.0 mg/L NH<sub>3</sub>-N  
**97009-572** 25-50 tests

### Ammonia, Free, Reagent Sets

*Free Ammonia Reagent Set*  
 0.02-0.50 mg/L NH<sub>3</sub>-N  
**89231-436** 50 tests

### Ammonia Salicylate Reagent

For Nitrogen, Ammonia Salicylate Method  
 5-mL sample  
**89231-382** 50/pk  
 10-mL sample  
**89231-158** 100/pk

### Ammonia Standard Solution as NH<sub>3</sub>-N

150 mg/L, 10-mL Voluette Ampule  
**89173-996** 16

### Ammonia Standard Solution as N

1 mg/L  
**97021-508** 500 mL  
 10 mg/L  
**97021-522** 500 mL  
 100 mg/L  
**97024-518** 500 mL  
 1000 mg/L  
**89231-230** 1 L

### Aqua Ammonia Reagent Set

See Parameter Section page 63 for details.  
 5-35% (=50-350 g/L) NH<sub>3</sub>  
**89231-438** 100 tests

### Ascorbic Acid Powder Pillows

For Aluminum and LR Manganese  
**89231-294** 100

### Ascorbic Acid Reagents for Phosphate

See Phosphorus, Reactive Rapid Liquid Reagents and PhosVer.

### Ascorbic Acid Titrant

For determination of ascorbic acid in juice-based beverages  
**97026-328** 100 mL MDB

### Atrazine Reagent Set

Immunoassay Method  
 0.1, 0.5, 3.0 ppb thresholds  
**97026-274** 18 tests

## B

### Benzotriazole Reagents

Triazole Reagent Powder Pillows  
**97026-574** 100

### Bismuth Nitrate Titration Cartridge

**97026-226** 0.0200 M

### Bleaching 3 Reagent

Powder Pillows for Aluminum  
**89230-964** 100

### BOD Nitrification Inhibitor

See Nitrification Inhibitor

### BOD Nutrient Buffer

See Nutrient Buffer Pillows

### BOD Standard Solutions (NIST)

For dilution method; glucose plus glutamic acid, 300 mg/L of each, 10-mL Voluette Ampule  
**97026-742** 16  
 For manometric method; glucose plus glutamic acid, 3000 mg/L of each, Voluette Ampule  
**89230-978** 16

### Borate Buffer Solution

APHA, Nitrogen-Ammonia distillation  
**97026-634** 1 L

### Boric Acid Powder Pillows

For ammonia distillation  
**97026-622** 100

### Bromocresol Green-Methyl Red Indicator

For alkalinity titrations  
 Powder Pillows  
**97026-224** 100

### Bromocresol Green-Methyl Red Indicator Solution

APHA, Alkalinity (Titration Method)  
**89231-038** 15 mL SCDB  
**97026-600** 100 mL MDB  
**89231-040** 500 mL

### Bromine Reagent

DPD Method  
 DPD Total Chlorine Reagent Powder Pillows  
**97009-464** 100 tests  
 DPD Total Chlorine Reagent AccuVac Ampules  
 25 tests

### Bromine Water

30 g/L  
**89230-932** 25 mL

### Bromphenol Blue Indicator

Powder Pillows  
 pH indicator for acidity and alkalinity titrations  
 Visual transition interval: pH 3.0 (yellow)-pH 4.6 (blue)  
 50-mL sample  
**89230-976** 100

### Bromphenol Blue Indicator Solution

pH indicator for acidity and alkalinity titrations  
 Visual transition interval: pH 3.0 (yellow)-pH 4.6 (blue)  
**97026-248** 100 mL MDB

### Bromthymol Blue Indicator Solution

Standardized for colorimetric pH determination  
 pH range 5.5-7.3  
**89230-862** 100 mL MDB

## Buffers: pH Standardization

### POWDER PILLOWS

Many are color-coded for easy identification.

All prepare 50 mL of buffer. pH is  $\pm 0.02$  at 25°C.

pH 4.01 (color-coded red) (NIST)

**97021-766** 15

**97021-744** 50

**97021-742** 250

pH 6.00

**97021-800** pk/50

pH 6.86

**97021-784** pk/15

pH 7.00 (color-coded yellow) (NIST)

**97021-770** 15

**97021-748** 50

**97021-746** 250

pH 8.00

**97021-798** pk/15

pH 9.00

**97021-792** pk/50

pH 10.01 (color-coded blue) (NIST)

**97021-764** 15

**89231-016** pk/50

**97021-808** 250

pH 4.01 and pH 7.00 (color-coded red and yellow

pillows) (NIST) Contains: 10 pillows of pH 4.01

buffer and 10 pillows of pH 7.00 buffer, for 50 mL

**97021-806** 10 each

SOLUTIONS (color-coded) pH is  $\pm 0.02$  at 25°C.

pH 4.01 (color-coded red) (NIST)

**97021-520** 500 mL

**97021-510** 4 L

**97021-556** 20 L

pH 7.00 (color-coded yellow) (NIST)

**97021-458** 500 mL

**97021-440** 4 L

**97021-558** 20 L

pH 10.01 (color-coded blue) (NIST)

**97021-552** 500 mL

**97021-406** 4 L

**97021-554** 20 L

SOLUTIONS (color-coded) (NIST): 3-packs

**97021-452** Includes one each 500mL of pH 10.01, 7.00, 4.01

**97021-450** Includes one each 4L of pH 10.01, 7.00, 4.01

**97021-448** Includes one each 20L of pH 10.01, 7.00, 4.01

SOLUTIONS (colorless)

pH is  $\pm 0.02$  at 25°C. pH 4.01 (NIST)

**97021-438** 500 mL

**97021-444** 4L

pH 7.00 (NIST)

**97021-426** 500 mL

**97021-432** 4 L

pH 10.01 (NIST)

**97021-408** 500 mL

**97021-410** 4 L

SINGLET™ SOLUTION PACKS

pH 7.00 and pH 10.01 Buffer Solution

**97021-730** 10 each

pH 4.01 and pH 7.00 Buffer Solution

**97021-728** 10 each

pH 4.01 Buffer Solution

**97021-462** 20 pkg.

pH 7.00 Buffer Solution

**97021-424** 20 pkg.

pH 10.01 Buffer Solution

**97021-404** 20 pkg.

## Buffers: Special Use

### POWDER PILLOWS

**For Iron, Citrate type**

**89231-002** 100

**For Manganese, cold periodate method.**

**Citrate type**

10-mL sample

**97026-660** 100

### SOLUTIONS

**Acetate Buffer Solution**

pH 4.0 for Chlorine

(Amperometric Method)

**97026-592** 100 mL MDB

**Hardness 1 Buffer**

pH 10.1  $\pm$  0.1 at 20°C

**89230-870** 50 mL SCDB

**97026-364** 100 mL MDB

**97026-664** 500 mL

**97026-632** 1 L

## C

## Calcium/Magnesium

### Indicator Solution

For colorimetric calcium and magnesium determinations in water. (For determinations in food and feed samples, see Calmagite Solution.)

**97026-250** 100 mL MDB

## Calcium Reagents

See *Hardness (Calcium) Reagent Sets*.

## Calcium Standard Solutions as Ca

100 mg/L

**97021-400** 500 mL (NIST)

1000 mg/L (HCl matrix)

**97021-402** 500 mL (NIST)

## CalVer® 2 Calcium Indicator

For calcium determination using EDTA titration

Powder Pillows

**89230-898** 100 (Test kit)

**89230-888** 100 (Dig. Titr. or buret)

## Carbon Dioxide Reagent Sets

*Digital Titrator Method*

Range: 10-1000 mg/L as CO<sub>2</sub>

(0.3636 N and 3.636 N titrants)

**89231-368** 100 tests

*Drop Count Titration Method*

Range: 0-100 mg/L as CO<sub>2</sub>

**89231-072** 100 tests

## Cartridge Assembly,

### Complete, Empty

For your own reagents when using the Digital

Titration.

**97026-760** each

## CDTA Solution

For ultra low range hardness

**97026-468** 10 mL SCDB

## Ceric Standard Cartridge

### for Digital Titrator

**97026-234** 0.500 N

Digits  $\times 0.105$  = g/L H<sub>2</sub>O<sub>2</sub> in 0.1 mL

Digits  $\times 0.000625$  = meq

## Chelants Reagents

See *Parameters Section page 66*.

## Chemical Oxygen Demand

See *COD*

## Chloramine, Mono

Low Range 0.04-4.50 mg/L as Cl<sub>2</sub>

Monochlor F Reagent Pillow

**97009-456** 50

## Chloride 2 Indicator

Powder for argentometric (silver nitrate) methods

Powder Pillows

For test kit

**97026-714** 100

For 100 mL sample

**97026-722** 50

## Chloride Reagent Sets

*Digital Titrator Method*

Silver Nitrate Method

Range: 10-10,000 mg/L as Cl<sup>-</sup>; 2.5-150

g/L as Cl<sup>-</sup> in Surface Finishing Solutions

(0.2256 N and 1.128 N titrants)

**89231-372** 100 tests

*Mercuric Nitrate Method*

Range: 10-8,000 mg/L Cl<sup>-</sup>

**89231-366** 100 tests

*Drop Count Titration Method*

Silver Nitrate Method

Range: 0-400 mg/L as Cl<sup>-</sup>

(0.0493 N titrant)

**89231-074** 100 tests

## Chloride Standard Solutions

as Cl<sup>-</sup> (NIST)

100 mg/L (0.00282 N)

**97021-488** 1 L

1000 mg/L

**97021-512** 500 mL

12,500 mg/L, 10-mL Ampule

**89173-990** 16

## Chloride Titrant

Silver nitrate-for low range test kit

**89230-868** 100 mL MDB

Silver nitrate, 0.0493 N

**97026-478** 100 mL MDB

## Chlorine, Free

DPD Free Chlorine AccuVac Ampules

**97009-494** 25

DPD Free Chlorine Reagent Powder Pillows

5-mL sample

**89231-332** 50

**97026-740** 100

**97026-718** 1000-pac

10-mL sample

**97009-454** 100

**89231-194** SwiftTest bulk dispenser,

250 tests

**89231-302** SwiftTest replacement

Vial, 250 tests

**97009-518** 1000-pac

25-mL sample

**97009-468** 100

**97026-750** 1000-pac

## Chlorine (Free and Total)

### Reagent Sets

(See *Parameters Section pages 68-70* for details.)

*Colorimetric Method*

DPD Method

Range: 0-3.5 mg/L as Cl<sub>2</sub> for 5-mL sample

**89231-080** 100 tests

*Digital Titrator Method*

FEAS Titration Method

Range: 0-3+ mg/L as Cl<sub>2</sub>

**97027-056** 100 tests

## Chlorine, Free, Test 'N Tube

DPD Method

0.09-5.00 mg/L Cl<sub>2</sub>

**97026-566** 50 tests

# Chlorine – Diphenylcarbazone

## Chlorine, Total

DPD Total Chlorine AccuVac Ampules  
**97009-498** 25  
 DPD Total Chlorine Reagent Powder Pillows  
 5-mL sample  
**89231-334** 50  
**97026-218** 100  
**97026-702** 1000-pac  
 10-mL sample  
**97009-464** 100  
**89231-196** SwiftTest bulk dispenser,  
 250 tests  
**89231-304** SwiftTest replacement  
 Vial, 250 tests  
**97009-520** 1000-pac  
 25-mL sample  
**97009-470** 100  
**97026-220** 1000-pac

## Chlorine, Total, Test 'N Tube

DPD Method 0.09-5.00 mg/L Cl<sub>2</sub>  
**97026-544** 50 tests

## Chlorine (Total) Reagent Sets

*Digital Titration Method*  
 Iodometric Method  
 Range: 20-2000 mg/L as Cl<sub>2</sub>  
 (0.113 N titrant)  
**89231-364** 100 tests  
 Range: 2000-70,000 mg/L as Cl<sub>2</sub>  
 (2.0 N titrant)  
**89231-392** 100 tests  
*Drop Count Titration Method*  
 Thiosulfate Method  
 Range: 0-200 mg/L as Cl<sub>2</sub>  
 (0.0246 N titrant)  
**89231-076** 100 tests

## Chlorine, Total - ULR

*DPD Method*  
 2-500 µg/L as Cl<sub>2</sub>  
 ULR Chlorine Reagent Set  
**89231-132**

## Chlorine Dioxide Reagent 1

For ClO<sub>2</sub> determination, CPR Method  
**89230-994** 100 mL

## Chlorine Dioxide Reagent 2

For ClO<sub>2</sub> determination, CPR Method  
**89230-996** 100 mL

## Chlorine Dioxide Reagent 3

For ClO<sub>2</sub> determination, CPR Method  
**89230-998** 100 mL

## Chlorine Dioxide Reagent Set

*Chlorophenol Red Method*  
 0.01-1.00 mg/L ClO<sub>2</sub>  
**89231-338** 100 tests  
*DPD/Glycine Method*  
 AccuVac Ampules 0.04-5.00 mg/L ClO<sub>2</sub>  
**97009-540** 25 tests  
 Powder Pillows 0.04-5.00 mg/L ClO<sub>2</sub>  
**97009-500** 100 tests

## Chlorine Standard Solution as Cl<sub>2</sub> (NIST)

25-30 mg/L, 2-mL PourRite Ampule  
**97026-286** 20  
 50-75 mg/L, 2-mL PourRite Ampule  
**97026-480** 20  
 50-75 mg/L, 10-mL Voluette Ampule  
**97026-540** 16

## Chloroform

ACS Grade, CAS No. 67-66-3  
 CHCl<sub>3</sub>, FW = 119.38  
**89230-970** 4 L (No Air Shipments)  
 Assay: ≥99.8%

## Chromate Reagent Set

*Digital Titrator Method*  
 Range: 20 to 400 mg/L as CrO<sub>4</sub>  
**89231-362** 100 tests

## ChromaVer® 3 Chromium Reagent

Range: 0.010 - 0.700 mg/L Cr<sup>6+</sup>  
 AccuVac Ampules  
**97026-552** 25  
 Powder Pillows 5-mL or 10-mL sample  
**97026-582** 100

## Chromium, Total, Reagent Sets

*Colorimetric Method*  
 1,5-Diphenylcarbohydrazide Method  
 Range: 0.01-0.70 mg/L as total chromium  
 25-mL sample  
**89231-340** 100 tests

## Citric Acid F Reagent Solution

For ULR silica  
**89231-354** 100 mL MDB  
**89231-356** 500 mL

## Cobalt/Nickel Reagent Set

*Colorimetric Method*  
 PAN Method 0.02-2.00 mg/L Co  
 10-mL sample  
**97026-266** 100 tests

## COD Digestion Vials, Dichromate

Reactor Digestion Method 16 mm  
 Ultra Low Range (0.7-40.0 mg/L COD)  
 Low Range (3-150 mg/L COD)  
**97009-532** 25  
**97009-592** 150  
 High Range (20-1500 mg/L COD)  
**97009-538** 25  
**97009-590** 150  
 High Range Plus (200-15,000 mg/L COD)  
**97009-542** 25  
**97009-594** 150

## COD Digestion Vials, Manganese III

Reactor Digestion Method 16 mm, 30-1000 mg/L  
**97026-430** 25

## COD Standard Solution (NIST)

300 ± 15 mg/L as COD  
**97026-292** 200 mL  
 800 mg/L as COD ± 40 mg/L  
**97026-288** 200 mL  
 1000 ± 50 mg/L as COD

## CuVer® 1 Copper Reagent

Bicinchoninate Method  
 For copper (0.04-5.00 mg/L Cu)  
 Powder Pillows 5-mL sample  
**89230-960** 100  
 10-mL sample  
**97014-526** 100

## CuVer® 2 Copper Reagent

For copper in the presence of high levels of aluminum, calcium, and iron. Calibrations for CuVer® 1 may be used. 0.04-5.00 mg/L Cu  
 AccuVac Ampule  
**97009-502** 25

## CyaniVer 3 Cyanide Reagent Powder Pillows

25 mL sample 0.002-0.240 mg/L CN-  
**97026-650** 100

## CyaniVer 5 Cyanide Reagent Powder Pillows

25 mL sample 0.002-0.240 mg/L CN-  
**97026-652** 100

## Cyanuric Acid 2 Reagent Powder Pillows

**97026-542** 50

## Cyclohexanediaminetetraacetic Acid

See CDTA

## Cyclohexanediaminetetraacetic Acid, Disodium Magnesium Salt

See CDTA Disodium Magnesium Salt

## Cyclohexanone

CAS No. 108-94-1  
 For zinc test C<sub>6</sub>H<sub>10</sub>O, FW = 98.15  
**97026-216** 100 mL  
 Assay: 99.5%

## D

## Dechlorinating Reagent Powder Pillows

For dechlorinating water samples  
**89231-288** 100

## Dechlorinating Solution

Sodium Thiosulfate 0.1N, 1 drop/25-mL sample  
**97026-380** 100 mL MDB

## DEHA Reagent Set

*Colorimetric Method*  
 Iron Reduction Method for Oxygen Scavengers,  
 3-450 µg/L  
**89231-394** 100 tests

## DEHA 1 Reagent Powder Pillows

**97026-654** 100

## DEHA 2 Reagent Solution

**97026-596** 100 mL

## Deionized Water

See Water, Deionized

## Detergents Reagent Sets

*Crystal Violet Method*  
 0.002-0.275 mg/L LAS  
**89231-396** 100 tests (No Air Shipments)

## Diphenylcarbazone Reagent

For chloride mercuric nitrate method  
 Powder pillows for 100-mL sample  
**97026-610** 100

# Dissolved Oxygen – Hardness

## Dissolved Oxygen Reagent Sets

### Buret Titration Method

Winkler Method (Azide Modification)

1- ≥10 mg/L as DO

300-mL sample

**89231-044** 100 tests

### Digital Titrator Method

Winkler Method (Azide Modification)

1- ≥10 mg/L as DO

300-mL sample

**89231-358** 50 tests

### Drop Count Titration Method

For OX-2P Test Kit (Prod. No. 146900)

**89231-082** 100 tests

## Dissolved Oxygen Reagent AccuVac® Ampules

Low Range (6-800 µg/L)

**97026-684** 25

Mid and High Range (0.3-15.0 and 1-40 mg/L)  
for natural waters

**97014-596** 25

## E

## ECR Masking Reagent

Eriochrome Cyanine R Method for Aluminum

**89231-062** 25 mL SCDB

## ECR Reagent Powder Pillows

Eriochrome Cyanine R Method for Aluminum

25 mL sample

**89231-378** 25

## EDTA (TitraVer) Cartridges for Digital Titrator

**97026-548** 0.0716 M

Digits x 0.1 = mg/L Fe in 50 mL

Digits x  $8.95 \times 10^{-5}$  = mmole Fe

**97026-560** 0.1428 M

Digits x 0.1785 = mg/L  $\text{CaCO}_3$  in 100 mL

Digits x 0.01 = German degrees hardness (Gdh)

**97026-528** 0.714 M

Digits = 1.785 mg/L  $\text{CaCO}_3$  in 50 mL

Digits x 0.1 = Gdh

**97026-246** 0.716 M

Digits = mg/L Fe in 50 mL

Digits x  $8.95 \times 10^{-4}$  = mmole Fe

**97026-590** 0.0800 M

Digits x 0.1 = mg/L  $\text{CaCO}_3$  in 100 mL

**97026-602** 0.800 M

Digits = mg/L  $\text{CaCO}_3$  in 100 mL

## EDTA Solution, 1 M

For colorimetric Ca, Mg

**97026-666** 50 mL

## EDTA Powder Pillows

For Cobalt, Nickel, Phenols

**89230-942** 100

## EDTA Standard Solutions (TitraVer)

0.020 N (0.010 M) (N/50)

**97026-730** 1 L

**97026-712** 4 L

0.035 N

**97026-700** 100 mL MDB

## EGTA Solution

For colorimetric calcium and magnesium  
determination

**89231-018** 50 mL SCDB

## Ethylene Glycol

CAS No. 107-21-1 FW = 62.07

**89230-924** 1 L

IR spectrum: Passes test

## Ethylene Glycol Reagents

See Glycol.

## F

## Ferric Chloride-Sulfuric Acid Solution

For volatile acids

**89230-928** 1 L

## FerroMo™ Reagent Set

Colorimetric method in presence of molybdenum

FerroMo method, 0.01-1.80 mg/L Fe

Contains: FerroMo Reagent 1 and Reagent 2

**97026-982** 100 tests

## FerroMo™ Iron Reagent 1

Powder Pillows

**89231-122** 25

## FerroMo™ Iron Reagent 2

Powder Pillows

**89231-124** 50

## Ferrous Ethylenediammonium Sulfate Standard Solution

Cartridge for use with Digital Titrator

For chlorine titration, FEAS method

**97026-252** 0.00564 N

## Ferrous Iron Reagent

Phenanthroline Method

AccuVac Ampules

**97026-628** 25

Powder Pillows for 25-mL sample

**97009-458** 100

## FerroVer® Iron Reagent

For iron (0-2.0 mg/L Fe)

AccuVac Ampules

**89230-892** 50

**89230-894** 100

10-mL sample

**97026-696** 100

**97026-466** 1000-pac

## FerroZine® Iron Reagent Solutions

Pillows for 25-mL sample

**89231-276** 50

## Fluoride Ionic Strength Adjustor

Powder

**97026-578** 454 g

Powder Pillows

**97021-786** 100

Solution

**97021-526** 3.78 L

## Fluoride Reagent

See SPADNS Reagent

## Fluoride Reagent (SPADNS)

AccuVac® Ampules

**97009-512** 25

## Fluoride Reagent (SPADNS2)

Arsenic-Free AccuVac Ampules

**97009-514** 25

## Fluoride Standard Solutions as F<sup>-</sup> (NIST)

0.5 mg/L

**97021-490** 500 mL

1.0 mg/L

**97021-484** 500 mL

**97021-514** 1 L

2.0 mg/L

**97021-530** 500 mL

5.0 mg/L

**97021-466** 500 mL

10 mg/L

**97021-494** 500 mL

100 mg/L

**97021-498** 500 mL

## Formazin Stock Solution

4000 NTU, APHA, for turbidity standardization

**97026-512** 100 mL

## G

## Gallic Acid Solution

For conductivity testing; used to neutralize  
hydroxide ion interference

**97026-510** 50 mL SCDB

## Glucose-Glutamic Acid Standards for BOD

For Manometric Method

300 mg/L each (Glucose plus Glutamic Acid)

10 mL ampules

**97026-742** 16

For Dilution Method

3000 mg/L each (Glucose plus Glutamic Acid)

10 mL ampules

**89230-978** 16

## Glycine Reagent

For Chlorine Dioxide DPD Method

**89231-184** 29 mL SCDB

## H

## Hardness 1 Buffer Solution

pH 10.1 ± 0.1 at 20°C

**89230-870** 50 mL SCDB

**97026-364** 100 mL MDB

**97026-664** 500 mL

**97026-632** 1 L

## Hardness 2 Solution

Calmagite indicator solution for hardness

**89230-872** 100 mL MDB

## Hardness 3 Solution

EDTA Titrant solution for hardness, 0.03 N (0.015 M)

**89230-874** 100 mL MDB

## Hardness, Rapid Liquid™ Reagents

For rapid liquid ultra-low range hardness,

8-1000 µg/L as  $\text{CaCO}_3$

CDTA Reagent

**97026-468** 10 mL

# Hardness – Molybdate

## Hardness (Calcium) Reagent Sets

(See Parameters Section—Calcium and Hardness pages 65 and 77-79 for details and German Degree Hardness reagents.)

### Colorimetric Methods

Calmagite Method for Water Analysis,  
0.05-4.00 mg/L Calcium as  $\text{CaCO}_3$ ;  
0.05-4.00 mg/L Magnesium as  $\text{CaCO}_3$   
**97009-524** 50 tests

### Buret Titration Method

CalVer® 2 Indicator/EDTA Method  
Range: 0-5,000 mg/L as  $\text{CaCO}_3$   
(0.020 N titrant)  
**89231-090** 100 tests

### Digital Titrator Method

CalVer® 2 Indicator/EDTA Method  
Range: 10-160 mg/L as  $\text{CaCO}_3$   
(0.0800 M titrant)  
**89231-398** 100 tests  
Range: 100-4,000 mg/L as  $\text{CaCO}_3$   
(0.800 M titrant)  
**89231-400** 100 tests

## Hardness (Calcium and Total, Sequential) Reagent Sets

(See Parameters Section pages 77-79 for details.)

### Digital Titrator Method

EDTA Titration Method  
Range: 10-160 mg/L as  $\text{CaCO}_3$   
(0.0800 M titrant)  
**89231-402** 100 tests  
Range: 100-4000 mg/L as  $\text{CaCO}_3$   
(0.800 M titrant)  
**89231-404** 100 tests

## Hardness (Total) Reagent Sets

### Digital Titrator Method

ManVer® 2 Indicator/EDTA Method  
Range: 10-160 mg/L as  $\text{CaCO}_3$   
(0.800 M titrant)  
**97027-038** 100 tests  
Range: 100-4,000 mg/L as  $\text{CaCO}_3$   
(0.800 M titrant)  
**97027-042** 100 tests

### Drop Count Titration Method

Hardness Indicator/EDTA, 0-20 mg/L  
as  $\text{CaCO}_3$   
**89231-078** 100 tests

## Hexamethylenetetramine Powder Pillows

For Aluminum ECR method  
25 mL sample  
**97026-346** 50

## Hydrazine Reagent, HydraVer® 2

**97026-508** 100 mL MDB

## Hydrazine AccuVac® Ampules

**97026-448** 25

## Hydrochloric Acid Standard Solutions

2.5 N  
**97026-604** 100 mL MDB

## Hydrochloric Acid Standard Solution

Cartridge for Digital Titrator  
**97026-546** 8.00 N  
Digits x 0.1 = meq

## Hydrogen Sulfide Paper

**89231-118** 100

## Hydrogen Sulfide Reagent Set

### Colorimetric Method

Methylene Blue Method, 5-800  $\mu\text{g/L S}^{2-}$   
(Color disc 0-2.25 mg/L) as  $\text{S}^{2-}$   
Contains: Sulfide Reagents 1 and 2.  
For turbid samples, also order Phenol Solution  
211220 and Bromine Water 221120.  
**97009-546** 100 tests

## Hydroxylamine-Hydrochloride Solution, 100 g/L

For volatile acids  
**89230-882** 100 mL

## Hypochlorite (Chlorine Bleach) Reagent Set

(See Parameters Section page 80 for details.)  
For Digital Titrator, 5-15%  $\text{Cl}_2$   
**97027-060** 100 tests

## I

## Iodate Standard Solution

See Dissolved Oxygen (DO) Standard Solution.

## Iodate-Iodide Standard Solutions

Cartridge for Digital Titration  
**97026-236** 0.3998 N  
Digits = mg/L  $\text{SO}_3$  in 20 mL  
Digits x 0.0005 = meq

## Iodine Standard Solution Cartridge for Digital Titrator

**97026-228** 0.0282 N

## Iodine Reagent

See DPD Reagents for Chlorine.

## Iodine Standard Solutions

0.0282 N  
**97026-296** 1 L

## Iron Reagents

See FerroMo™, Ferrous Iron Reagents, FerroVer®, FerroZine®, TPTZ Reagents  
(See Parameters Section for details on several methods.)

## Iron Standard Solutions as Fe (NIST)

1 mg/L  
**97026-482** 500 mL

## Iron (Total) Reagent Sets

### Digital Titrator Method

EDTA Titration Method  
Range: 10-100 mg/L as Fe  
(0.0716 M titrant)  
**97027-062** 100 tests  
Range: 100-1000 mg/L as Fe  
(0.716 M titrant)  
**97027-058** 100 tests

## L

## Lead, PPb-1 Acid Preservative Solution

For LeadTrak™ Lead Test  
**89231-048** 236 mL

## Lead Reagent Sets

### Colorimetric Method

LeadTrak™ Fast Column Extraction Method,  
5-150  $\mu\text{g/L Pb}$   
**89231-376** 20 tests

## Lead Standard Solutions as Pb (NIST)

10 mg/L  
**89231-060** 25 mL

## Lights Solution Ampules

For checking ORP electrode response  
**97021-750** 20

## Lignin Reagent

See Tannin-Lignin Reagent Set; also TanniVer® 3  
Tannin-Lignin Reagent.

## Lithium Hydroxide Powder Pillows

For manometric BOD apparatus; for potassium test  
in acid digest  
**89231-284** 100

## M

## Magnesium Chloride Cartridge for Digital Titrator

For chelants determination  
**97026-348** 0.080 M  
Digits x 0.1 = mg/L Chelant as mg/L  
 $\text{CaCO}_3$  in 100-mL sample

## Manganese Reagent Sets

### Colorimetric Method

PAN Method, 0.006-0.700 mg/L as Mn  
For 10-mL samples  
**89231-420** 50 tests  
For 25-mL samples  
**89231-020** 100 tests  
Periodate Oxidation Method, 0.1-20.0 mg/L Mn  
(Color disc 0-3 mg/L) as Mn  
Contains: Buffer Powder Pillows (Citrate type),  
Sodium Periodate Powder Pillows  
For 10-mL samples  
**97009-436** 100 tests

## Manganous Sulfate Powder Pillows

For dissolved oxygen; 300-mL sample  
**97026-680** 50

## ManVer® 2 Hardness Indicator Solution

APHA, Hardness Method  
**89230-872** 100 mL MDB

## ManVer® 2 Hardness Indicator

APHA, Hardness Method  
Powder pillows for test kits  
**89230-896** 100  
Powder pillows for 50 mL sample  
**89230-886** 100

## Mercuric Nitrate Cartridges for Digital Titrator

**97026-694** 0.2256 N  
Digits = mg/L  $\text{Cl}^-$  in 100 mL  
**97026-360** 2.256 N  
Digits x 0.000282 = meq  
**97026-486** 2.570 N  
Digits x 0.1 = ppt salinity in 2 mL  
Digits x 0.00321 = meq

## Molybdate 3 Reagent

For low range silica  
**89231-254** 50 mL SCDB  
**89231-256** 100 mL MDB  
**89231-258** 500 mL

## Molybdate Reagent Powder Pillows

For high range silica (1-100 mg/L) silica 10-mL  
sample  
**89231-308** 100

## Molybdenum (Molybdate) Reagent Sets

### Colorimetric Method

Mercaptoacetic Acid Method, 0.3-40.0 mg/L as Mo<sup>6+</sup>

10-mL sample  
**97026-984** 100 tests  
 25-mL sample  
**89231-342** 100 tests

### Ternary Complex Method

0.02-3.00 mg/L as Mo<sup>6+</sup>

Contains: Molybdenum 1 and 2 Reagents for Low

Range Molybdate

20-mL sample

**97026-990** 100 tests

## Molybdovanadate Reagent

For Reactive (ortho) Phosphate

**97026-744** 100 mL MDB

## MolyVer 1 Molybdenum Reagent Powder Pillows

10 mL sample 0.3-40.0 mg/L Mo

**89231-142** 100

25-mL sample 0-35.0 mg/L Mo

**97026-352** 100

## MolyVer 2 Molybdenum Reagent Powder Pillows

10-mL sample 0.3-40.0 mg/L Mo

**89231-144** 100

25-mL sample 0-35.0 mg/L Mo

**97026-270** 100

## MolyVer 3 Molybdenum Reagent Powder Pillows

10-mL sample 0.3-40.0 mg/L Mo

**89231-146** 100

25-mL sample 0-35.0 mg/L Mo

**97026-354** 100

## Monochlor F Reagent PP

**97009-456** 50

## N

## Nickel Reagent Sets

### Colorimetric Method

PAN Method, 0.006-1.000 mg/L as Ni

10-mL sample

**97026-266** 100 tests

## Nitrate Ionic Strength Adjustor Powder Pillows

**97021-788** 100

## Nitrate Ionic Strength Adjustor Buffer Solution

**97021-528** 500 mL

## Nitrate Reagents

See Nitrogen, Nitrate Reagents and NitraVer Reagents.

## Nitrate Standard Solution

See Nitrogen, Nitrate Standard Solutions.

## NitraVer® 5 Nitrate Reagent

For mid- and high range: (0.1-10.0 or

0.3-30.0 mg/L as nitrate-N)

AccuVac Ampules

**97009-506** 25

Powder Pillows 5-mL sample

**89230-952** 50

**97026-562** 100

10-mL sample

**97009-474** 100

25-mL sample

**97026-580** 100

## NitraVer® 6 Nitrate Reagent

Powder Pillows

For low range: 0.01-0.50 mg/L as nitrate-N.

Use with NitriVer 3

5-mL sample

**89230-958** 100

30-mL sample

**89230-956** 100

## Nitrification Inhibitor, Formula 2533™

Contains 2-chloro-6 (trichloromethyl) pyridine

(N-Serve), coated on an inert substrate. Two shots

in a 300-mL sample (use the dispenser cap,

available below) inhibits nitrogenous oxygen

demand in the BOD test. Approximately 200

samples can be treated with 35 g.

**97026-564** 35 g

**97026-568** 500 g

## NitriVer® 2 Nitrite Reagent Powder Pillows

For high range: up to 250 mg/L as nitrite.

5-mL sample

**97026-272** 100

10-mL sample

**97026-608** 100

25-mL sample

**89231-264** 100

## NitriVer® 3 Nitrite Reagent

For low range: 0.002-0.500 mg/L or

0.02-0.30 mg/L as nitrite-N.

AccuVac Ampules

**97009-508** 25

Powder Pillows 5-mL sample

**97026-706** 100

10-mL sample

**97009-466** 100

25-mL sample

**97026-586** 100

## Nitrogen-Ammonia Reagent Sets

Also see Ammonia.

### Colorimetric Method

10-mL sample

**97009-530** 100 tests

### Colorimetric Method

Test 'N Tube™ AmVer™ Reagent Set,

0.02-2.50 mg/L NH<sub>3</sub>-N mg/L

**97009-556** 25-50 tests

Test 'N Tube™ AmVer™ Reagent Set,

0.4-50.0 mg/L NH<sub>3</sub>-N

**97009-572** 25-50 tests

## Nitrogen-Ammonia Standard Solutions as NH<sub>3</sub>-N

1 mg/L

**97021-508** 500 mL

10 mg/L

**97021-522** 500 mL

50 mg/L, 2-mL PourRite Ampule

**97021-796** 20

50 mg/L, 10-mL Voluette Ampule

**97021-804** 16

100 mg/L

**97024-518** 500 mL

150 mg/L, 10-mL Voluette Ampule

**89173-996** 16

160 mg/L, 10-mL Voluette Ampule

**97021-802** 16

1000 mg/L

**89231-230** 1 L

## Nitrogen-Inorganic, Total Pretreatment Reagent Set

Test 'N Tube™ Titanium Chloride Method,

0.2-25.0 mg/L

Contains: Total Inorganic Nitrogen Reductant

Ampules, and Total Inorganic Nitrogen Pretreatment

Reagent (Method also requires 97009-556)

**89231-418** 25-50 tests

## Nitrogen-Nitrate Reagent Sets

(See Parameters Section page 87 for details.)

(See NitraVer for additional Nitrate reagents.)

### Colorimetric Method

High Range Cadmium Reduction Method

Range: 0-10 mg/L as NO<sub>3</sub>-N,

5-mL sample

**89231-094** 100 tests

Low Range Cadmium Reduction Method

Range: 0.01-0.50 mg/L as NO<sub>3</sub>-N,

10-mL sample

**97027-008** 100 tests

30-mL sample

**89231-022** 100 tests

### Colorimetric Method

Chromotropic Acid Method

Test 'N Tube NitraVer X Reagent Set, 0.2-30.0 mg/L

**97009-576** 50 tests

## Nitrogen-Nitrate Standard Solutions as NO<sub>3</sub>-N (NIST)

1 mg/L as NO<sub>3</sub>-N, 4.43 mg/L as NO<sub>3</sub><sup>-</sup>

**97021-500** 500 mL

5 mg/L, 10-mL Voluette Ampule

**97021-794** 16

10 mg/L, 44.3 mg/L as NO<sub>3</sub><sup>-</sup>

**97021-478** 500 mL

15 mg/L

**97021-460** 100 mL MDB

100 mg/L as NO<sub>3</sub>-N, 443 mg/L as NO<sub>3</sub><sup>-</sup>

**97021-468** 500 mL

500 mg/L, 10-mL Voluette Ampule

**97021-790** 16

1000 mg/L as NO<sub>3</sub>-N; 4430 mg/L as NO<sub>3</sub><sup>-</sup>

**97021-442** 500 mL

## Nitrogen-Nitrite, Low Range, Reagent Set

### Colorimetric Method

Test 'N Tube NitriVer 3 Reagent Set,

0.002-0.500 mg/L

Contains: NitriVer 3 Reagent Test 'N Tubes

**97026-522** 50 tests

(Also see NitriVer 3 Nitrite Reagent Powder Pillows.)

## Nitrogen, Total Reagent Sets

Test 'N Tube LR method, 0.5-25.0 mg/L N

**97009-596** 25-50 tests

Test 'N Tube HR method, 10-150 mg/L N

**89231-422** 25-50 tests

# Nitrogen – Potassium Iodide

## Nitrogen (Total Kjeldahl) Reagent Set

*Colorimetric Method*  
Nessler Method, 1-150 mg/L  
**97026-688** 250 tests  
(No Air/UPS Shipments)

## Nutrient Buffer Pillows

APHA, for preparing BOD dilution water.  
Ready for immediate use.  
0.5-mL size for 300 mL  
**97026-674** 50  
3-mL size for 3 liters  
**97026-670** 50  
6-mL size for 6 liters  
**97026-672** 50  
19-mL size for 19 liters  
**97026-668** 25

## O

## Oxygen Demand, Biochemical

See *BOD*.

## Oxygen Demand, Chemical

See *COD*.

## Oxygen, Dissolved

See *Dissolved Oxygen*.

## Oxygen Scavenger Reagents

See *DEHA Reagent Set*.

## Ozone Reagent AccuVac® Ampules

Range: 0-0.25 mg/L; 1-inch cell path  
**97026-460** 25  
Range: 0-0.75 mg/L; 1-inch cell path  
**97026-172** 25  
Range: 0-1.5 mg/L; 1-inch cell path  
**97026-462** 25

## P

## P-A Broth, Dehydrated

See *Microbiological Products*, page 111 for  
*Presence-Absence Broth*.

## PAN Indicator Solutions

0.3% colorimetric reagent for low level nickel and cobalt determinations, indicator for EDTA titration of copper  
**97026-648** 100 mL  
0.1% colorimetric reagent for low level manganese determinations  
**97026-624** 50 mL SCDB  
**97026-644** 100 mL  
**97026-690** 500 mL  
(See also *Manganese Reagent Sets*)

## PCB Reagent Set

Immunoassay method, ppm thresholds  
**97026-278** Up to 18 tests

## pH Standardization Buffers

See *Buffers*.

## pH Electrode Storage Solution, 3M

**97021-414** 500 mL

## pH Electrode Storage Solution

Powder Pillows  
Each pillow makes 25 mL of storage solution  
**97021-756** 20

## 1,10-Phenanthroline Ferrous Sulfate

See *Ferriin Indicator Solution*.

## Phenol Reagent Powder Pillows

**89230-890** 100  
For nonextraction method  
**89231-096** 100

## Phenol 2 Reagent Powder Pillows

**97026-610** 100

## Phenol Red Indicator Solutions

Standardized for colorimetric pH determination  
Color range: pH 5.8 (yellow)-pH 7.3 (red)  
**89230-858** 15 mL SCDB  
**89230-856** 50 mL SCDB  
**97026-640** 100 mL MDB  
**89230-860** 500 mL  
**97026-490** 50 mL spec. grade  
(for photometers)

## Phenol Solution

30 g/L  
**89230-930** 29 mL

## Phenols Reagent Set

*Colorimetric Method*  
4-Aminoantipyrine Method, 0.002-0.200 mg/L as phenol  
**89231-344** 100 tests  
*No Air Shipments*

## Phenolphthalein Indicator Solutions

1 g/L; pH indicator  
**89230-918** 15 mL SCDB  
5 g/L, APHA  
**97026-170** 100 mL MDB

## Phenolphthalein Powder Pillows

**97026-726** 100

## Phenolsulfonphthalein

See *Phenol Red*.

## Phenylarsine Oxide (PAO) Cartridges for Digital Titrator

**97026-244** 0.0451 N  
For chlorine:  
Digits x 0.01 = mg/L Cl<sub>2</sub> in 200 mL  
Digits x 0.0000564 = meq  
**97026-230** 0.00564 N  
PAO Titrant

## Phosphate 2 Reagent Powder Pillows

**97026-518** 100

## Phosphate Reagent

Also see *Phosphorus Reagents*.

## Phosphate Standard Solutions as PO<sub>4</sub> (NIST)

1 mg/L  
**97026-656** 500 mL

## Phosphonates Reagent Set

*Colorimetric Method*  
Persulfate/UV Oxidation Method, 0.1-5 mg/L, 1-125 mg/L  
Contains: PhosVer 3 Phosphate Reagent Powder Pillows  
10-mL sample  
**89231-388** 100 tests

## Phosphorus, Reactive

Amino Acid Method, 0.23-30.00 mg/L PO<sub>4</sub>  
**89231-346** 100 tests  
Ascorbic Acid Method, PhosVer 3 Powder Pillows  
10-mL Sample, 0.02-2.50 mg/L PO<sub>4</sub>  
**97009-438** 100  
25 mL Sample, 0.02-2.50 mg/L PO<sub>4</sub>  
**97026-736** 100  
**97026-636** 1000  
Ascorbic Acid Method, PhosVer 3 TNT Vials, 0.06-5.00 mg/L PO<sub>4</sub>  
**97026-534** Up to 50 tests  
Molybdovanadate Method, 0.3-45.0 mg/L PO<sub>4</sub>  
Molybdovanadate Phosphorus Reagent  
**97026-744** 100 mL

## Phosphorus, Total Reagent Sets

Total Phosphorus Reagent Set, HR  
Molybdovanadate Method TNT, 1.0-100.0 mg/L PO<sub>4</sub>  
**97009-570** 25-50 tests  
Total Phosphorus Reagent Set, LR  
Ascorbic Acid Method TNT, 0.06-3.50 mg/L PO<sub>4</sub>  
**97009-568** Up to 50 tests  
Total Phosphorus Digestion Reagent Set  
Includes Sulfuric Acid, Sodium Hydroxide and Potassium Persulfate Powder Pillows  
For digestion prior to analysis by a Reactive Phosphorus method  
**89231-092** 100 tests

## PhosVer® 3 Phosphate Reagent

Powder Pillows 5-mL sample  
**89231-262** 100  
10-mL sample  
**97009-438** 100  
25-mL sample  
**97026-736** 100  
**97026-636** pk/1000

## Phthalate-Phosphate Reagent Powder Pillows

For low-level determination of nickel and cobalt  
10-mL sample  
**89231-150** 100

## Potassium Chloride

ACS Grade, CAS No. 7447-40-7  
KCl, FW = 74.55  
**89230-880** 454 g

## Potassium Chloride Standard Solutions (NIST)

Also suitable for standardizing conductivity apparatus.  
74.55 mg/L KCl (0.001M), 146.9 µS/cm  
35 ppt KCl Salinity, 53 mS/cm  
**97021-476** 500 mL

## Potassium Hydroxide Standard Solutions

8.00 N  
**97026-728** 100 mL MDB  
**97026-698** 500 mL

## Potassium Iodide

ACS Grade, CAS No. 7681-11-0  
KI, FW = 166.01  
**97026-588** 100 g

## Potassium Iodide Powder Pillows

For test kits and lab methods  
**97026-720** 100

## Potassium Iodide Solutions (NIST)

30 g/L  
**97026-676** 100 mL MDB

## Potassium Persulfate Powder Pillows

For total phosphate digestion (hot plate)

**89230-940** 100

For phosphonate test and Total Phosphate TNT

**97026-350** 100

## Potassium 2 Reagent

Solution pillows

**89230-966** 25

## Potassium 3 Reagent Powder Pillows

**89230-968** 100

## Potassium Sodium Tartrate

See *Rochelle Salt*.

## Potassium Standard Solutions as K (NIST)

100 mg/L

**97021-422** 500 mL

## Pretreatment Reagent Set

For reduction of nitrite interferences in  $\text{NO}_3^-$  test

Purchase both:

Phenol Solution, 30 g/L

**89230-930** 29 mL

Bromine Water, 30 g/L

**89230-932** 29 mL

## 2-Propanol

(See *Isopropyl Alcohol*)

## 3-(2-Pyridyl)-5,6-Bis(4-Phenylsulfonic Acid)-1,2,4-Triazine, Monosodium Salt, Monohydrate

(See *FerroZine® Iron Reagent*)

## R

## Rochelle Salt Solution

(Potassium sodium tartrate)

**97026-708** 29 mL DB

## S

## Salt

See *Sodium Chloride*.

## Silica, Rapid Liquid™ Reagents

Amino Acid F Reagent Powder

**89231-154** 55 g

Amino Acid F Dilution Solvent

**89231-046** 475 mL

Citric Acid F Reagent Solution

**89231-356** 500 mL

Molybdate 3 Reagent Solution

**89231-258** 500 mL

## Silica Reagent Sets

*Heteropoly Blue Method - Low Range*

Ultralow Range Rapid Liquid,

3-1000  $\mu\text{g/L}$   $\text{SiO}_2$

**89231-166** 250 tests

Ultralow Range Bulk Solution,

3-1000  $\mu\text{g/L}$   $\text{SiO}_2$

**89231-126** 100 tests

Low Range, 0.01-1.60 mg/L  $\text{SiO}_2$

10-mL Sample, 0.010-1.600 mg/L  $\text{SiO}_2$

**89231-406** 100 tests

*Silicomolybdate Method - High Range*

1-100 mg/L  $\text{SiO}_2$

10-mL Sample

**89231-386** 100 tests

## Silicone Oil

**97026-738** 15 mL SCDB

## Silver Nitrate Cartridges for Digital Titrator

**97026-232** 0.2256 N

Digits x 0.1 = mg/L  $\text{Cl}^-$  in 100 mL

Digits x 0.000282 = meq

**97026-710** 1.128 N

Digits x 10 = mg/L  $\text{Cl}^-$  in 5 mL

Digits x 0.00141 = meq

## Sodium Arsenite Solution, 5.0 g/L

Total and/or Free Chlorine (Colorimetric or Titrimetric Method) and Fluoride (SPADNS Method)

**97026-662** 100 mL

## Sodium Chloride

ACS Grade, CAS No. 7647-14-5

$\text{NaCl}$ , FW = 58.44

**97021-454** 454 g

## Sodium Chloride

### Standard Solutions (NIST)

Also suitable for standardizing conductivity apparatus,  $\mu\text{S/cm}$  ( $\mu\text{mhos/cm}$ )

85.47 mg/L  $\text{NaCl}$ , 180  $\mu\text{S/cm}$

**97021-532** 100 mL

491 mg/L  $\text{NaCl}$ , 1000  $\mu\text{S/cm}$

**97021-534** 100 mL

1000 mg/L as  $\text{Cl}^-$  (1648 mg/L  $\text{NaCl}$ )

**97021-512** 500 mL

10,246 mg/L  $\text{NaCl}$ , 18,000  $\mu\text{S/cm}$

**97021-506** 100 mL

491 mg/L  $\text{NaCl}$ , 1,000  $\mu\text{S/cm}$

**97021-534** 100 mL

## Sodium Electrode Storage Solution

**97021-464** 50 mL

## Sodium Hydroxide Cartridges

### for Digital Titrator

**89231-290** 0.1600 N

Digits x 0.1 = mg/L  $\text{CaCO}_3$  acidity in 100 mL

Digits x 0.0002 = meq

**97026-240** 0.3636 N

Digits x 0.1 = mg/L  $\text{CO}_2$  in 200 mL

Digits x 0.000454 = meq

**97026-238** 0.9274 N

For volatile acids determination

**89231-292** 1.600 N

Digits = mg/L  $\text{CaCO}_3$  acidity in 100 mL

Digits x 0.002 = meq

**97026-488** 3.636 N

Digits = mg/L  $\text{CO}_2$  in 200 mL

Digits x 0.00454 = meq

**97026-488** 8.00 N

Digits x 0.01 = meq

## Sodium Hydroxide

### Standard Solutions

0.01 N

**89230-878** 100 mL MDB

0.030 N

**89230-920** 100 mL MDB

4.5 N

**89230-926** 1 L

## Sodium Periodate Powder Pillows

For manganese, cold periodate method and iron titrations

10-mL sample

**89231-312** 100

25-mL sample

**89230-904** 100

## Sodium/Potassium Ionic Strength Adjustor

Powder Pillows

**97021-782** 100

## Sodium Standard Solutions as Na (NIST)

100 mg/L

**97021-428** 1 L

1000 mg/L

**97021-434** 500 mL

## Sodium Thiosulfate Cartridges for Digital Titrator

**97026-432** 0.1130 N

Digits = mg/L  $\text{Cl}_2$  in 5-mL sample

Digits x 0.000141 = meq

**97021-494** 0.2068 N

Digits x 0.2 = mg/L  $\text{CrO}_4$  in 50-mL sample

**97026-242** 2.00 N

Digits x 0.1 = mg/L DO in 200-mL sample

Digits x 0.0025 = meq

## Sodium Thiosulfate, Stabilized, Standard Solutions

0.00246 N

**97026-598** 500 mL

0.0109 N

**97026-658** 100 mL MDB

0.0113 N

**89231-064** 100 mL MDB

0.0246 N

**89231-066** 100 mL MDB

0.0250 N

**89231-070** 1 L

## Sodium Thiosulfate, Stabilized, Cartridges, for Digital Titrator

**97026-550** 0.02256 N

For chlorine:

Digits x 0.01 = mg/L  $\text{Cl}_2$  in 100 mL

Digits x 0.0000282 = meq

**89231-068** 0.0250 N

For dissolved oxygen:

Digits/100 = mg/L DO in 25 mL

Digits x 0.0000313 = meq

**97026-356** 2.26 N

For hypochlorite (bleach):

0.5 Digit = 1 g/L  $\text{Cl}_2$

## Sodium Thiosulfate Standard Solutions

0.1 N

**97026-380** 100 mL MDB

## Solution 4

See *Wide Range-4 pH Indicator Solution*.

## SPADNS Ampules

See *Fluoride Reagent (SPADNS) AccuVac Ampules*.

# SPADNS – Zinc

## SPADNS Reagent for Fluoride

97026-692 500 mL  
89230-876 1 L  
AccuVac Ampules  
97009-512 25

## SPADNS2 Reagent for Fluoride

Arsenic-free formulation  
97027-020 500 mL  
AccuVac Ampules  
97009-514 25

## StablCal® Formazin Turbidity Standards

StablCal Ampule Calibration Kits  
See page 47 for contents of each kit.  
97026-806 For 2100A  
97009-528 For 2100P  
97009-544 For 2100N & 2100N IS  
97009-548 For 2100AN & 2100AN IS  
97049-282 For 2100Q  
StablCal Bulk Solution Calibration Kits, 1 NTU  
97026-814 For 2100P  
97026-812 For 2100N & 2100N IS  
97026-810 For 2100AN & 2100AN IS  
97049-290 For 2100Q  
StablCal Bulk Solution Calibration Kits,  
100 mL bottles  
97009-550 For 2100P  
97009-552 For 2100N & 2100N IS  
97009-534 For 2100AN & 2100AN IS  
97049-292 For 2100Q  
Bulk Suspensions (bottles)  
< 0.1 NTU  
97026-424 100 mL  
97026-434 500 mL  
0.30 NTU  
97026-426 100 mL  
0.50 NTU  
97026-388 100 mL  
1.0 NTU  
97026-472 100 mL  
97026-166 500 mL  
10 NTU  
97026-416 100 mL  
97026-452 500 mL  
20 NTU  
97026-458 100 mL  
97026-436 500 mL  
100 NTU  
97026-390 100 mL  
97026-474 500 mL

## Starch Indicator Solution (0.5%)

APHA, Oxidation-Reduction Indicator  
97026-746 100 mL MDB

## Sulfamic Acid Powder Pillows

For dissolved oxygen testing, 300-mL sample  
97026-174 100  
For Model OX-DT Test Kit  
89231-000 50

## SulfaVer® 4 Sulfate Reagent

For sulfate (0-100 mg/L SO<sub>4</sub>)  
AccuVac Ampules  
97009-510 25  
Powder pillows 10-mL sample  
97026-704 100  
25-mL sample  
97026-716 100

## Sulfide 1 Reagent

97026-630 100 tests MDB

## Sulfide 2 Reagent

97026-280 100 tests MDB

## Sulfide Reagent Set

Colorimetric Method  
Methylene Blue Method, 5-800 µg/L S<sup>2-</sup>  
Contains: Sulfide 1 and 2 Reagent Solutions  
97009-546 100 tests

## Sulfite Reagent Sets

Digital Titrator Method  
Iodometric Method, 4-400 mg/L SO<sub>3</sub><sup>2-</sup>  
89231-360 100 tests  
Drop Count Titration Method  
Iodometric Method, 0-200 mg/L as SO<sub>3</sub><sup>2-</sup>  
Contains: Sulfamic Acid Powder Pillows, Sulfite 1  
Reagent Powder Pillows, Sulfite 3 Solution  
89231-084 100 tests

## Sulfuric Acid Cartridges for Digital Titrator

97026-506 0.1600 N  
Digits x 0.1 = mg/L CaCO<sub>3</sub> alkalinity in 100 mL  
Digits x 0.0002 = meq  
97026-514 1.600 N  
Digits = mg/L CaCO<sub>3</sub> alkalinity in 100 mL  
Digits x 0.002 = meq  
97026-646 8.00 N  
Digits x 0.01 = meq

## Sulfuric Acid Standard Solutions

0.030 N  
97026-300 100 mL  
0.035 N  
97026-494 100 mL MDB  
5.25 N  
97026-682 100 tests MDB  
10 N  
97026-626 1 L  
19.2 N  
97026-748 100 mL MDB

## T

## Tannin-Lignin Reagent Sets

Colorimetric Method  
Tyrosine Method, 0.1-9.0 mg/L  
(Color disc 0-150 mg/L) as tannic acid  
Contains: Sodium Carbonate Solution, and TanniVer  
3 Tannin-Lignin Reagent  
25-mL sample  
89231-384 100 tests

## TCMP

See 2-Chloro-6 (Trichloromethyl) Pyridine.

## THM

See Total Trihalomethane.

## Thymol Blue Indicator Solutions

Standardized for colorimetric pH determination  
pH Range 7.4-9.5  
97026-732 100 mL MDB

## Total Organic Carbon Reagent Set

Colorimetric Method (TOC)  
Low Range 0.3-20.0 mg/L  
89231-426 25-50 tests  
Mid Range 15-150 mg/L  
89231-432 25-50 tests  
High Range 100-700 mg/L  
97026-422 25-50 tests

## Total Trihalomethanes Reagent Set (Colorimetric method) (THM)

Range: 6-200 ppb  
89231-192 50 tests

## TPH Reagent Set

Immunoassay method, ppm threshold  
97026-584 up to 18 tests

## TPTZ Iron Reagent

For low range total iron determination  
AccuVac Ampules  
89231-114 25  
Powder Pillows for 10-mL sample  
89231-148 100  
Powder Pillows for 25-mL sample

## Triazole Standard Solution

See Benzotriazole Standard Solution.

## Triazole Reagent Powder Pillows

97026-574 100

## Trihalomethane

See Total Trihalomethane.

## Turbidity Standards

See StablCal.

## U

## UniVer® 3 Hardness Reagent

Powder pillows  
89230-900 100

## V, W

## Volatile Acids Reagent Sets

(See Parameters Section page 96 for details.)

Colorimetric Method  
Esterification, 27-2800 mg/L Acetic Acid  
89231-350 100 tests  
Digital Titrator Method, 100-2400 mg/L Acetic Acid  
89231-408 100 tests

## Water, Deionized

(Demineralized Type 2 Water)  
89230-864 100 mL  
89230-866 4 L  
Specific conductance: ≤1 µS/cm  
(µS = micromho)  
Silica (SiO<sub>2</sub>): ≤30 µg/L  
Chloride (Cl): ≤20 µg/L  
Hardness: Negative  
Consumption of KMnO<sub>4</sub>: Negative

## Wide Range-4 pH Indicator Solution

For test kits  
97026-686 100 mL MDB  
89231-042 1 L

## Z

## ZincoVer® 5 Zinc Reagent

Powder Pillows  
20-mL sample  
97026-642 100

## Zinc Reagent Set

Zincon Method  
20-mL sample 0.01-3.00 mg/L Zn  
97014-598 100 tests

## Quick Reference Guide for Regulatory Reporting

- Hach's ready-to-use media **eliminates measuring, mixing, and autoclaving steps** necessary to prepare dehydrated media.
- Modified Colitag snap-packs, glass ampules, plastic ampules, 100 mL bottles of m-ColiBlue24® and m-Endo, and agar plates afford **maximum shelf life and ease of use** for pre-measured and prepared media.
- Hach offers prepared media for MF, P-A, and MPN methods in a variety of formats. Microbiology chemicals and reagents, as well as dehydrated media are available along with instruments, apparatus, and labware for all your microbiological testing needs.

### Drinking Water

| Parameter                                   | Method (Method)*                                                                         | Citations                                      | Hach Method      | Packaging                   | Product Number |
|---------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------|------------------|-----------------------------|----------------|
| Coliform Bacteria, Total and <i>E. coli</i> | m-ColiBlue24 (MF)                                                                        | 40CFR 141.21 (f) (3) footnote (11)             | 8433             | Glass Ampules, pk/20        | 97026-188      |
|                                             |                                                                                          |                                                |                  | Plastic Ampules, pk/50      | 97026-190      |
|                                             |                                                                                          |                                                |                  | 100 mL Bottle, ea           | 97026-212      |
| Coliform Bacteria, Total and <i>E. coli</i> | Modified Colitag                                                                         | 40CFR 141.21 (f) (3)<br>40CFR 141.402 (c) (2)  | Modified Colitag | Snap-Pack pk/100            | 89176-762      |
|                                             |                                                                                          |                                                |                  | Snap-Pack pk/200            | 89176-764      |
| Coliform Bacteria, Total                    | Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed) | SM 18th 9221 A-B-C                             | 8001             | MPN Tube, pk/15             | 89231-300      |
|                                             |                                                                                          |                                                |                  | MPN Tube, pk/15             | 97026-412      |
| Coliform Bacteria, Fecal                    | Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)                               | 40CFR 141.21 (f) (5)                           | 8001             | MPN Tube, pk/15             | 89231-300      |
|                                             |                                                                                          |                                                |                  | MPN Tube, pk/15             | 97026-340      |
| Coliform Bacteria, <i>E. coli</i>           | Lauryl Tryptose Broth (MPN presumptive) and EC w/MUG (MPN; confirmed)                    | 40CFR 141.21 (f) (6) (i)<br>SM 18th 9221 A-B-F | 8001             | MPN Tube, pk/15             | 89231-300      |
|                                             |                                                                                          |                                                |                  | MPN Tube, pk/15             | 97026-344      |
| Coliform Bacteria, Total                    | Lauryl Tryptose/Bromocresol Purple Medium (PA; presumptive)                              | 40CFR 141.21 (f) (3)<br>SM 18th 9221 D         | 10018            | P/A Broth Disp Bottle pk/12 | 97026-314      |
|                                             |                                                                                          |                                                |                  | P/A Broth Disp Bottle pk/50 | 97026-308      |
|                                             | Brilliant Green Bile Broth Medium (PA; Confirmed)                                        |                                                |                  | MPN Tube, pk/15             | 97026-412      |
| Coliform Bacteria, Fecal                    | EC Medium (PA; Confirmed)                                                                | 40CFR 141.21 (f) (5)<br>SM 18th 9221 D         | 10018            | MPN Tube, pk/15             | 97026-340      |
| Coliform Bacteria, <i>E. coli</i>           | EC Medium w/MUG (PA; confirmed)                                                          | 40CFR 141.21 (f) (6) (i)<br>SM 18th 9221 D     | 10018            | MPN Tube, pk/15             | 97026-344      |
| Coliform Bacteria, Total                    | m-ENDO Broth (MF; presumptive)                                                           | SM 18th 9222 A, B                              | 8074             | Glass Ampules, pk/20        | 97026-192      |
|                                             |                                                                                          |                                                |                  | Plastic Ampules, pk/50      | 97026-194      |
|                                             |                                                                                          |                                                |                  | Agar Plate, pk/15           | 97026-260      |
| Heterotrophic Plate Count                   | m-HPC (MF)                                                                               | SM 18th 9215 A, D                              | 8074             | Plastic Ampules, pk/50      | 97026-178      |
| Heterotrophic Plate Count                   | m-R2A (MF)                                                                               | SM 18th 9215 A, D                              | 8074             | Plastic Ampules, pk/50      | 97026-208      |

\*Prior to purchase of any microbiology media for reporting purposes, it is the customers' responsibility to check with his/her state EPA certification officer to see which method or methods are approved by customers' state. <http://www.epa.gov/safewater/faq/sco.html> lists state certification contacts for every state and also gives links to state laboratories certified for drinking water analyses. There are links for those states which have electronic lists of their "certified laboratories." This list is maintained by EPA. (Accuracy is the responsibility of the EPA.) States may have separate certification officers for drinking water and wastewater.



# Prepared Media for Regulatory Reporting

## Source and Ambient/Recreational Water

| Parameter                         | Method (Method)*                                                                         | Citations                               | Hach Method | Packaging                                                           | Product Number                      |
|-----------------------------------|------------------------------------------------------------------------------------------|-----------------------------------------|-------------|---------------------------------------------------------------------|-------------------------------------|
| Coliform Bacteria, <i>E. coli</i> | m-ColiBlue24 (MF)                                                                        | 40 CFR136.3                             | 10029       | Glass Ampules, pk/20<br>Plastic Ampules, pk/50<br>100 mL Bottle, ea | 97026-188<br>97026-190<br>97026-212 |
| Coliform Bacteria, <i>E. coli</i> | Lauryl Tryptose Broth (MPN presumptive) and EC w/MUG (MPN; confirmed)                    | Federal Register V 68; #139 (7/21/2003) | 8001A       | MPN Tube, pk/15<br>MPN Tube, pk/15                                  | 89231-300<br>97026-344              |
| Coliform Bacteria, <i>E. coli</i> | Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed) | Federal Register V 68; #139 (7/21/2003) | 8001A       | MPN Tube, pk/15<br>MPN Tube, pk/15                                  | 89231-300<br>97026-412              |
| Coliform Bacteria, <i>E. coli</i> | Modified m-TEC Agar (MF: one-step confirmed)                                             | Federal Register V 68; #139 (7/21/2003) | 8074        | Agar Plate, pk/15                                                   | 97026-264                           |
| Coliform Bacteria, <i>E. coli</i> | m-TEC Agar (MF: two-step confirmed)                                                      | Federal Register V 68; #139 (7/21/2003) | 8367        | Sterile agar in tube (two tests per tube) pk/6                      | 97026-332                           |
| Coliform Bacteria, Fecal          | A1 Medium (MPN; confirmed)                                                               | 40CFR 141.74 footnote (7)               | 8368        | MPN Tube, pk/15                                                     | 97026-334                           |
| Coliform Bacteria, Fecal          | Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)                               | Federal Register V 68; #139 (7/21/2003) | 8001A       | MPN Tube, pk/15<br>MPN Tube, pk/15                                  | 89231-300<br>97026-340              |
| Coliform Bacteria, Fecal          | mFC (MF: one-step confirmed) #139 (7/21/2003)                                            | Federal Register V 68;                  | 8074        | Glass Ampules, pk/20<br>Plastic Ampules, pk/50<br>Agar Plate, pk/15 | 97026-196<br>97026-202<br>97026-262 |
| Coliform Bacteria, Total          | mEndo (MF: one-step confirmed)                                                           | Federal Register V 68; #139 (7/21/2003) | 8074        | Glass Ampules, pk/20<br>Plastic Ampules, pk/50<br>Agar Plate, pk/15 | 97026-192<br>97026-194<br>97026-260 |

<sup>†</sup>Minimum order of 75 plates required.

## Wastewater and Biosolids

| Parameter                            | Method (Method)*                                                                         | Citations                                         | Hach Method | Packaging                                      | Product Number         |
|--------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------------------|-------------|------------------------------------------------|------------------------|
| Coliform Bacteria, Total             | Lauryl Tryptose Broth (MPN; presumptive) and Brilliant Green Bile Broth (MPN; confirmed) | SM 18th 9221 B                                    | 8001A       | MPN Tube, pk/15<br>MPN Tube, pk/15             | 89231-300<br>97026-412 |
| Coliform Bacteria, Fecal             | Lauryl Tryptose Broth (MPN; presumptive) and EC Medium (MPN; confirmed)                  | SM 18th 9221 C, E                                 | 8001A       | MPN Tube, pk/15<br>MPN Tube, pk/15             | 89231-300<br>97026-340 |
| Coliform Bacteria, Fecal             | m-FC Medium (MF; confirmed)                                                              | 40CFR 141.21 (f) (5)<br>SM 18th 9222 D            | 8074        | Agar Plate, pk/15                              | 97026-262              |
| Coliform Bacteria, Fecal             | m-FC Medium w/Rosalic Acid (MF; confirmed)                                               | 40CFR 141.21 (f) (6) (i)<br>SM 18th 9221 D        | 8074        | Glass Ampules, pk/20<br>Plastic Ampules, pk/50 | 97026-198<br>97026-200 |
| Coliform Bacteria, Fecal (BioSolids) | Lauryl Tryptose (MPN; presumptive) and EC (MPN; confirmed)                               | Federal Register V 70, #136 (03/26/2007); SM9221D | 10027       | MPN Tube, pk/15<br>MPN Tube, pk/15             | 89231-300<br>97026-340 |

\*Prior to purchase of any microbiology media for reporting purposes, it is the customers' responsibility to check with his/her state EPA certification officer to see which method or methods are approved by customers' state. <http://www.epa.gov/safewater/faq/sco.html> lists state certification contacts for every state and also gives links to state laboratories certified for drinking water analyses. There are links for those states which have electronic lists of their "certified laboratories." This list is maintained by EPA. (Accuracy is the responsibility of the EPA.) States may have separate certification officers for drinking water and wastewater.

# Sampling & Handling

Sampling and sample handling are the beginning of good laboratory practices. Regardless of your methodology, you need sterile supplies to both collect and prepare your samples. Hach has a variety of vessels, Whirl-Paks®, and sterilization equipment, such as autoclaves and autoclave accessories.

## Whirl-Pak™ Sampling Bags

These bags feature a white, write-on strip for easy sample identification. Mark bags using an ordinary ballpoint pen, pencil, or felt-tip marker. The Dechlor bag meets National Environmental Laboratory Accreditation Conference (NELAC) standard for sampling waste water treated with 15 mg/L of chlorination agent. Both bags have 100 mL and 4-oz. fill lines (approximate volume).

| Prod. No. | Description                                                   | Unit    |
|-----------|---------------------------------------------------------------|---------|
| 97026 210 | Whirl-Pak Sterile Bag with Dechlorinating Agent 100 mL (4 oz) | 100 /pk |



## Sterile Sample Bottle

| Prod. No. | Description                                        | Unit    |
|-----------|----------------------------------------------------|---------|
| 89176 766 | Hach Modified Colitag Sterile 120 mL Sample Bottle | 100 /pk |



## Membrane Filtration

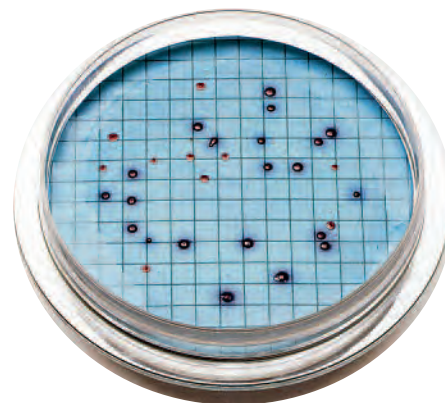
Hach manufactures a variety of media that complies with EPA and Standard Methods. Visit [www.hach.com](http://www.hach.com) for more information.

### m-ColiBlue24®

EPA approved m-ColiBlue24 simultaneously detects total coliforms and *E. coli* in just 24 hours—no confirmation step necessary!

| Prod. No. | Description                         | Applications           | Unit    |
|-----------|-------------------------------------|------------------------|---------|
| 97026 188 | m-ColiBlue24 Broth Ampules; Glass   | All Water Applications | 20 /box |
| 97026 190 | m-ColiBlue24 Broth Ampules; Plastic | All Water Applications | 50 /box |
| 97026 212 | m-ColiBlue24 Broth in 100 mL Bottle | Drinking Water         | 1 each  |

**EPA  
APPROVED**



*Continued on next page.*

# Membrane Filtration Media

## Other Prepared Media

Hach manufactures modified m-TEC, m-ENDO, and m-FC media in the following formats: dehydrated media, prepared media broths in glass or plastic ampules, and pre-poured plates.

| Prod. No. | Description                                                 | Applications                                  | Unit   |
|-----------|-------------------------------------------------------------|-----------------------------------------------|--------|
| 97026 192 | m-Endo Broth Ampules; Glass                                 | Drinking Water                                | 20 /pk |
| 97026 194 | Total Coliform Bacteria, m-Endo Broth, 2 mL Plastic Ampules | Drinking Water                                | 50 /pk |
| 97026 260 | m-Endo Prep, Agar Plate                                     | Drinking Water                                | 15 /pk |
| 97026 208 | R2A Broth Ampules; Plastic                                  | Drinking Water                                | 50 /pk |
| 97026 178 | HPC Broth Ampules                                           | Drinking Water                                | 50 /pk |
| 97026 196 | Fecal, Coliform Bacteria, mFC Glass Ampules                 | Wastewater, Source, Ground & Recreation Water | 20 /pk |
| 97026 262 | m-FC Prep, Agar Plate                                       | Wastewater                                    | 15 /pk |
| 97026 202 | m-FC Broth Ampules; Plastic                                 | Wastewater                                    | 50 /pk |
| 97026 198 | m-FC/Rosolic Acid Broth Ampules                             | Wastewater, Source, Ground & Recreation Water | 20 /pk |
| 97026 264 | <i>E. coli</i> coliform Bacteria, Modified m-TEC Agar Plate | Source, Ground & Recreation Water             | 15 /pk |
| 97026 200 | m-FC/Rosolic Acid Broth Ampules                             | Wastewater                                    | 50 /pk |
| 97026 332 | m-TEC Prep. Agar Tube                                       | Source, Ground & Recreation Water             | 6 /pk  |



# Presence-Absence Media

Hach recognizes that not all facilities require the rigor of membrane filtration and may only need diagnostic tools or methods based on statistical probability rather than discrete colony counting.

Hach is proud to offer one of the most comprehensive microbiology product portfolios in the environmental water quality industry. Chances are that if you need it, we already offer it!

Choose from a wide range of:

- *Field Kits • Dip Slides • Paddle Testers • MPN Tubes*
- *PA Tests • Heterotrophic Plate Counts*
- *Media and Broths for Yeasts, General Growth*

And don't forget to browse through Hach's huge general lab supplies offering—Hach is your microbiology supply source!

## Modified Colitag™

Hach Modified Colitag is the fastest presence-absence test in the market—get EPA-approved results in a 16- or 22-hour testing timeframe with a single media. Test results remain valid for up to 32 hours after completion.

| Prod. No. | Description                                        | Unit    |
|-----------|----------------------------------------------------|---------|
| 89176 760 | Comparator for use with Modified Colitag           | 1 each  |
| 89194 900 | Modified Colitag Snap Pack                         | 20 /pk  |
| 89176 762 | Modified Colitag Snap Pack                         | 100 /pk |
| 89176 764 | Modified Colitag Snap Pack                         | 200 /pk |
| 89176 766 | Hach Modified Colitag Sterile 120 mL Sample Bottle | 100 /pk |



## Presence-Absence Tests

Presence-absence tests are a convenient way to detect coliforms and *E. coli* in your water system. Conforms to Standard Methods 9221 D.

| Prod. No. | Description                                | Unit   |
|-----------|--------------------------------------------|--------|
| 97026 412 | Brilliant Green Bile (BGB) Tubes           | 15 /pk |
| 97026 308 | Total Coliforms P-A Broth (Sterile bottle) | 50 /pk |



## PathoScreen™ Test Kit and Media

Detect waterborne pathogens associated with fecal contamination in water sources. Simple presence-absence method eliminates the need for incubation in tropical and semi-tropical climates.

| Prod. No. | Description                                                                                                                                                                        | Unit    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|
| 97026 786 | PathoScreen Field Kit, each (100 P/A or 20 MPN tests) includes: PathoScreen Powder Pillows (pk/100; 20 mL sample), bleach solution (59 mL; 5-6%), MPN sample vials (5; with caps). | 1 each  |
| 97026 530 | PathoScreen Powder Pillows, (P/A or MPN 20mL sample) 100/pk                                                                                                                        | 100 /pk |
| 97026 532 | PathoScreen Powder Pillows for 100 mL P/A                                                                                                                                          | 50 /pk  |



## Dip Slides and Paddle Testers

Dip slides, or paddle testers, are a versatile platform of products that can test for a variety of microbes including coliforms, yeasts, and molds.

| Prod. No. | Description                                           | Unit   |
|-----------|-------------------------------------------------------|--------|
| 97026 330 | Total Aerobic Bacteria/Yeast & Mold                   | 10 /pk |
|           | Tryptone Glucose Extract Agar/Sabouraud Dextrose Agar |        |
| 97026 258 | Total Aerobic Bacteria/Total Coliform Red Bile Agar   | 10 /pk |
|           | Tryptic Soy Agar (TSA)/Violet                         |        |
| 97026 326 | Total Aerobic Bacteria/Disinfection Control           | 10 /pk |
|           | TSA/DE Neutralizing Agar                              |        |



Continued on next page.

# Presence-Absence Media



## Biological Activity Reaction Test (BART)

BART biotestors are excellent diagnostic tools to help identify the presence of process disruptors. Find out if you have bacteria creating slime layers and limiting disinfection, or discover if iron reducing bacteria are eating your pipes. Ten varieties to choose from.

| Prod. No. | Description                                                                                                                      | Unit   |
|-----------|----------------------------------------------------------------------------------------------------------------------------------|--------|
| 97026 408 | Acid Producing Bacteria (APB); Bacterial strains capable of acid production under reductive (oxygen-deprived) conditions         | 9 /pk  |
| 97026 616 | Blue Green Algae (ALGE); Photosynthetic plant-like microorganisms; Chlorophyceae, Cyanobacteria, desmids, diatoms and euglenoids | 9 /pk  |
| 97026 404 | Blue Green Algae (ALGE) same as above                                                                                            | 27 /pk |
| 97026 618 | Denitrifying Bacteria (DN); Nitrate reducing bacterial strains                                                                   | 9 /pk  |
| 97026 612 | Fluorescing Pseudomonads (FLOR); Fluorescing pseudomonad strains and related bacteria                                            | 9 /pk  |
| 97026 678 | Heterotrophic Aerobic Bacteria (HAB); Broad spectrum of aerobic bacteria                                                         | 9 /pk  |
| 97026 400 | Heterotrophic Aerobic Bacteria (HAB) same as above                                                                               | 27 /pk |
| 97026 620 | Iron Related Bacteria (IRB); Iron-related bacterial populations oxidizing, reducing, and accumulating strains                    | 9 /pk  |
| 97026 410 | Iron Related Bacteria (IRB) same as above                                                                                        | 27 /pk |
| 97026 484 | Nitrifying Bacteria (NB); Ammonium oxidizing strains                                                                             | 7 /pk  |
| 97026 324 | Pool and Spa Bacteria (POOL); Problematic pool and spa bacteria; Pseudomonas strains                                             | 9 /pk  |
| 97026 614 | Slime Forming Bacteria (SLYM); Aerobic/Anaerobic slime producing bacteria; Pseudomonads                                          | 9 /pk  |
| 97026 402 | Slime Forming Bacteria (SLYM) same as above                                                                                      | 27 /pk |
| 97026 322 | Sulfate-Reducing Bacteria (SRB); Anaerobic and aerobic hydrogen sulfide generating bacterial strains                             | 9 /pk  |
| 97026 428 | Sulfate-Reducing Bacteria (SRB) same as above                                                                                    | 27 /pk |
| 97026 406 | Combination Pack: 3 each IRB/SRB/SLYM Iron-related (IRB), Sulfate-Reducing (SRB), and Slime Forming (SLYM) bacteria              | 9 /pk  |

## Most Probable Number (MPN) Media

### Multiple Tube Fermentation and Most Probable Number (MPN)

MPN tubes, or multiple tube fermentation, is an alternative way to test for coliforms and *E. coli*. Though it eliminates manual counting of colonies, all techniques based on statistical probability sacrifice accuracy and precision, as compared to membrane filtration.



| Prod. No. | Description                                           | Unit    |
|-----------|-------------------------------------------------------|---------|
| 97026 334 | A-1 Medium                                            | 15 /pk  |
| 97026 336 | Azide Dextrose Broth Tubes                            | 15 /pk  |
| 97026 412 | Brilliant Green Bile (BGB) Tubes                      | 15 /pk  |
| 97026 340 | EC Medium Tubes                                       | 15 /pk  |
| 97026 344 | EC Medium with MUG Tubes w/o durham tubes             | 15 /pk  |
| 97026 342 | EC Medium with MUG Tubes with durham tubes            | 15 /pk  |
| 89231 298 | Lactose Broth Tubes                                   | 15 /pk  |
| 97026 180 | Lauryl Tryptose Ampules                               | 20 /pk  |
| 97026 184 | Lauryl Tryptose Broth Tubes, single strength          | 15 /pk  |
| 89231 300 | Lauryl Tryptose Broth Tubes, concentrated             | 15 /pk  |
| 97026 186 | Lauryl Tryptose with MUG Broth Tubes, concentrated    | 15 /pk  |
| 97026 182 | Lauryl Tryptose with MUG Broth Tubes, single strength | 15 /pk  |
| 97026 530 | PathoScreen Powder Pillows, (P/A or MPN 20mL sample)  | 100 /pk |
| 97026 282 | Total Bacteria Count Media Set                        | 1 each  |
| 97026 214 | Tryptic Soy Broth Bottles                             | 25 /pk  |

#### Consumables for Most Probable Number Method

|           |                                                                       |         |
|-----------|-----------------------------------------------------------------------|---------|
| 97026 298 | <i>E. coli</i> Fluorescence Standard                                  | 1 each  |
| 97026 928 | Inoculating Loop, Disposable, 10mL                                    | 25 /pk  |
| 97026 210 | Whirl-Pak® Sterile Sample Bag with Dechlorinating Agent, 3.0 mL thick | 100 /pk |

## Microbiological Environmental Laboratories (MELs)

- *All Inclusive Apparatus/Equipment*—from sample collection through incubation, each MEL is designed for efficiency
- *Sterile Components*—selected for durability and sterile for accuracy
- *Portable Incubator*—battery powered with AC/DC conversion option. Easy to use, clean, and store.
- *Platforms to Meet Any Need*—Most Probable Number, Membrane Filtration, or Presence/Absence formats
- *Wide Choice of Media*—choose from over 30 options\*
- *Self Contained*—rugged carrying case for storage and rapid deployment
- *Illustrated Instruction*—Complete, easy-to-read instructions included

Monitoring water supplies for potability requires accuracy, repeatability, and efficiency. When an emergency situation arises where standard conditions do not exist, the value of Hach MELs are readily apparent. MELs are the solution for emergency or field testing operations. These efficient, cost-effective systems also allow you to establish microbiological analysis within an existing facility, at sea, from remote facilities, watershed surveys, and within educational institutions.

\*Order media separately to ensure longest shelf-life.

### MEL/850 Potable Water Lab

- *Monitor 8 parameters plus Total Coliforms and E. coli (using Presence Absence method)*
- *Consumables and P/A w/ MUG media included*

| Prod. No. | Method                            | Sensitivity                    | # Tests              |
|-----------|-----------------------------------|--------------------------------|----------------------|
| 97026 922 | Total coliform and <i>E. coli</i> |                                | 100                  |
|           | Chlorine, Free and Total          | 0.02 - 2.00 mg/L               | 100                  |
|           | pH Pocket Pal Tester              | 0 - 14 pH units                | 200 hrs battery life |
|           | Nitrate                           | 0.3-30.0 mg/L NO <sub>3</sub>  | 100                  |
|           | Nitrite                           | 0.002-0.350 mg/L               | 100                  |
|           | NO <sub>2</sub> -N                |                                |                      |
|           | Nitrogen, Ammonia                 | 0.01 - 0.50 mg/L               | 100                  |
|           | TDS Pocket Pal Tester             | 10 - 1990 mg/L                 | 200 hrs battery life |
|           | Phosphorous, Reactive             | 0.02-2.50 mg/L PO <sub>4</sub> | 100                  |
|           | Sulfide                           | 0 - 0.70 mg/L                  | 100                  |
|           | Temperature                       | 10 - 110 °C                    | Unlimited            |



*Monitor 8 parameters plus Total Coliforms and E. coli (Presence Absence Method)*

Contents (Qty): Apparatus: Clippers (1); 25 mL poly graduated cylinder (1); Thermometer: -10 to 100°C (1); 6 oz. Demineralizer bottle (1); Whirlpak bags with thiosulfate (100); 0.5 & 1.0 mL poly graduated droppers (60); 100 mL poly beakers (2); AA batteries (4); Portable 360 nm UV lamp (1); Germicidal cloths (5); Portable incubator and P/A rack (1 of each); Pocket Pal pH tester (1); Pocket Pal TDS tester (1); DR/850 colorimeter and accessories.

Reagents: 100 mL Sulfide 1&2 reagents (2 of each); PhosVer 3 powder pillows (100); NitriVer 5 powder pillows (100); NitriVer 3 powder pillows (100); 50 mL spec grade phenol red (2); Free and Total Chlorine powder pillows (100); 4.00/7.00 pH buffer powder pillows (10 each); Presence Absence with MUG (50); Ammonia, Salicylate and Cyanurate reagents (200 of each)

#### Media and Consumables Reordering

| Product No. | Description    | Format    | Package                |
|-------------|----------------|-----------|------------------------|
| 97026-314   | Total Coliform | P-A       | pk/12; plastic bottles |
| 97026-308   | Fecal Coliform | P-A       | pk/50; plastic bottles |
| 97026-312   | <i>E. coli</i> | P-A w/MUG | pk/50; plastic bottles |

### MEL/MPN Lab

- *Sampling/filtration consumables only. Choose media and order separately.*

| Prod. No. | Method                                            | # Tests |
|-----------|---------------------------------------------------|---------|
| 89231 136 | Most Probable Number (Multiple Tube Fermentation) | 50      |

Contents (Qty): Poly pipets; 10 mL: sterile (50) • pipet bulb (1) • Batteries; AA; pk/4 (1) • UV Lamp (360 nm); Whirlpak bags w/thiosulfate (50) • Permanent marker (1) • Germicidal cloth (5) Portable Incubator and MPN rack (1 ea) • Inoculating loops; disposable; sterile (50) • Thermometer; -10 to 100°C (1)

#### Recommended Media and Consumables Reordering

| Prod. No. | Description                                | Format | Package            |
|-----------|--------------------------------------------|--------|--------------------|
| 89231-300 | Total Coliform, Lauryl Tryptose            | MPN    | pk/15; glass tubes |
| 97026-412 | Total Coliform, Brilliant Green Bile Broth | MPN    | pk/15; glass tubes |
| 97026-186 | Total Coliform, Lauryl Tryptose + MUG      | MPN    | pk/15; glass tubes |



*Monitor bacteria in water samples with the flexibility to choose your own media.*

# Portable Labs & Test Kits

## MEL/P-A Safe Drinking Water Lab

- Chemistry and filtration consumables only. Choose media and order separately
- Nitrate and Chlorine determined using visual color discs
- Portable incubator used to determine total and fecal coliforms directly in the field

| Prod. No. | Method                            | Sensitivity                     | # Tests              |
|-----------|-----------------------------------|---------------------------------|----------------------|
| 89231-134 | Total coliform and <i>E. coli</i> | 1 CFU/mL                        | *                    |
|           | Chlorine, Free and Total          | 0.1 - 3.5 Cl <sub>2</sub> (F&T) | 100                  |
|           | TDS Pocket Pal Tester             | 10 - 1990 mg/L                  | 200 hrs battery life |
|           | Nitrogen, Nitrate                 | 1 - 50 mg/L NO <sub>3</sub> -N  | 100                  |
|           | pH Pocket Pal Tester              | 0 - 14 pH units                 | 200 hrs battery life |

\*Select your media below, and order separately.

Contents (Qty): Apparatus: Clippers (1); 100 mL poly beaker (1); Color comparator box (1); Viewing tubes (4); Nitrate-Nitrogen color disc (1); DPD Chlorine color disc (1); Thermometer: -10 to 100°C; Dropper with 0.5/1.0 mL graduations (1); Permanent marker (1); Whirlpack bags with thiosulfate (50); AA batteries (4); Portable 360 nm UV lamp (1); Germicidal cloths (5); Portable incubator and P/A rack (1 of each); Pocket Pal pH tester (1); Pocket Pal TDS tester (1)

Reagents: 5 mL NitraVer 5 powder pillows (100 each); 5 mL Free and Total Chlorine powder pillows (100 each); 4.00/7.00 pH buffer powder pillows (10 each)

### Recommended Media

| Product No. | Description    | Format    | Package                |
|-------------|----------------|-----------|------------------------|
| 97026-314   | Total Coliform | P-A       | pk/12; plastic bottles |
| 97026-308   | Fecal Coliform | P-A       | pk/50; plastic bottles |
| 97026-310   | <i>E. coli</i> | P-A w/MUG | pk/12; plastic bottles |
| 97026-312   | <i>E. coli</i> | P-A w/MUG | pk/50; plastic bottles |



Economical portable lab monitors key water quality parameters plus Total Coliforms and *E. coli* (Presence Absence Method)

## MEL/MF Total Coliform Lab

- Sampling and filtration consumables only. Order media separately.

| Prod. No. | Method                             | Sensitivity | # Tests |
|-----------|------------------------------------|-------------|---------|
| 97026 924 | Membrane Filtration                | 1 CFU/mL    | 200     |
|           | Total coliforms and <i>E. coli</i> |             |         |

Contents (Qty): Thermometer: -10 to 100°C (1); Alcohol Burner (1); Germicidal cloths (5); Whirlpack bags with thiosulfate (200); Forceps (1); 3x hand magnifier (1); Permanent marker (1); Syringe/tubing vacuum device (1); Field vacuum manifold (1); Sterile filtration assemblies - funnel, membrane, dish, pad (200); Hand tally counter (1); Portable incubator(1); incubator rack (1).

### Recommended Media and Consumables Reordering

| Prod. No. | Description                  | Format | Package                |
|-----------|------------------------------|--------|------------------------|
| 97026-194 | Total Coliform, m-Endo Broth | MF     | pk/50; plastic ampules |
| 97026-192 | Total Coliform, m-Endo Broth | MF     | pk/20; glass ampules   |



Obtain quantitative results in the field or remote lab.

## MEL/m-ColiBlue24® Field Filtration Lab

- Monitor with EPA Approved m ColiBlue24

| Prod. No. | Method                             | Sensitivity | # Tests |
|-----------|------------------------------------|-------------|---------|
| 89231-414 | Membrane Filtration                | 1 CFU/mL    | Varies  |
|           | Total coliforms and <i>E. coli</i> |             |         |

Contents (Qty): 10 mL Sterile poly pipettes (50); Alcohol (100mL); Alcohol Burner (1); Sterile petri dish with pad (50); Whirlpack bags with thiosulfate (50); Forceps (1); Ampule breaker (1); 3x hand magnifier (1); Pipette filler (1); Microfil single-unit filtration stand (1); m-ColiBlue24 media glass ampules (2 packs of 20 ampules); Millipore push-fit filter funnels (150); Syringe/tubing vacuum device (1), Procedure documentation

### Media and Consumables Reordering

| Prod. No. | Description                                      | Format | Package                |
|-----------|--------------------------------------------------|--------|------------------------|
| 97026-190 | Total Coliforms and <i>E. coli</i> , mCB24 Broth | MF     | pk/50; plastic ampules |
| 97026-188 | Total Coliforms and <i>E. coli</i> , mCB24 Broth | MF     | pk/20; glass ampules   |
| 97026-212 | Total Coliforms and <i>E. coli</i> , mCB24 Broth | MF     | 100 mL bottle; glass   |



Monitor with EPA Approved m ColiBlue24.



## CEL/850 Environmental Water Quality Laboratory

Important environmental tests can be performed with this portable laboratory containing everything necessary for determining water quality in the field, and fast, on-the-spot results. The Environmental Water Quality Laboratory includes DR/850 Colorimeter, Digital Titrator, reagent sets, apparatus, and illustrated instrument and procedures manuals in a sturdy field case.

**Prod. No. Description**  
**89231 170** CEL/850 Environmental Water Quality Laboratory

**89231 174** CEL/850 Environmental Water Quality Laboratory - Replacement Reagent Set

| Parameter                            | Range          | No. of Tests |
|--------------------------------------|----------------|--------------|
| Acidity (as $\text{CaCO}_3$ )*       | 10-4,000 mg/L  | 100          |
| Alkalinity (as $\text{CaCO}_3$ )*    | 10-4,000 mg/L  | 100          |
| Ammonia (as $\text{NH}_3\text{-N}$ ) | 0-0.50 mg/L    | 100          |
| Carbon Dioxide*                      | 10-1,000 mg/L  | 100          |
| Chlorine, Free                       | 0-2.00 mg/L    | 100          |
| Chlorine, Total                      | 0-2.00 mg/L    | 100          |
| Hardness (as $\text{CaCO}_3$ )*      | 10-4,000 mg/L  | 100          |
| Iron, Total                          | 0-3.00 mg/L    | 100          |
| Manganese, HR                        | 0-20.0 mg/L    | 100          |
| Nitrate, LR (as N)                   | 0-0.50 mg/L    | 100          |
| Nitrite (as N)                       | 0-0.350 mg/L   | 100          |
| Phosphate                            | 0-2.50 mg/L    | 100          |
| Sulfide                              | 0-0.70 mg/L    | 100          |
| Tannin/Lignin                        | 0-9.0 mg/L     | 100          |
| Temperature                          | -10 to 110°C   | †            |
| Turbidity                            | 21 - 1,000 FAU | —            |
| Zinc                                 | 0-3.00 mg/L    | 100          |

\*Titration method.

†No reagent required.



## CEL/820 Water, Water Everywhere Education Laboratory

The CEL/820 Water, Water Everywhere Education Laboratory offers one easy-to-store, easy-to-use portable system for a complete range of parameters. Students can easily follow the step-by-step instructions to obtain accurate, high-confidence results. The Water, Water Everywhere curriculum is available for download at [www.hach.com](http://www.hach.com). It covers the basics of water quality, the water cycle, and more. CEL/820 Water, Water Everywhere Education Laboratory includes DR/820 Colorimeter, reagent sets, apparatus, illustrated instrument and procedures manuals, and curriculum in a sturdy field case.

**Prod. No. Description**  
**89231 168** CEL/820 Water, Water Everywhere Education Laboratory

**89231 180** CEL 820 Water, Water Everywhere Education Laboratory - Replacement Reagent Set

| Parameter        | Range            | No. of Tests |
|------------------|------------------|--------------|
| Chlorine, Total  | 0-2.00 mg/L      | 100          |
| Iron, Total      | 0-3.00 mg/L      | 10           |
| Nitrate (as N)   | 0-30.0 mg/L      | 100          |
| Dissolved Oxygen | 0-15.0 mg/L      | 25           |
| pH               | 6.5-8.5 pH units | 100          |
| pH (test strips) | 0-14 pH units    | 100          |
| Temperature      | -10 to 110°C     | †            |
| Turbidity        | 21-1,000 FAU     | †            |

†No reagent required.

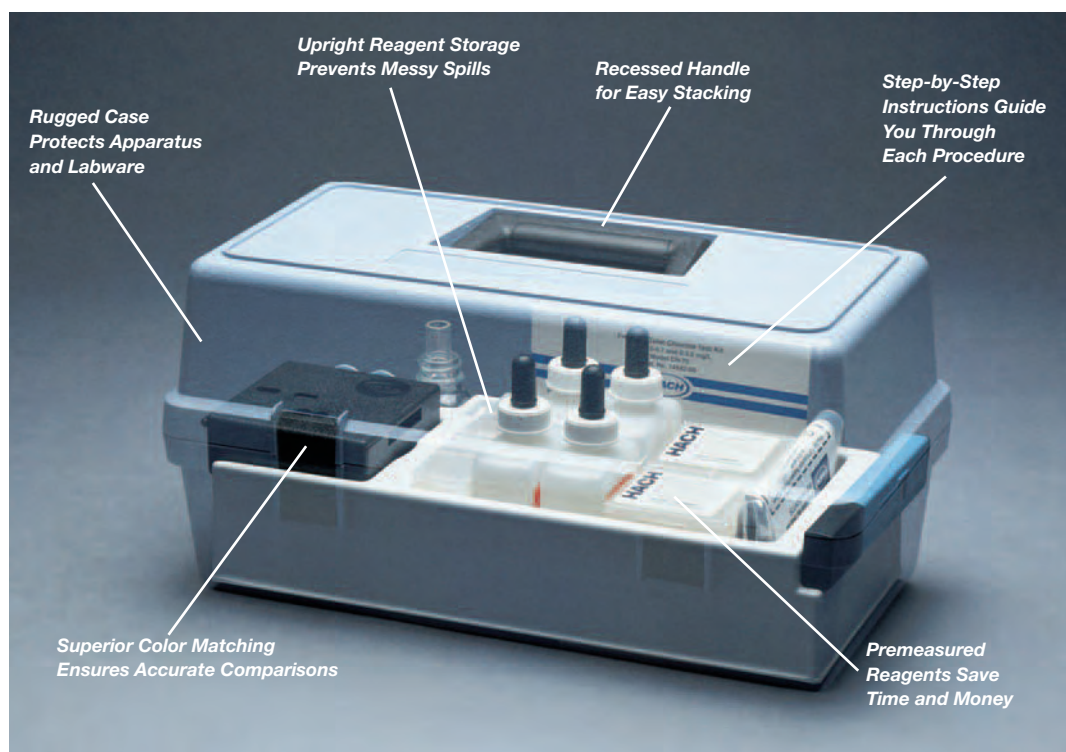


The profitable and effective maintenance of aquatic livestock is dependent upon proper and accurate ecosystem management. The CEL/850 Complete Aquaculture Laboratory provides everything needed to measure 15 critical environmental parameters required for the understanding and adjustment of your ecosystem to ensure optimal breeding and health.

<sup>†</sup>No reagent required.

# When is a Kit a Hach Test Kit?

Though several different components are used in the making of a Hach test kit, every easy-to-use kit has the features listed below.



## ***Premeasured Reagents Save Time and Money***

Unit-dose reagents, preferred by most analysts, require no mixing or measuring, saving you time and money every time you test. Pre-measured reagents are developed specifically for our test systems and contain the exact amount of reagent required for one test. Stable, pre-mixed reagent formulations minimize the number of test steps.

## ***Everything You Need for Testing Anywhere***

From flasks to beakers to viewing tubes, everything you need is supplied with Hach kits. Many components are molded from durable plastics and are ideal for poolside and educational applications, where safety is a major concern.

## ***Easy To Follow Instructions***

You don't have to be a trained chemist to get professional results with Hach's proven methods. Kits are supplied with illustrated instructions that guide you step by step through each procedure.

## ***Spill-Resistant Storage***

During transportation and use, custom case inserts store reagents in an upright position and prevent kit components from shifting, breaking or spilling. Case inserts are molded from high quality materials and are easy to clean.

## ***Survives Outdoor Field-Testing Conditions***

Rugged, chemical-resistant test kit cases, molded from durable polypropylene, can withstand the harshest conditions. Some kits feature a compartmentalized reagent cabinet to keep chemistries organized.

## ***Trusted Technology and Support***

When Hach scientists develop an analysis, their goal is to ensure accurate results. Hach color discs, color cubes, and instruments ensure accurate results every time.

# Agriculture

Good crop production is directly tied to maintaining the optimum balance of nitrogen, phosphorus and potassium soil levels for the specific crop being grown. Proper nutrient levels together with correct soil pH levels also support nutrient availability, organic matter decomposition and overall general soil balance.

## Soil Fertility

### Model NPK-1

- Color disc and dip stick methods are economical, simple, effective
- Determine nitrogen, phosphorus and potassium content of soil
- Kit also includes one Pocket Pal pH tester for quick and easy pH testing



| Prod. No. | Parameter            | Range*        | # Tests              |
|-----------|----------------------|---------------|----------------------|
| 89231 108 | Phosphorus           | 1-130 mg/L    | 100                  |
|           | Potassium            | 0-250 mg/L    | 100                  |
|           | Nitrate-Nitrogen     | 1-60 mg/L     | 100                  |
|           | pH Pocket Pal Tester | 0-14 pH units | 200 hrs battery life |

## Soil Saturation Extraction

- Provides apparatus to prepare soil saturation extract for conductivity or pH measurement
- Extract greenhouse growing media for pH, salts, water soluble N, P, K, Ca and Mg determinations
- Includes complete instructions for sampling, extract prep., measurement and result interpretation



| Prod. No. | Method                                        |
|-----------|-----------------------------------------------|
| 89230 980 | Soil Extraction - sample preparation required |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Soil and Irrigation Water

### Model SIW-1

- Ideal for fertility analysis, site characterization, and irrigation water quality assessment
- Farmers, researchers, extension agents and educators can use kit in the field, in classroom anywhere
- Uses color disc, drop count titration and dipstick methods
- Includes manual for interpretation of soil and irrigation water test results



| Prod. No. | Parameter                     | Range*                                     |
|-----------|-------------------------------|--------------------------------------------|
| 89231 410 | <b>Soil Tests</b>             |                                            |
|           | % Base Saturation             | 0-100%                                     |
|           | Cation Exchange Capacity      | 0-M <sup>+</sup> meq/100 g                 |
|           | Exchangeable Sodium           | -                                          |
|           | Free-Lime Estimation          | -                                          |
|           | Gypsum Requirement            | 0-360 kg/ha (0-15 tons/ac)                 |
|           | Exchangeable Ca and Mg        | 0-M <sup>+</sup> meq/100 g                 |
|           | Lime Requirement              | NOTE: No longer available in this test kit |
|           | pH Pocket Pal tester          | 0-14 pH                                    |
|           | Phosphorus                    | 1-130 mg/L                                 |
|           | Nitrate-Nitrogen              | 0-60 mg/L                                  |
|           | Potassium                     | 0-250 mg/L                                 |
|           | Total Exchangeable Acidity    | 0-M <sup>+</sup> meq/100 g                 |
|           | Sodium, exchangeable          | -                                          |
|           | Soil Texture Estimation       | -                                          |
|           | <b>Irrigation Water Tests</b> |                                            |
|           | Calcium and Magnesium         | -                                          |
|           | Conductivity Pocket Pal       | 10-1990 TDS                                |
|           | Nitrate-Nitrogen              | 0-40 mg/L                                  |
|           | pH Pocket Pal tester          | 0-14 pH units                              |
|           | Potassium                     | 0-5                                        |
|           | Sodium Estimation             | -                                          |
|           | Sodium Absorption Ratio       | -                                          |

## Aquaculture

Maintaining good water quality is essential for profitable fish production. In many cases, the availability and cost of "crop" insurance is directly related to testing programs.

## Nine-Parameter Aquaculture

### Model FF-1A

- An economical choice, includes nine basic water quality tests
- Full supplies for drop count titration and continuous gradient disc colorimetric measurement
- Reagents and equipment are supplied for drop count titration and colorimetric measurement using continuous gradient color discs

| Prod. No. | Parameter                     | Range*                    | # Tests |
|-----------|-------------------------------|---------------------------|---------|
| 89230 938 | Alkalinity (P&M)              | 0.4-8 gpg                 | 100     |
|           | Ammonia                       | 0.1-3 mg/L                | 300     |
|           | Carbon Dioxide                | 5-100 mg/l                | 100     |
|           | Chloride                      | 5-400 mg/L                | 100     |
|           | Dissolved Oxygen              | 0.2-20 mg/L               | 100     |
|           | Hardness as CaCO <sub>3</sub> | 1-30 gpg (no upper limit) | 100     |
|           | Nitrite                       | 0.1-0.5 mg/L              | 100     |
|           | pH                            | 4-10 pH units             | 100     |
|           | Temperature                   | -10 to 110°C (1 to 220°F) | 300     |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

†No upper limit.

Continued on next page.

## Ten-Parameter Aquaculture

### Model FF-2 with Digital Titrator

- Measure 10 fresh water parameters using Digital Titrator titration and color disc colorimetry
- Meters for dissolved oxygen are available as options



| Prod. No. | Parameter                                 | Range*                 | # Tests           |
|-----------|-------------------------------------------|------------------------|-------------------|
| 89231 278 | Acidity (MO and Total) as $\text{CaCO}_3$ | 100-4,000 mg/L         | Up to 100 of each |
|           | Alkalinity (P & M) as $\text{CaCO}_3$     | 100-4,000 mg/L         | Up to 100 of each |
|           | Ammonia                                   | 0.1-3 mg/L             | 300               |
|           | Carbon Dioxide                            | 10-100 mg/L            | Up to 100         |
|           | Chloride                                  | 10-100 mg/L            | 100               |
|           | Dissolved Oxygen                          | 0-10 mg/L              | 100               |
|           | Hardness as $\text{CaCO}_3$               | 100-4,000 mg/L         | 100               |
|           | Nitrite                                   | 0.01-0.5 mg/L          | 100               |
|           | pH                                        | 4-10 pH units          | 300               |
|           | Temperature                               | -10 to 110°C (1-220°F) | No limit          |

Digital titrator methods may yield 40-100 tests depending on the amount of titrant used for each test.

## Saltwater Aquaculture

### Model FF-3 with Digital Titrator

- Designed to meet the demands of specialized salt water applications
- Includes apparatus and reagents to measure 10 critical parameters
- Tests include Digital Titrator, titration, and color disc methods
- Ammonia nitrogen, and chloride titration salinity tests were designed exclusively for this kit



| Prod. No. | Parameter                                 | Range*                 | # Tests           |
|-----------|-------------------------------------------|------------------------|-------------------|
| 89231 280 | Acidity (MO and Total) as $\text{CaCO}_3$ | 100-4,000 mg/L         | Up to 100 of each |
|           | Alkalinity (P & M) as $\text{CaCO}_3$     | 100-4,000 mg/L         | Up to 100 of each |
|           | Ammonia                                   | 0.1-2.5 mg/L           | 100               |
|           | Carbon Dioxide                            | 10-100 mg/L            | Up to 100         |
|           | Chloride (as salinity)                    | 2-100 ppt              | Up to 100         |
|           | Dissolved Oxygen                          | 0-10 mg/L              | 100               |
|           | Hardness as $\text{CaCO}_3$               | 100-4,000 mg/L         | 100               |
|           | Nitrite                                   | 0.01-0.5 mg/L          | 100               |
|           | pH                                        | 4-10 pH units          | 300               |
|           | Temperature                               | -10 to 110°C (1-220°F) | No limit          |

Digital titrator methods may yield 40-100 tests depending on the amount of titrant used for each test.

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Phosphonate

### Model PN-10

- Simple, fast, color disc method
- UV lamp digestion converts phosphonates into reactive phosphate
- Control phosphonate concentration to save chemical costs
- Hach's reliable PhosVer 3 reagent provides results in under 15 minutes

| Prod. No. | Model                                                  | Method                       | Parameter                              | Range*     | # Tests |
|-----------|--------------------------------------------------------|------------------------------|----------------------------------------|------------|---------|
|           | PN-10                                                  | Color disc/<br>UV photolysis | Phosphonate -<br>As $\text{PO}_4^{3-}$ | 1 - 5 mg/L | 100     |
| VERSIONS: |                                                        |                              |                                        |            |         |
| 89231 318 | Color disc/UV photolysis (230 Vac, 50 Hz)              |                              |                                        |            |         |
| 89231 316 | Color disc (Does not include UV lamp or power supply.) |                              |                                        |            |         |



## Phosphonate

### Pocket Colorimeter™ II

- Pocket II provides hand held, rugged and waterproof analysis (IP 67 excluding battery compartment)
- Datalogs most recent 10 data points, including time of measurement
- Kit includes sample cells, reagents, battery, UV lamp and procedure manual

| Prod. No. | Parameter                                                         | Range*                        | # Tests |
|-----------|-------------------------------------------------------------------|-------------------------------|---------|
|           | Phosphonate - As $\text{PO}_4^{3-}$                               | 0.1 - 25.0 mg/L $\text{PO}_4$ | 100     |
| VERSIONS: |                                                                   |                               |         |
| 89231 448 | Phosphonate, Pocket Colorimeter II Test Kit, with 115 Vac UV lamp |                               |         |



## Drinking Water

The efficient production of drinking water covers many facets of water quality. Raw water sources, treatment options and distribution systems are all elements for consideration. Many test kit options are available for handling the testing requirements for producing and delivering quality potable water to the customer's tap.

## Hardness and Iron

### Model HA-95A with Color Cube

- Compact and convenient enough for routine checks on the go
- Uses both drop count titration and color cube methods

| Prod. No. | Parameter                           | Range*                 | # Tests |
|-----------|-------------------------------------|------------------------|---------|
| 89230 908 | Hardness as $\text{CaCO}_3$<br>Iron | 1-20 gpg<br>0.1-5 mg/L | 50      |



## Hardness and Iron

### Model HA-77 with Color Disc

- Uses both drop count titration and color disc methods

| Prod. No. | Parameter                           | Range*                 | # Tests |
|-----------|-------------------------------------|------------------------|---------|
| 89231 260 | Hardness as $\text{CaCO}_3$<br>Iron | 1-20 gpg<br>0.1-5 mg/L | 100     |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

Continued on next page.

## Hardness, Iron, and pH



### Models HA-62, HA-62A, and HA-62B

- Combines frequently measured parameters into one rugged kit
- Uses color disc and drop count titration methods

| Prod. No. | Model        | Parameter                     | Range*           | # Tests |
|-----------|--------------|-------------------------------|------------------|---------|
| 89231 246 | Model HA-62  | Hardness as CaCO <sub>3</sub> | 1-20 gpg         | 100     |
|           |              | Iron                          | 0.1-5 mg/L       |         |
|           |              | pH                            | 6.6-8.4 pH units | 300     |
| 89231 248 | Model HA-62A | Hardness as CaCO <sub>3</sub> | 1-20 gpg         | 100     |
|           |              | Iron                          | 0.2-10 mg/L      |         |
|           |              | pH                            | 6.6-8.4 pH units | 300     |
| 89231 250 | Model HA-62B | Hardness as CaCO <sub>3</sub> | 1-20 gpg         | 100     |
|           |              | Iron                          | 0.2-10 mg/L      | 100     |
|           |              | pH                            | 4-10 pH units    | 300     |

## Iron and Manganese



### Model IR-20

- Use this color disc kit to identify underlying cause of stains
- Provides quick, on the spot tests for iron and manganese

| Prod. No. | Parameter | Range*     | # Tests |
|-----------|-----------|------------|---------|
| 89231 238 | Iron      | 0.1-5 mg/L | 100     |
|           | Manganese | 0.1-3 mg/L |         |

## Iron and pH



### Model IR-23

- Easy to perform color disc method provides accurate measurements of two key parameters

| Prod. No. | Parameter | Range*        | # Tests |
|-----------|-----------|---------------|---------|
| 89231 282 | Iron      | 0.2-10 mg/L   | 100     |
|           | pH        | 4-10 pH units | 300     |

## Chlorine, Hardness, Iron and pH



### Model CN39-WR

- Includes frequently measured water quality parameters in one rugged test kit
- Uses color disc and drop count titration methods

| Prod. No. | Parameter                     | Range*        | # Tests |
|-----------|-------------------------------|---------------|---------|
| 89231 266 | Chlorine, Total               | 0-3.4 mg/L    | 100     |
|           | Hardness as CaCO <sub>3</sub> | 1-20 gpg†     | 100     |
|           | Iron                          | 0.1-5 mg/L    | 100     |
|           | pH                            | 4-10 pH units | 300     |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

†No upper limit.

Education is essential for understanding and protecting our environment, and water chemistry is a vital part of this understanding. Teaching students and citizens the science of testing water provides a solid foundation for making future decisions on environmental and water use issues.

## Healthy Water, Healthy People

Hach is a proud sponsor of the “Healthy Water, Healthy People” Program. For more information on educational test kits, please contact HWHP at 866-337-5486 or visit [www.healthywater.org](http://www.healthywater.org).



## Stream Survey

### Teaching Model

- Customized for the popular river and stream surveys that are occurring in many watersheds by citizen and student groups
- Features many of the most commonly tested parameters that are known to correlate directly to the health of a river, stream, or creek
- Uses color disc and drop count titration methods
- Customized for the popular river and stream surveys that are occurring in many watersheds by citizen and student groups

| Prod. No. | Parameter                 | Range*              | # Tests              |
|-----------|---------------------------|---------------------|----------------------|
| 89231 178 | Ammonia                   | 0.1-2.5 mg/L        | 100                  |
|           | Nitrate                   | 0.02-1, 0.2-10 mg/L | 100                  |
|           | Dissolved Oxygen          | 0.2-4.0, 1-20 mg/L  | 100                  |
|           | pH Pocket Pal Tester      | 0-14 pH units       | 200 hrs battery life |
|           | Phosphate, Total          | 0-1, 0-5, 0-40 mg/L | 100                  |
|           | Temperature (thermometer) | -10 to 110°C        | unlimited            |



## Just Add Water Classroom Science Kits

- Each kit is a complete water science lesson, making water testing incredibly simple and fun!
- Kits come with a variety of Hach's most popular Water Quality Test Strips, detailed instructions, and a complete teacher tested curriculum on diskette— as well as TestYES Positive Result Chemistry, to demonstrate the appearance of a positive test result.

| Prod. No. | Description                                                        | Testing Parameters                 |
|-----------|--------------------------------------------------------------------|------------------------------------|
| 89231 186 | Educational tests for Drinking Water, grades 7-9 (approximate).    | pH, Hardness, Copper, Chlorine     |
| 89231 190 | Educational tests for Ponds and Streams, grades 7-9 (approximate). | Alkalinity, pH, Phosphate, Nitrate |



## Surface Water

- By providing economical, easy to use tests for ammonia, chlorine, pH, nitrate, dissolved oxygen, phosphorus, and temperature, this kit is an ideal tool for source water monitoring and wastewater treatment plants
- The rugged, lightweight kit includes everything needed for a full array of interesting tests
- Uses drop count titration and color disc methods

| Prod. No. | Parameter                | Range*                   | # Tests              |
|-----------|--------------------------|--------------------------|----------------------|
| 89231 130 | Ammonia                  | 0.1-2.5 mg/L             | 100                  |
|           | Chlorine, Free and Total | 0-3.4 mg/L               | 100                  |
|           | Nitrate                  | 0-40 mg/L                | 100                  |
|           | Dissolved Oxygen         | 0.2-4, 1-20 mg/L         | 100                  |
|           | pH Pocket Pal            | 0-14 pH units            | 200 hrs battery life |
|           | Phosphorous              | 0.02-1, 0.1-5, 1-50 mg/L | 100                  |
|           | Temperature              | -1 to 48°C               | unlimited            |



\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Pools / Hot Tubs

A proper balance of water quality parameters is essential for providing recreational water that is microbiologically safe and aesthetically pleasing, yet economical to maintain. Temperature extremes, pool or hot tub usage levels, and effectiveness of the treatment chemicals requires frequent and on-site testing in order to maintain optimum water quality.



## Chlorine, Free and Total (plus pH)

### Pocket Colorimeter II

- A top choice for swimming pool maintenance professionals seeking reliable, accurate measurements in monitoring programs
- Pocket Colorimeter provides rugged, hand held and waterproof analysis
- Datalog storage for previous 10 points, including measurement time
- Kit includes sample cells, reagents, battery and procedure manual

| Prod. No. | Method                    | Range*                                        | Smallest Increment | # Tests |
|-----------|---------------------------|-----------------------------------------------|--------------------|---------|
| 97026 970 | Colorimetry<br>Phenol Red | 0.1 - 10.0 mg/L $\text{Cl}_2$<br>6.0 - 8.5 pH | 0.1                | 100     |



## Bromine Long-Path

### L-P Cube

- Convenient and economical color cube comparator
- Measures disinfection levels
- Convenient and economical color cube comparator

| Prod. No. | Parameter                  | Range*                       | Smallest Inc. (mg/L) | #Tests |
|-----------|----------------------------|------------------------------|----------------------|--------|
| 89231 010 | Bromine - As $\text{Br}_2$ | 0.6 - 3.0 mg/L $\text{Br}_2$ | 0.6                  | 50     |

# Water Conditioning



## Water Conditioning Demonstration

### Water Conditioning Model

- Provides five key water tests and demonstrations: Soap consumption for a dramatic display of hardness, softener to demonstrate the benefits of softened water, hardness, pH and iron
- Uses drop count titration and color cube methods

| Prod. No. | Parameter                   | Range*                      | # Tests |
|-----------|-----------------------------|-----------------------------|---------|
| 89230 916 | Soap Demonstration          | 1-20 gpg as $\text{CaCO}_3$ | 50      |
|           | Hardness as $\text{CaCO}_3$ | 1-20 gpg                    | 50-100  |
|           | Softener Demonstration      | 1,600 grain capacity        |         |
|           | Iron                        | 2-10 mg/L                   | 100     |
|           | pH                          | 6.5-8.5 pH units            | 200     |

\*1 ppm = 1 mg/L; 1 ppb = 1  $\mu\text{g/L}$ ; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

Wastewater treatment plants, water reclamation facilities and industrial pretreatment operations require operators to perform basic process control testing at multiple sites within their facilities. On-site testing and immediate feedback of results can help operators optimize and better understand changes in their treatment process. Stormwater discharges are contributing to the pollution of the nation's waterways. Point source and nonpoint source stormwater discharges are required to monitor for potential impact on receiving water bodies.

## Wastewater Treatment Plant Laboratory

### Model STPL-WRT

- Designed as a complete, self contained portable laboratory that provides simple measurements for wastewater treatment plant operators
- Includes necessary reagents/equipment to test for temperature, pH, sludge settleability, settleable matter, dissolved oxygen, and chlorine
- Uses drop count titration and color disc methods



| Prod. No. | Parameter                 | Range*                     | # Tests   |
|-----------|---------------------------|----------------------------|-----------|
| 89231 252 | Chlorine, Total           | 0-3.4 mg/L                 | 100       |
|           | Dissolved Oxygen          | 1-10 mg/L                  | 100       |
|           | Settleable Matter         | 0-1 L (Imhoff cones)       | unlimited |
|           | Sludge Settleability      | 0-500 mL (grad. cylinders) | unlimited |
|           | pH                        | 0-14 pH units              | 300       |
|           | Temperature (thermometer) | -10 to 110°C               | unlimited |

## Stormwater

### Model SW-1

- Designed for on site or laboratory monitoring of storm sewer outflow or industrial discharge
- Use to screen for pollutants after rainfall or snow events to meet stormwater discharge monitoring requirements
- Uses drop count titration and color disc methods



| Prod. No. | Parameter            | Range*             | # Tests              |
|-----------|----------------------|--------------------|----------------------|
| 97026 824 | Chlorine, Total      | 0-3.4 mg/L         | 100                  |
|           | Copper               | 1-5 mg/L           | 100                  |
|           | Detergents           | 0.05-1 mg/L        | 32                   |
|           | pH Pocket Pal Tester | 0-14 pH units      | 200 hrs battery life |
|           | Phenols              | 0.1-5, 0.02-1 mg/L | 50                   |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Alachlor in Water

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter         | Method                                      | Range*                   | Case Style | #Tests | Ship Wt. (lbs) |
|-----------|-------------------|---------------------------------------------|--------------------------|------------|--------|----------------|
| 97026 848 | Alachlor in Water | Semiquantitative<br>Colorimeter Immunoassay | 0.1 - 0.5 ppb thresholds | Q          | 18     | 8              |



## Alkalinity

### Digital Titration

- Wide range for use in drinking water, beverage and boiler applications
- Accurate and portable titration method using the Hach Digital Titrator
- Accurate to  $\pm 1\%$

| Prod. No. | Parameter                                          | Model | Method                             | Range*                          | Smallest Inc. Steps | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------------------|-------|------------------------------------|---------------------------------|---------------------|------------|---------|----------------|
| 97026 850 | Alkalinity - (P) & Total (MO) - as $\text{CaCO}_3$ | AL-DT | Digital Titrator/<br>Sulfuric acid | 10 - 4,000 mg/L $\text{CaCO}_3$ | 0.1-10              | F          | 100     | 3.5            |

Actual number of tests will vary depending on amount of titrant used.



## Alkalinity

### Drop Count Titration

- Utilizes drop count titration—a simple, economical titration method
- Kit contains all required reagents and apparatus in a rugged carrying case for analysis in the field

| Prod. No. | Parameter                                        | Model | Method                                 | Range*                          | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------------|-------|----------------------------------------|---------------------------------|----------------------|------------|---------|----------------|
| 89231 036 | Alkalinity - (P) & Total (MO) as $\text{CaCO}_3$ | AL-TA | Drop count titration/<br>Sulfuric acid | 23 - 495 gpg<br>385 - 8,500 gpg | 23 gpg<br>385        | B          | 100     | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1  $\mu\text{g/L}$ ; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Alkalinity

### Drop Count Titration

- Low cost and easy to use
- Detects alkalinity caused by carbonates, bicarbonates, hydroxides and other dissolved salts



| Prod. No. | Parameter                                            | Model       | Range*                    |
|-----------|------------------------------------------------------|-------------|---------------------------|
| 97026 832 | Alkalinity - (P) & Total (MO) - as CaCO <sub>3</sub> | AL-AP, MG-L | 5-100 mg/L<br>20-400 mg/L |

| Smallest Inc. Steps | Case Style | # Tests | Ship Wt. (lbs) |
|---------------------|------------|---------|----------------|
| 5<br>20             | B          | 100     | 1.0            |

## Aluminum

### Pocket Colorimeter™ II

- The Pocket Colorimeter II Aluminum Test Kit comes with everything needed for low range aluminum measurement



| Prod. No. | Parameter                      | Method                   | Range*              |
|-----------|--------------------------------|--------------------------|---------------------|
| 97026 930 | Aluminum - as Al <sup>3+</sup> | Colorimeter/<br>Aluminon | 0.01 - 0.80 mg/L Al |

| Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|--------------------|------------|---------|----------------|
| 0.01               | R          | 100     | 5              |

## Ammonia, Nitrogen, Low Range

### Color Cube

- Designed for testing ammonia in freshwater
- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter                                                            | Model      | Method                | Range*                            |
|-----------|----------------------------------------------------------------------|------------|-----------------------|-----------------------------------|
| 89231 026 | Ammonia, Nitrogen, low range - as NH <sub>3</sub> -N, For freshwater | Color Cube | Color cube/Salicylate | 0.2 - 0.8 mg/L NH <sub>3</sub> -N |

| Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|----------------------|------------|------------|----------------|
| 0.2                  | Sealed Bag | 25         | 1              |

## Atrazine

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual all enclosed within a rugged carrying case



| Prod. No. | Parameter | Method                                         | Range*                       |
|-----------|-----------|------------------------------------------------|------------------------------|
| 97026 254 | Atrazine  | Semiquantitative<br>Colorimeter<br>Immunoassay | 0.1, 0.5, 3.0 ppb thresholds |

| Case Style | # of Tests | Ship Wt. (lbs) |
|------------|------------|----------------|
| Q          | up to 18   | 8              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits

## Bromine



### Long-Path Color Cube

- Designed for Pool, Spa and Hot tub maintenance
- Measures disinfection levels
- Convenient and economical color cube comparator

| Prod. No. | Parameter                    | Model    | Method         | Range*                         | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------------------|----------|----------------|--------------------------------|----------------------|------------|---------|----------------|
| 89231 010 | Bromine - as Br <sub>2</sub> | L-P Cube | Color cube/DPD | 0.6 - 3.0 mg/L Br <sub>2</sub> | 0.6                  | Sealed Bag | 50      | 0.2            |



## Bromine

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Kit includes: Carrying case, Pocket Colorimeter™ II, sample cells, DPD chlorine reagent powder pillows, batteries and instruction manual

| Prod. No. | Parameter                    | Method          | Range*                                                         | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------------------|-----------------|----------------------------------------------------------------|----------------------|------------|---------|----------------|
| 97026 968 | Bromine - as Br <sub>2</sub> | Colorimeter/DPD | 0.05 - 4.50 mg/L Br <sub>2</sub><br>0.2 - 10.0 Br <sub>2</sub> | 0.01<br>0.1          | D          | 50-100  | 2.5            |

## Carbon Dioxide

### Digital Titration

- Kit includes: Carrying case, digital titrator with sodium hydroxide cartridges, phenolphthalein powder pillows, graduated cylinder, erlenmeyer flask, delivery tube and digital titrator instruction manual.



| Prod. No. | Parameter                           | Model | Method                                                   | Range*                            | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------|-------|----------------------------------------------------------|-----------------------------------|----------------------|------------|------------|----------------|
| 89230 992 | Carbon Dioxide - as CO <sub>2</sub> | CA-DT | Digital Titrator/<br>Sodium hydroxide<br>Phenolphthalein | 10.1 - 1,000 mg/L CO <sub>2</sub> | 0.1, 2.0             | F          | 50         | 3.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Carbon Dioxide

### Drop Count Titration

- Includes all apparatus you need for fast, easy, and accurate carbon dioxide test results



| Prod. No. | Parameter                           | Model | Method                                                | Range*                                              | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------|-------|-------------------------------------------------------|-----------------------------------------------------|----------------------|------------|---------|----------------|
| 97026 854 | Carbon Dioxide - as CO <sub>2</sub> | CA-23 | Drop count titration/Sodium hydroxide Phenolphthalein | 1.25 - 25<br>2 - 40<br>5 - 100 mg/L CO <sub>2</sub> | 1.25<br>2<br>5       | D          | 200     | 1.0            |

## Chloramine, Mono and Free Ammonia

### Pocket Colorimeter™ II

- Use Monochloramine as an alternative to free chlorine for disinfecting drinking water as it forms fewer disinfection by products (DBP)
- Based on the Hach Indophenol method for Mono Chloramine which involves adding one reagent to the sample, waiting a 5 minute reaction time, and measuring the concentration in a colorimeter or spectrophotometer
- Includes direct read colorimeter, required sample cells, reagents, battery and procedure manual all enclosed within a rugged carrying case



| Prod. No. | Parameter                                              | Method     | Range*                                                                                               | Smallest Increment | Case Style | # Tests                                  | Ship Wt. (lbs) |
|-----------|--------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------|--------------------|------------|------------------------------------------|----------------|
| 89231 450 | Chloramine, Mono and Free Ammonia - as Cl <sub>2</sub> | Indophenol | Monochloramine<br>0.04-4.50 mg/L Cl <sub>2</sub><br>Free Ammonia<br>0.02-0.50 mg/L NH <sub>3</sub> N | 0.01               | D          | 100 Monochloramine or<br>50 Free Ammonia | 2.5            |

## Chloride

### Digital Titration

- The single parameter Model CDS DT uses the Hach Digital Titrator with Silver Nitrate Titrant Cartridges to determine chloride concentrations.
- Includes digital titrator, reagents, titration cartridges, erlenmeyer flask, graduated cylinders and delivery tube all enclosed within a rugged carrying case



| Prod. No. | Parameter                    | Model | Method                                | Range*                          | Smallest Inc. | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------------------|-------|---------------------------------------|---------------------------------|---------------|------------|---------|----------------|
| 89230 988 | Chloride- as Cl <sup>-</sup> | CD-DT | Digital Titrator/<br>Mercuric nitrate | 10 - 8,000 mg/L Cl <sup>-</sup> | 0.1-20        | F          | 100     | 4              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits

## Chloride



### Drop Count Titration

- Low cost and easy to use drop count titration method using a silver nitrate titrant
- Ideal for quickly determining quantitative results

| Prod. No. | Parameter                     | Model | Method                              | Range*                        | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------|-------|-------------------------------------|-------------------------------|----------------------|------------|---------|----------------|
| 89231 234 | Chloride - as Cl <sup>-</sup> | 8-P   | Drop count titration/Silver nitrate | 5 - 100 mg/L Cl <sup>-</sup>  | 5                    | B          | 100     | 1.0            |
|           |                               |       |                                     | 20 - 400 mg/L Cl <sup>-</sup> | 20                   |            |         |                |



## Chlorine, Low Range

### Color Cube

- Low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                      | Model | Method         | Range                          | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------------------------------------|-------|----------------|--------------------------------|----------------------|------------|---------|----------------|
| 97026 868 | Chlorine, low range - as Free Cl <sub>2</sub>  | Cube  | Color cube/DPD | 0.5 - 2.5 mg/L Cl <sub>2</sub> | 0.5                  | Sealed Bag | 50      | 0.25           |
| 97026 866 | Chlorine, low range - as Total Cl <sub>2</sub> | Cube  | Color cube/DPD | 0.5 - 2.5 mg/L Cl <sub>2</sub> | 0.5                  | Sealed Bag | 50      | 0.25           |



## Chlorine, Low Range

### Color Disc

- The most accurate visual test kit method
- Color wheel method provides fast, accurate comparisons
- Small case style offers maximum portability
- EPA accepted for potable water. Approved by some states only under certain conditions. Check with your local regulatory agency.

| Prod. No. | Parameter                                             | Model  | Method         | Range*                       | Smallest Inc. (mg/L) | Case Style | # Tests    | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|--------|----------------|------------------------------|----------------------|------------|------------|----------------|
| 97026 896 | Chlorine, low range - as free Cl <sub>2</sub>         | CN-66F | Color disc/DPD | 0 - 3.4 mg/L                 | 0.1                  | B          | 100        | 1              |
| 97026 860 | Chlorine, low range - as total Cl <sub>2</sub>        | CN-66T | Color disc/DPD | 0 - 3.4 mg/L Cl <sub>2</sub> | 0.1                  | B          | 100        | 1              |
| 97026 858 | Chlorine, low range - as free & total Cl <sub>2</sub> | CN-66  | Color disc/DPD | 0 - 3.4 mg/L                 | 0.1                  | B          | 50 F, 50 T | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Chlorine, Low Range

### Color Disc

- The most accurate visual test kit method
- Color wheel method provides fast, accurate comparisons
- EPA accepted for potable water. Approved by some states only under certain conditions. Check with your local regulatory agency.



| Prod. No. | Parameter                                             | Model  | Method         | Range*                                             | Smallest Increment | Case Style | # Tests      | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|--------|----------------|----------------------------------------------------|--------------------|------------|--------------|----------------|
| 97027 080 | Chlorine, low range - as free & total Cl <sub>2</sub> | CN-70  | Color disc/DPD | 0.02 - 0.7 mg/L<br>0 - 3.4 mg/L                    | 0.02<br>0.1        | D          | 100 F, 100 T | 2              |
| 89230 972 | Chlorine, low range - as free Cl <sub>2</sub>         | CN-70F | Color disc/DPD | 0.02 - 0.7 mg/L<br>0 - 3.4 mg/L Cl <sub>2</sub>    | 0.02<br>0.1        | D          | 200          | 2.5            |
| 89230 974 | Chlorine, low range - as total Cl <sub>2</sub>        | CN-70T | Color disc/DPD | 0.02 - 0.7 mg/L<br>0 - 3.4 mg/L Cl <sub>2</sub>    | 0.02<br>0.1        | D          | 200†         | 2.5            |
| 89231 330 | Chlorine, low range - as free & total Cl <sub>2</sub> | CN-80  | Color Disc/DPD | 0.02 - 0.7 mg/L<br>0.1 - 3.5 mg/L<br>0.5 - 10 mg/L | 0.02<br>0.1<br>0.5 | D          | 100          | 2.5            |

## Chlorine, Low Range

### Pocket Colorimeter™ II

- EPA accepted for wastewater and potable water. Approved by some states for potable water under specific conditions. Check with your local regulatory agency.



| Prod. No. | Parameter                                             | Method                          | Range*                                                                     | Smallest Inc. Steps        | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|---------------------------------|----------------------------------------------------------------------------|----------------------------|------------|---------|----------------|
| 97009 564 | Chlorine, low range - as free & total Cl <sub>2</sub> | Colorimeter/ DPD                | 0.02 - 2.00 mg/L F&T Cl <sub>2</sub><br><br>0.1 - 8.0 mg/L Cl <sub>2</sub> | 0.01<br>0.1<br>0.01<br>0.1 | D          | 50-100  | 2.5            |
| 97026 970 | pH, and high range Chlorine                           | Colorimeter/DPD Phenol Red, DPD | 0.1 - 10.0 mg/L Cl <sub>2</sub><br><br>6.0 - 8.5 pH                        |                            | R          | 100     | 4.8            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Chlorine, Mid and High Range

### Drop Count Titration

- Low cost and easy to use drop count method using a sodium thiosulfate titrant

| Prod. No. | Parameter                                             | Model | Method                           | Range*                     | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|-------|----------------------------------|----------------------------|--------------------|------------|---------|----------------|
| 89231 274 | Chlorine, mid and high range - as total $\text{Cl}_2$ | CN-65 | Drop count titration/Thiosulfate | 0.2 - 4 mg/L<br>1 - 20 g/L | 0.2<br>1           | D          | 100     | 2              |



## Chlorine, Mid and High Range

### Drop Count Titration

- Low cost and easy to use drop count method using a sodium thiosulfate titrant

| Prod. No. | Parameter                                             | Model  | Method                           | Range*        | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|--------|----------------------------------|---------------|----------------------|------------|------------|----------------|
| 89231 390 | Chlorine, mid and high range - as Total $\text{Cl}_2$ | CN-21P | Drop count titration/Thiosulfate | 10 - 200 mg/L | 10                   | B          | 100        | 1              |

## Chlorine Dioxide



### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells, reagents, battery and procedure manual all enclosed within a rugged carrying case

| Prod. No. | Parameter        | Method      | Range*                          | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------|-------------|---------------------------------|--------------------|------------|---------|----------------|
| 97009 536 | Chlorine Dioxide | DPD/Glycine | 0.05 - 5.00 mg/L $\text{ClO}_2$ | 0.01               | D          | 100     | 3              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Chromium

### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter                              | Model | Method                           | Range*                          | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------|-------|----------------------------------|---------------------------------|----------------------|------------|------------|----------------|
| 89230 950 | Chromium, low range - as hexavalent Cr | Cube  | Color cube/<br>Diphenylcarbazide | 0.2 - 1.0 mg/L Cr <sup>6+</sup> | 0.2                  | Sealed Bag | 50         | 0.5            |

## Chromium, Low Range

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual all enclosed within a rugged carrying case
- EPA accepted for wastewater. Check with your local regulatory agency



| Prod. No. | Parameter                              | Method                                 | Range*                            | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------|----------------------------------------|-----------------------------------|--------------------|------------|---------|----------------|
| 97026 932 | Chromium, low range - as hexavalent Cr | Colorimeter/<br>Diphenylcarbohydrazide | 0.01 - 0.70 mg/L Cr <sup>6+</sup> | 0.01               | D          | 100     | 2.5            |

## Cobalt & Nickel

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, sample cells, indicator solution, reagents, deionized water, battery and manual—all enclosed within a rugged carrying case



| Prod. No. | Parameter       | Method          | Range*                                     | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-----------------|-----------------|--------------------------------------------|--------------------|------------|---------|----------------|
| 97026 942 | Cobalt & Nickel | Colorimeter/PAN | 0.01 - 1.00 mg/L Ni<br>0.02 - 2.00 mg/L Co | 0.01<br>0.01       | D          | 100     | 3              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Color

### Color Disc

- Color disc kit reads apparent color created by dissolved substances that can indicate industrial, agricultural, or natural pollution
- Dual range measurement

| Prod. No. | Parameter              | Model | Method                               | Range*                         | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|------------------------|-------|--------------------------------------|--------------------------------|----------------------|------------|------------|----------------|
| 97026 898 | Color - as color units | CO-1  | Color disc/APHA<br>Platinum - Cobalt | 0 - 100 units<br>0 - 500 units | 5 units<br>25        | D          | No Limit   | 1.0            |

## Copper

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells, reagents, battery and manual—all enclosed within a rugged carrying case



| Prod. No. | Parameter           | Method                         | Range*              | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------|--------------------------------|---------------------|--------------------|------------|---------|----------------|
| 97026 972 | Copper - as free Cu | Colorimeter/<br>Bicinchoninate | 0.04 - 5.00 mg/L Cu | 0.01               | D          | 100     | 2.5            |

## Cyanide

### Color Disc

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter             | Model | Method                             | Range*              | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-----------------------|-------|------------------------------------|---------------------|----------------------|------------|------------|----------------|
| 89230 922 | Cyanide - as free CN- | CYN-3 | Color disc/<br>Pyridine-Pyrazolone | 0.01 - 0.3 mg/L CN- | 0.01                 | R          | 100        | 2.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Dissolved Oxygen

### Drop Count Titration

- Our most popular Dissolved Oxygen test kit
- Uses a Modified Winkler method for drop count titration



| Prod. No. | Parameter                | Model | Method                                    | Range*                                                    | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|--------------------------|-------|-------------------------------------------|-----------------------------------------------------------|----------------------|------------|------------|----------------|
| 89231 240 | Dissolved Oxygen - as DO | OX-2P | Drop count titration/<br>Modified Winkler | 0.2 - 4 mg/L O <sub>2</sub><br>1 - 20 mg/L O <sub>2</sub> | 0.2                  | D          | 100        | 3              |

## Dissolved Oxygen

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells, reagents, AccuVac ampules, battery and manual—all enclosed within a rugged carrying case
- Resupply of reagent ampules also available (Prod. No. 97014 596)



| Prod. No. | Parameter                | Method                   | Range*                         | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------|--------------------------|--------------------------------|--------------------|------------|---------|----------------|
| 97026 920 | Dissolved Oxygen - as DO | Colorimeter/<br>AccuVac® | 0.2 - 10.0 mg/L O <sub>2</sub> | 0.1                | D          | 50      | 4.6            |

## Dissolved Oxygen, High Range

### Color Disc

- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter                | Model        | Method          | Range*                     | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|--------------------------|--------------|-----------------|----------------------------|----------------------|------------|------------|----------------|
| 89231 116 | Dissolved Oxygen - as DO | AccuVac® Kit | Color disc/HRDO | 0 - 15 mg/L O <sub>2</sub> | 0.2                  | G          | 25         | 4.1            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Fluoride

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time.
- USEPA accepted for wastewater and potable water. Check with your regulatory agency.
- Greater sensitivity (0.01 mg/L) can be achieved by substituting bottled SPADNS solutions for AccuVac® Ampoules supplied with kit.

| Prod. No. | Parameter                                   | Method               | Range*                        | Smallest Inc. (mg/L) | Case Style | # Tests |
|-----------|---------------------------------------------|----------------------|-------------------------------|----------------------|------------|---------|
| 89231 412 | Fluoride - as F <sup>-</sup> (Arsenic Free) | Colorimeter/ SPADNS2 | 0.1 - 2.0 mg/L                | 0.1**                | D          | 50      |
| 89231 446 | Fluoride - as F <sup>-</sup>                | Colorimeter/ SPADNS  | 0.1 - 2.0 mg/L F <sup>-</sup> | 0.1**                | D          | 50      |

\*\*Greater sensitivity (0.01 mg/L) can be achieved by substituting bottled SPADNS solutions for AccuVac® Ampoules supplied with kit.



## Hardness

### Digital Titration

- Used to determine hardness concentrations using a Digital Titrator

| Prod. No. | Parameter                              | Model | Method                | Range*          | Smallest Inc. Steps | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------|-------|-----------------------|-----------------|---------------------|------------|------------|----------------|
| 89231 990 | Hardness, total - as CaCO <sub>3</sub> | HA-DT | Digital Titrator/EDTA | 10 - 4,000 mg/L | 0.1-10              | F          | 100        | 4              |



## Hardness

### Drop Count Titration

- Dual range test kit provides low and high range measurement

| Prod. No. | Parameter                              | Model  | Method                                    | Range*                    | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------|--------|-------------------------------------------|---------------------------|----------------------|------------|------------|----------------|
| 89231 236 | Hardness, total - as CaCO <sub>3</sub> | HA-71A | Drop count titration/ EDTA-powder pillows | 1 - 20 mg/L<br>1 - 20 gpg | 1 mg/L<br>1 gpg      | D          | 100        | 2.5            |



## Hardness

### Drop Count Titration

- Trust the original Hach test kit!
- Simple drop count titration measures hardness as CaCO<sub>3</sub>
- Excellent solution for homeowner testing

| Prod. No. | Parameter                              | Model | Method                                 | Range*                       | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------|-------|----------------------------------------|------------------------------|----------------------|------------|------------|----------------|
| 97026 826 | Hardness, total - as CaCO <sub>3</sub> | 5-B   | Drop count titration/ EDTA-bulk powder | 1 - 30 gpg CaCO <sub>3</sub> | 1 gpg                | L          | 100        | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Hardness

### Drop Count Titration

- Low cost and easy to use drop count method using an EDTA titrant



| Prod. No. | Parameter                            | Model     | Method                                    | Range*                        | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------|-----------|-------------------------------------------|-------------------------------|----------------------|------------|---------|----------------|
| 97026 828 | Hardness, total - as $\text{CaCO}_3$ | 5-EP      | Drop count titration/ EDTA-powder pillows | 1 - 30 gpg                    | 1 gpg                | B          | 100     | 1              |
| 97026 844 | Hardness, total - as $\text{CaCO}_3$ | 5-EP MG-L | Drop count titration/ EDTA-powder pillows | 20 - 400 mg/L $\text{CaCO}_3$ | 20                   | B          | 100     | 1              |

## Hydrogen Peroxide

### Drop Count Titration

- Kit contains thiosulfate titrant solution for determining peroxide by the drop count method



| Prod. No. | Parameter                                     | Model | Method                            | Range*                        | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-----------------------------------------------|-------|-----------------------------------|-------------------------------|----------------------|------------|------------|----------------|
| 89231 374 | Hydrogen Peroxide - as $\text{H}_2\text{O}_2$ | HYP-1 | Drop count titration/ Thiosulfate | 0.2 - 2.0 mg/L<br>1 - 10 mg/L | 0.2<br>1             | D          | 100        | 2.5            |

## Hydrogen Sulfide

### Color Disc

- Wide range measurement for maximum flexibility
- Includes a Pretreatment Kit for turbid or colored samples



| Prod. No. | Parameter                             | Model | Method                     | Range*                                                                                                    | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------------------|-------|----------------------------|-----------------------------------------------------------------------------------------------------------|----------------------|------------|---------|----------------|
| 89231 270 | Hydrogen Sulfide - as $\text{S}^{2-}$ | HS-WR | Color disc/ Methylene blue | 0.01 - 0.55 mg/L $\text{S}^{2-}$<br>0.05 - 2.25 mg/L $\text{S}^{2-}$<br>0.25 - 11.25 mg/L $\text{S}^{2-}$ | 0.01<br>0.5<br>0.25  | D          | 30 - 60 | 3.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Hydrogen Sulfide

### Color Chart

- Most economical method for determining hydrogen sulfide content in water samples
- Uses reliable, cost effective color comparison method
- Treated reagent papers are supplied for 100 tests, effervescence tablets are supplied for 18 tests

| Prod. No. | Parameter                                             | Model | Method                                        | Range*   | Smallest Inc. Steps                           | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|-------|-----------------------------------------------|----------|-----------------------------------------------|------------|---------|----------------|
| 89231 120 | Hydrogen Sulfide - as H <sub>2</sub> S                | HS-C  | Color chart/effervescence of H <sub>2</sub> S | 0-5 mg/L | Steps: 0.0, 0.1, 0.3, 0.5, 0.7, 1.0, 2.0, 5.0 | M          | 18      | 0.5            |
| 89231 118 | Replenishment of 100 Treated Papers                   |       |                                               |          |                                               |            | 100     |                |
| 97026 904 | Replenishment of 36 foil-wrapped AlkaSeltzer® tablets |       |                                               |          |                                               |            | 36      |                |



## Iodine

### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter     | Model   | Method             | Range*                      | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------|---------|--------------------|-----------------------------|----------------------|------------|------------|----------------|
| 89231 008 | Iodine - as I | LP Cube | Long-path cube/DPD | 0 - 2.5 mg/L I <sub>2</sub> | 0.5                  | Sealed bag | 50         | 0.5            |

## Iron, TPTZ

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Dissolved Fe<sup>2+</sup> and Fe<sup>3+</sup> detected, digestion is required for total iron.
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case



| Prod. No. | Parameter                             | Method           | Range*              | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------------------|------------------|---------------------|--------------------|------------|---------|----------------|
| 97026 974 | Iron, low range - as Fe <sup>2+</sup> | Colorimeter/TPTZ | 0.01 - 1.70 mg/L Fe | 0.01               | D          | 50-100  | 2.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Iron Ferrover

### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit
- Dissolved  $Fe^{2+}$  and  $Fe^{3+}$  detected, digestion is required for total iron.



| Prod. No. | Parameter                  | Model | Method                   | Range*        | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------|-------|--------------------------|---------------|----------------------|------------|------------|----------------|
| 97026 862 | Iron, medium range - as Fe | Cube  | Cube/1,10 Phenanthroline | 1 - 5 mg/L Fe | 1                    | Sealed Bag | 50         | 0.25           |

## Iron, Medium Range

### Color Disc

- Dissolved  $Fe^{2+}$  and  $Fe^{3+}$  detected, digestion is required for total iron.



| Prod. No. | Parameter                  | Model  | Method                             | Range*           | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------|--------|------------------------------------|------------------|----------------------|------------|------------|----------------|
| 97026 882 | Iron, medium range - as Fe | IR-18  | Color disc/<br>1,10 Phenanthroline | 0.1 - 5 mg/L     | 0.1                  | B          | 100        | 1              |
| 97026 884 | Iron, medium range - as Fe | IR-18B | Color disc/<br>1,10 Phenanthroline | 0.2 - 10 mg/L Fe | 0.2                  | B          | 100        | 1              |

## Iron, Total

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Dissolved  $Fe^{2+}$  and  $Fe^{3+}$  detected, digestion is required for total iron
- EPA accepted for wastewater and potable water. Approved by some states for potable water under specific conditions. Check with your local regulatory agency.
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual all enclosed within a rugged carrying case



| Prod. No. | Parameter                  | Method                               | Range*              | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|----------------------------|--------------------------------------|---------------------|--------------------|------------|---------|----------------|
| 97026 934 | Iron, medium range - as Fe | Colorimeter/<br>FerroVer® (total Fe) | 0.02 - 5.00 mg/L Fe | 0.01               | D          | 100     | 3              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Lead Test (LeadTrak®)

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter        | Method                                 | Range*          | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------|----------------------------------------|-----------------|--------------------|------------|---------|----------------|
| 97026 914 | Lead (LeadTrak®) | Colorimeter/<br>Fast Column Extraction | 5 - 150 µg/L Pb | 1 µ g/L            | Q          | 20      | 14             |



## Manganese

### Color Disc

- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter         | Model | Method                    | Range*            | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-------------------|-------|---------------------------|-------------------|----------------------|------------|------------|----------------|
| 89230 910 | Manganese - as Mn | MN-5  | Color disc/Cold periodate | 0.1 - 3.0 mg/L Mn | 0.1                  | D          | 100        | 2              |



## Manganese

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case
- EPA accepted for wastewater. Check with your local regulatory agency

| Prod. No. | Parameter         | Method                         | Range*             | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------|--------------------------------|--------------------|--------------------|------------|---------|----------------|
| 97009 560 | Manganese - as Mn | Colorimeter/<br>Cold periodate | 0.2 - 20.0 mg/L Mn | 0.1                | D          | 100     | 3              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Manganese PAN Test

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, reagents, required sample cells, reagents, indicator solution, battery and manual— all enclosed within a rugged carrying case



| Prod. No. | Parameter         | Method          | Range*              | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------|-----------------|---------------------|--------------------|------------|---------|----------------|
| 97026 936 | Manganese - as Mn | Colorimeter/PAN | 0.01 - 0.70 mg/L Mn | 0.01               | D          | 100     | 15             |

## Molybdate

### Color Disc

- Kit reagents react with Molybdate to form a yellow color, which is measured with an easy to use color disc method
- Effectively monitors corrosion inhibitors



| Prod. No. | Parameter                 | Model | Method                             | Range*                               | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------------------|-------|------------------------------------|--------------------------------------|----------------------|------------|------------|----------------|
| 89231 286 | Molybdate - as Molybdenum | MO-2  | Color disc/<br>Mercaptoacetic acid | 0.2 - 10.0 mg/L Mo<br>1 - 50 mg/L Mo | 0.2<br>1             | F          | 100        | 3              |

## Molybdate

### Color Disc

- Easy to use color disc method
- Effectively monitors corrosion inhibitors



| Prod. No. | Parameter                 | Model | Method                     | Range*             | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------------------|-------|----------------------------|--------------------|----------------------|------------|------------|----------------|
| 97026 888 | Molybdate - as Molybdenum | MO-LR | Color disc/Ternary complex | 0.25 - 3.0 mg/L Mo | 0.25                 | D          | 100        | 2.0            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Molybdate

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells, reagents, apparatus, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter                 | Method                          | Range                                     | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------|---------------------------------|-------------------------------------------|--------------------|------------|---------|----------------|
| 97026 940 | Molybdate - as Molybdenum | Colorimeter/<br>Ternary Complex | 0.02 - 3.00 mg/L Mo<br>0.1 - 12.0 mg/L Mo | 0.01<br>0.1        | D          | 100     | 4.1            |



## Nickel & Cobalt

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, sample cells, indicator solution, reagents, deionized water, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter       | Method          | Range*                                     | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-----------------|-----------------|--------------------------------------------|--------------------|------------|---------|----------------|
| 97026 942 | Nickel & Cobalt | Colorimeter/PAN | 0.01 - 1.00 mg/L Ni<br>0.02 - 2.00 mg/L Co | 0.01<br>0.01       | D          | 100     | 3              |



## Nitrogen

### Color Disc

- One of Hach's most popular test kits
- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                     | Model | Method                     | Range*                       | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-----------------------------------------------|-------|----------------------------|------------------------------|----------------------|------------|------------|----------------|
| 89231 272 | Nitrogen, Ammonia, mid range - For freshwater | NI-8  | Color disc/Nessler reagent | 0.1 - 3.0 NH <sub>3</sub> -N | 0.1                  | B          | 100        | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Nitrogen & Ammonia, Low Range

### Color Cube

- Designed for testing ammonia in freshwater
- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter                                                                 | Model      | Method                | Range*                                | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------------------------------------------------------------------|------------|-----------------------|---------------------------------------|----------------------|------------|------------|----------------|
| 89231 026 | Ammonia, Nitrogen, low range - as $\text{NH}_3\text{-N}$ , For freshwater | Color Cube | Color cube/Salicylate | 0.2 - 0.8 mg/L $\text{NH}_3\text{-N}$ | 0.2                  | Sealed Bag | 25         | 1              |

## Nitrogen & Ammonia

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Tests nitrogen and ammonia content in freshwater or seawater —for additional kits, see our Aquaculture Multiparameter Test Kits
- Includes direct read colorimeter, required sample cells, reagents, apparatus, deionized water, battery and manual—all enclosed within a rugged carrying case



| Prod. No. | Parameter                                                 | Method                 | Range*                             | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-----------------------------------------------------------|------------------------|------------------------------------|--------------------|------------|---------|----------------|
| 97009 566 | Nitrogen, Ammonia, mid range - For freshwater or seawater | Colorimeter/Salicylate | 0.01 - 0.80 $\text{NH}_3\text{-N}$ | 0.1                | R          | 100     | 4.1            |

## Nitrogen, Nitrate

### Color Cube

- Fast and easy to use color cube
- The most economical method



| Prod. No. | Model | Method                           | Range*                             | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-------|----------------------------------|------------------------------------|----------------------|------------|------------|----------------|
| 97026 834 | Cube  | Color cube/<br>Cadmium reduction | 0 - 50 mg/L $\text{NO}_3\text{-N}$ | 10                   | Sealed Bag | 50         | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Nitrogen, Nitrate

### Color Disc

- One of Hach's most popular test kits
- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                              | Model | Method                           | Range*                                                                                         | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------------------|-------|----------------------------------|------------------------------------------------------------------------------------------------|----------------------|------------|---------|----------------|
| 97026 822 | Nitrogen, Nitrate - as NO <sub>3</sub> <sup>-</sup> -N | NI-14 | Color disc/<br>Cadmium reduction | 0.02 - 1 mg/L NO <sub>3</sub> <sup>-</sup> -N<br>0.2 - 10 mg/L NO <sub>3</sub> <sup>-</sup> -N | 0.02<br>0.2          | D          | 50      | 1              |



## Nitrate

### Color Disc

- One of Hach's most popular test kits
- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                              | Model | Method                           | Range*                                      | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------------------|-------|----------------------------------|---------------------------------------------|----------------------|------------|------------|----------------|
| 89230 912 | Nitrogen, Nitrate - as NO <sub>3</sub> <sup>-</sup> -N | NI-11 | Color disc/<br>Cadmium reduction | 1 - 50 mg/L NO <sub>3</sub> <sup>-</sup> -N | 1.0                  | D          | 100        | 1              |



## Nitrogen, Nitrate

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter                                             | Method                            | Range*                                     | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------|-----------------------------------|--------------------------------------------|--------------------|------------|---------|----------------|
| 97009 558 | Nitrate - as NO <sub>3</sub> <sup>-</sup> -N Nitrogen | Colorimeter/<br>Cadmium Reduction | 0.4 - 30.0 NO <sub>3</sub> <sup>-</sup> -N | 0.1                | D          | 100     | 2.5 kg         |



## Nitrate, Nitrite

### Color Disc

- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                                                                   | Model   | Method                                      | Range*                                                                                          | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------------------------------------------------------------------------|---------|---------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------|------------|---------|----------------|
| 89230 954 | Nitrogen, Nitrate/Nitrite - NO <sub>3</sub> <sup>-</sup> -N/NO <sub>2</sub> <sup>-</sup> -N | NI-12** | Color disc/Cadmium reduction, Diazotization | 0 - 40 mg/L NO <sub>3</sub> <sup>-</sup> -N<br>0.01 - 0.40 mg/L NO <sub>3</sub> <sup>-</sup> -N | 1<br>0.01            | D          | 100     | 2              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Nitrogen, Nitrite, High Range

### Color Disc

- Note: If you are working in the 0 - 100 mg/L range, the included DI water will allow for 12 tests. Obtain DI water locally or use the refillable demineralizer bottle (Prod.No. 1429900).



| Prod. No. | Parameter                                          | Model | Method                         | Range*                                                          | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------------------------------------------|-------|--------------------------------|-----------------------------------------------------------------|----------------------|------------|------------|----------------|
| 89230 934 | Nitrogen, Nitrite, high range - as $\text{NO}_2^-$ | NI-6  | Color disc/<br>Ferrous sulfate | 0 - 100 mg/L $\text{NO}_2^-$<br>40 - 2,000 mg/L $\text{NO}_2^-$ | 2<br>40              | D          | 100        | 2              |

## Nitrogen/Nitrite

### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter             | Model   | Method                       | Range*                            | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|-----------------------|---------|------------------------------|-----------------------------------|----------------------|------------|------------|----------------|
| 89230 986 | As $\text{NO}_2^-$ -N | LP Cube | Color cube/<br>Diazotization | 0.2 - 1.0 mg/L $\text{NO}_2^-$ -N | 0.2                  | Sealed Bag | 50         | 0.25           |

## Nitrogen

### Color Disc

- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter                                            | Model | Method                   | Range*                              | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|------------------------------------------------------|-------|--------------------------|-------------------------------------|----------------------|------------|------------|----------------|
| 89231 004 | Nitrogen, Nitrite, low range - as $\text{NO}_2^-$ -N | NI-15 | Color disc/Diazotization | 0.01 - 0.50 mg/L $\text{NO}_2^-$ -N | 0.01                 | D          | 100        | 1              |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Ozone

### Color Disc

- Hach's most economical test kit for ozone measurement
- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                 | Model | Method         | Range*       | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------------------|-------|----------------|--------------|----------------------|------------|------------|----------------|
| 97026 902 | Ozone - as O <sub>3</sub> | OZ-2  | Color disc/DPD | 0 - 2.2 mg/L | 0.05                 | B          | 100        | 1              |



## Ozone

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, AccuVac ampules, deionized water, apparatus battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter                 | Method                              | Range*                                                             | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------|-------------------------------------|--------------------------------------------------------------------|--------------------|------------|---------|----------------|
| 97026 916 | Ozone - as O <sub>3</sub> | Colorimeter/<br>Indigo Trisulfonate | 0.01 - 0.25 mg/L O <sub>3</sub><br>0.01 - 0.75 mg/L O <sub>3</sub> | 0.01               | D          | 25      | 4              |



## PCB in Soil

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, reagents, apparatus, battery and manual—all enclosed within two rugged carrying cases

| Prod. No. | Parameter   | Model                     | Method                      | Range*                      | Case Style  | # of Tests |
|-----------|-------------|---------------------------|-----------------------------|-----------------------------|-------------|------------|
| 97027 078 | PCB in Soil | Pocket<br>Colorimeter™ II | Colorimeter/<br>Immunoassay | 1, 5, 10, 50 ppm thresholds | Q (2 cases) | Up to 18   |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits

## pH, Mid Range

### Color Disc

- Simple, low cost color disc method is the most accurate visual test kit method
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter     | Model | Method                         | Range*       | Smallest Inc. (mg/L) | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------|-------|--------------------------------|--------------|----------------------|------------|---------|----------------|
| 89231 242 | pH, mid range | 17F   | Color disc/<br>Bromthymol blue | 5.6 - 8.4 pH | 0.1 pH               | B          | 100     | 1              |
| 89230 914 | pH, mid range | 17J   | Color disc/Thymol blue         | 7.4 - 9.6 pH | 0.1 pH               | B          | 200     | 1              |

## pH, Narrow Range

### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit



| Prod. No. | Parameter        | Model | Method                | Range*       | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|------------------|-------|-----------------------|--------------|----------------------|------------|------------|----------------|
| 89230 948 | pH, narrow range | Cube  | Color cube/Phenol red | 6.6 - 8.4 pH | 0.5 pH               | Sealed Bag | 50         | 0.25           |

## pH, Wide Range

### Color Disc

- A wide range kit applicable to a variety of samples
- A great option for fast, reliable readings



| Prod. No. | Parameter      | Model | Method                              | Range*    | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|----------------|-------|-------------------------------------|-----------|----------------------|------------|------------|----------------|
| 89231 244 | pH, wide range | 17N   | Color disc/<br>Wide range indicator | 4 - 10 pH | 0.5 pH               | B          | 300        | 1.0            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits

## Phosphonate



### Color Disc

- Simple, fast, color disc method
- UV lamp digestion converts phosphonates into reactive phosphate
- Control phosphonate concentration to save chemical costs
- Hach's reliable PhosVer 3 reagent provides results in under 15 minutes

| Prod. No. | Model                                                  | Method                       | Parameter                           | Range*     | # Tests | Ship Wt. (lbs)     |
|-----------|--------------------------------------------------------|------------------------------|-------------------------------------|------------|---------|--------------------|
|           | PN-10                                                  | Color disc/<br>UV photolysis | Phosphonate - As $\text{PO}_4^{3-}$ | 1 - 5 mg/L | 100     | Varies (see below) |
| VERSIONS: |                                                        |                              |                                     |            |         |                    |
| 89231 318 | Color disc/UV photolysis (230 Vac, 50 Hz)              |                              |                                     |            |         | 11.5               |
| 89231 316 | Color disc (Does not include UV lamp or power supply.) |                              |                                     |            |         | 5                  |

## Phosphonate



### Pocket Colorimeter™ II

- Pocket II provides hand held, rugged and waterproof analysis (IP 67 excluding battery compartment)
- Datalogs last 10 points with time of measurement
- Kit includes sample cells, reagents, battery, UV lamp and procedure manual

| Prod. No. | Parameter                                                         | Range*                        | Smallest Increment | # Tests | Ship Wt. (lbs) |
|-----------|-------------------------------------------------------------------|-------------------------------|--------------------|---------|----------------|
|           | Phosphonate - As $\text{PO}_4^{3-}$                               | 0.1 - 25.0 mg/L $\text{PO}_4$ | 0.1<br>1           | 100     |                |
| VERSIONS: |                                                                   |                               |                    |         |                |
| 89231 448 | Phosphonate, Pocket Colorimeter II Test Kit, with 115 Vac UV lamp |                               |                    |         | 14.3           |

## Orthophosphate (reactive)



### Color Cube

- Simple, low cost method using a stepped color comparator
- Achieve fast results with an easy to carry test kit

| Prod. No. | Parameter                                                     | Model | Method                       | Range*                   | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|---------------------------------------------------------------|-------|------------------------------|--------------------------|----------------------|------------|------------|----------------|
| 97026 864 | Phosphorus, Orthophosphate (reactive) - as $\text{PO}_4^{3-}$ | Cube  | Color cube/<br>Ascorbic acid | 1 - 5 mg/L $\text{PO}_4$ | 1                    | E          | 50 C       | 0.25           |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## Orthophosphate (reactive)

### Color Disc

- Results in less than 5 minutes for clean water samples
- Utilizes simple color disc comparator for accurate measurements
- Model PO 19A contains filtration apparatus for turbid samples



| Prod. No. | Parameter                                                                | Model                                               | Range                                                      | Smallest Increment     | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------------|------------------------|------------|---------|----------------|
| 97026 892 | Phosphorus, Orthophosphate (reactive)                                    | PO-19                                               | 0 - 0.8 mg/L PO <sub>4</sub><br>0 - 4 mg/L PO <sub>4</sub> | 0.02<br>0.10           | R          | 100     | 2.5            |
| 97027 076 | Phosphorus, Orthophosphate (reactive) - as PO <sub>4</sub> <sup>3-</sup> | PO-19A<br>(Includes filtration for turbid samples.) | 0 - 0.8 mg/L PO <sub>4</sub><br>0 - 4 mg/L PO <sub>4</sub> | 1<br>0.02<br>0.10<br>1 | R          | 100     | 3              |

## Orthophosphate (reactive)

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells, reagents, battery and manual—all enclosed within a rugged carrying case



| Prod. No. | Parameter                                                                | Method                        | Range*                           | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------------------------------------|-------------------------------|----------------------------------|--------------------|------------|---------|----------------|
| 97009 562 | Phosphorus, Orthophosphate (reactive) - as PO <sub>4</sub> <sup>3-</sup> | Colorimeter/<br>Ascorbic acid | 0.02 - 3.00 mg/L PO <sub>4</sub> | 0.01               | D          | 100 C** | 2.8            |

## Silica

### Pocket Colorimeter™ II

- Waterproof, IP67 rated
- Datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case
- Kit contains a reagent to remove phosphate interference, as well as reagents for measuring silica



| Prod. No. | Parameter                                | Method                          | Range*                        | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|------------------------------------------|---------------------------------|-------------------------------|--------------------|------------|---------|----------------|
| 89231 452 | Silica, high range - as SiO <sub>2</sub> | Colorimeter/<br>Silicomolybdate | 1 - 100 mg/L SiO <sub>2</sub> | 1                  | D          | 100     | 3              |

## Sulfate

### Extinction/Turbidimetric

- Economical test kit for determination of sulfate levels using the Extinction/Turbidimetric Method



| Prod. No. | Parameter                                  | Model | Method                   | Range*        | Smallest Inc. (mg/L) | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|--------------------------------------------|-------|--------------------------|---------------|----------------------|------------|------------|----------------|
| 89230 936 | Sulfate - as SO <sub>4</sub> <sup>2-</sup> | SF-1  | Extinction/Turbidimetric | 50 - 200 mg/L | 50                   | D          | 100        | 1.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

# Single Parameter Test Kits



## Sulfate, Turbidimetric

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter                       | Method                    | Range*      | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|---------------------------------|---------------------------|-------------|--------------------|------------|---------|----------------|
| 97009 554 | Sulfate - as $\text{SO}_4^{2-}$ | Colorimeter/Turbidimetric | 2 - 80 mg/L | 1                  | D          | 100     | 3              |



## TPH in Soil

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes Soil Extraction Kit, direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter   | Model                  | Method                  | Range*                          | Case Style  | # of Tests | Ship Wt. (lbs) |
|-----------|-------------|------------------------|-------------------------|---------------------------------|-------------|------------|----------------|
| 97027 082 | TPH in Soil | Pocket Colorimeter™ II | Colorimeter/Immunoassay | 20, 50, 100, 200 ppm thresholds | Q (2 cases) | Up to 18   | 26             |



## TPH in Water

### Pocket Colorimeter™ II

- Provides fast, accurate results at low levels
- Pocket Colorimeter™ II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Used by personnel responsible for underground storage tanks, off site waste impounds, petrochemical plants, and waste remediate sites
- Includes direct read colorimeter, required sample cells and apparatus, reagents, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter    | Model                  | Method                                   | Range*                      | Case Style | # of Tests | Ship Wt. (lbs) |
|-----------|--------------|------------------------|------------------------------------------|-----------------------------|------------|------------|----------------|
| 97027 084 | TPH in Water | Pocket Colorimeter™ II | Semiquantitative Colorimeter Immunoassay | 2, 5, 10, 20 ppm thresholds | Q          | Up to 18   | 25             |



## Zinc

### Pocket Colorimeter™ II

- Pocket Colorimeter II is waterproof, IP67 rated, and datalogs last 10 points with measurement time
- Includes direct read colorimeter, reagents, solutions, apparatus, required sample cells, battery and manual—all enclosed within a rugged carrying case

| Prod. No. | Parameter    | Method             | Range*              | Smallest Increment | Case Style | # Tests | Ship Wt. (lbs) |
|-----------|--------------|--------------------|---------------------|--------------------|------------|---------|----------------|
| 97009 434 | Zinc - as Zn | Colorimeter/Zincon | 0.02 - 3.00 mg/L Zn | 0.01               | R          | 100     | 3.5            |

\*1 ppm = 1 mg/L; 1 ppb = 1 µg/L; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm

## For Single Parameter Test Kits

Reagents for single parameter kits are listed alphabetically by parameter. Reagents for application (multi-parameter) kits are listed by model number, kit name, product number, and method beginning on page 126. Where a reagent set is available, it is listed first, followed by the individual reagents contained in the set. Sample sizes for powder pillows are given in parentheses.

Some abbreviations used:

|                                    |                    |                       |                           |
|------------------------------------|--------------------|-----------------------|---------------------------|
| crtg—cartridge                     | DB—dropping bottle | gpg—grains per gallon | MDB—marked dropper bottle |
| mg/L—milligrams/liter              | P—pillow           | pk—package            | PP—powder pillow          |
| SCDB—self-contained dropper bottle | Soln—solution      |                       |                           |

### Prod. No. Description

#### Acidity, AC 6 #222301, drop count, mg/L

##### Replacement Reagents

- 89230-918 Phenolphthalein Indicator Solution, 1 g/L, 15 mL  
 97026-224 Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk

#### Acidity, AC DT, #2064000, Digital Titrator

- 89231-370 Acidity Reagent Set, Digital Titrator

##### Replacement Reagents

- 97026-726 Phenolphthalein Indicator Powder Pillows, 100/pk  
 89230-976 Bromophenol Blue Indicator Powder Pillows, 100/pk  
 89231-292 Sodium Hydroxide Digital Titrator Cartridge, 1.600 N  
 89231-290 Sodium Hydroxide Digital Titrator Cartridge, 0.1600 N

#### Alkalinity, AL AP, #2444300, drop count, gpg

- 97026-300 Sulfuric Acid Standard Solution, 0.030 N, 100 mL  
 97026-726 Phenolphthalein Indicator Powder Pillows, 100/pk  
 97026-224 Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk

#### Alkalinity, AL AP MG L, #2444301, drop count, mg/L

##### Replacement Reagents

- 97026-726 Phenolphthalein Indicator Powder Pillows, 100/pk  
 97026-224 Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk  
 97026-494 Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB

#### Alkalinity, AL DT, #2063700, Digital Titrator

- 97026-800 Alkalinity Reagent Set, Digital Titrator

##### Replacement Reagents

- 97026-224 Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk  
 97026-726 Phenolphthalein Indicator Powder Pillows, 100/pk  
 97026-514 Sulfuric Acid Digital Titrator Cartridge, 1.600 N  
 97026-506 Sulfuric Acid Digital Titrator Cartridge, 0.1600 N

#### Alkalinity, AL TA, #2314500, drop count

- 97026-224 Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk

#### Aluminum, Pocket Colorimeter II, #5870025

- 97009-488 Aluminum Reagent Set, Aluminon

##### Replacement Reagents

- 89230-962 AluVer 3 Aluminum Reagent Powder Pillows, 100/pk  
 89230-964 Bleaching 3 Reagent Powder Pillows, 100/pk  
 89231-294 Ascorbic Acid Powder Pillows, 100/pk

### Prod. No. Description

#### Ammonia, see also Monochloramine/Free Ammonia

#### Ammonia, NI SA, #2428700, color disc

- 89231-382 Ammonia Salicylate Reagent Powder Pillows, 5 mL, 50/pk  
 89231-384 Ammonia Cyanurate Reagent Powder Pillows, 5 mL, 50/pk

#### Ammonia, Pocket Colorimeter II, #5870040

- 97009-530 Nitrogen-Ammonia Reagent Set, Salicylate, 10 mL

##### Replacement Reagents

- 89231-156 Ammonia Cyanurate Reagent Powder Pillows, 10 mL, 100/pk  
 89231-158 Ammonia Salicylate Reagent Powder Pillows, 10 mL, 100/pk

#### Ascorbic Acid, ASC 1, #2308100, drop count

- 97026-328 Ascorbic Acid Titrant, 100 mL MDB  
 97026-682 Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB  
 97026-746 Starch Indicator Solution, 100 mL MDB

#### Benzotriazole, see Triazole

#### Bromine, Long path Cube, #2194000

- 97009-470 DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk

#### Bromine, Pocket Colorimeter II, #5870001

- 97009-464 DPD Total Chlorine Reagent Powder Pillows, 10 mL, 100/pk  
 97009-498 DPD Total Chlorine Reagent AccuVac® Ampules, 25/pk

#### Calcium, see Hardness, Total and Calcium

#### Carbon Dioxide, CA 23, #143601, drop count

- 89231-072 Carbon Dioxide Reagent Set for Model CA-23 Test Kit

##### Replacement Reagents

- 89230-878 Sodium Hydroxide Standard Solution, 0.01 N, 100 mL MDB

#### Carbon Dioxide, CA DT, Digital Titrator, #2064100

- 89231-368 Carbon Dioxide Reagent Set, Digital Titrator

##### Replacement Reagents

- 97026-726 Phenolphthalein Indicator Powder Pillows, 100/pk  
 97026-488 Sodium Hydroxide Digital Titrator Cartridge, 3.636 N  
 97026-240 Sodium Hydroxide Digital Titrator Cartridge, 0.3636 N

#### Chloride, CD DT, #2063500, Digital Titrator

- 89231-366 Chloride Reagent Set, Mercuric Nitrate Digital Titrator

##### Replacement Reagents

- 97026-694 Mercuric Nitrate Digital Titrator Cartridge, 0.2256 N  
 97026-610 Diphenylcarbazone Reagent Powder Pillows, 100mL sample, 100/pk  
 97026-360 Mercuric Nitrate Digital Titrator Cartridge, 2.256 N

# Replacement Reagents

## For Single Parameter Test Kits

Prod. No. Description

### Chloride, High Range, CD 51

97026-714 Chloride 2 Indicator Powder Pillows, 100/pk

### Chloride, Low Range, 8 P, #144001, drop count, mg/L

89231-074 Chloride Reagent Set, Drop Count Titration

#### Replacement Reagents

97026-714 Chloride 2 Indicator Powder Pillows, 100/pk

97026-478 Chloride Titrant, Silver Nitrate, 0.0493N, 100 mL MDB

### Chlorine, Free and Total, CN 66, #223101, color disc

89231-080 Chlorine (Free and Total) Reagent Set, DPD 5 mL

#### Replacement Reagents

97009-468 DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk

97026-218 DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk

### Chlorine, Free and Total, CN 70, #1454200, color disc

#### Replacement Reagents

97009-470 DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk

97009-468 DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk

### Chlorine, Free and Total, CN 80, #2129000, color disc

#### Replacement Reagents

97009-470 DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk

97009-468 DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk

### Chlorine, Free and Total, Pocket Colorimeter II, #5870000

97009-454 DPD Free Chlorine Reagent Powder Pillows, 10 mL, 100/pk

97009-464 DPD Total Chlorine Reagent Powder Pillows, 10 mL, 100/pk

#### Replacement Reagents

97009-494 DPD Free Chlorine Reagent AccuVac® Ampules, 25/pk

97009-498 DPD Total Chlorine Reagent AccuVac® Ampules, 25/pk

### Chlorine, Free, CN 66F, #223102, color disc

97009-468 DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk

### Chlorine, Free, CN 70F, #1454202, color disc

#### Replacement Reagents

97009-468 DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk

### Chlorine, Free, Cube, #2060300

89231-332 DPD Free Chlorine Reagent Powder Pillows, 5 mL, 50/pk

### Chlorine, Total, CN 21P, #2444400, drop count

89231-076 Chlorine (Total) Reagent Set for CN-21P

#### Replacement Reagents

97026-720 Potassium Iodide Powder Pillows, 100/pk

89231-066 Sodium Thiosulfate Standard Solution, Stabilized, 0.0246 N, 100 mL MDB

### Chlorine, Total, CN 66T, #223103, color disc

97026-218 DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk

### Chlorine, Total, CN 70T, #1454202, color disc

97009-470 DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk

Prod. No. Description

### Chlorine, Total, CN DT, #2471100, Digital Titrator

89231-364 Chlorine (Total) Reagent Set, Digital Titrator, Mid-Range

#### Replacement Reagents

97026-720 Potassium Iodide Powder Pillows, 100/pk

97026-432 Sodium Thiosulfate Digital Titrator Cartridge, 0.113 N

97026-746 Starch Indicator Solution, 100 mL MDB

89230-906 Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk

### Chlorine, Total, Cube, #2060400

89231-334 DPD Total Chlorine Reagent Powder Pillows, 5 mL, 50/pk

### Chromate CH 14, #222702, drop count

97026-746 Starch Indicator Solution, 100 mL MDB

#### Replacement Reagents

97026-720 Potassium Iodide Powder Pillows, 100/pk

89231-064 Sodium Thiosulfate Standard Solution, Stabilized, 0.0113 N, 100 mL MDB

97026-746 Starch Indicator Solution, 100 mL MDB

### Chromate CH DT, #2063400, Digital Titrator

#### Replacement Reagents

97026-496 Sodium Thiosulfate Digital Titrator Cartridge, 0.2068N

97026-746 Starch Indicator Solution, 100 mL MDB

89230-906 Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk

### Chromium, Hexavalent, CH 8, #183400, color disc

97026-582 ChromaVer® 3 Chromium Reagent Powder Pillows, 5 or 10 mL, 100/pk

### Chromium, Hexavalent, Pocket Colorimeter II, #5870017

97026-582 ChromaVer® 3 Chromium Reagent Powder Pillows, 5 or 10 mL, 100/pk

#### Replacement Reagents

97026-552 ChromaVer® 3 Chromium Reagent AccuVac® Ampules, 25/pk

### Copper, Free, CU 5, #1421300

89231-960 CuVer® 1 Copper Reagent Powder Pillows, 5 mL, 100/pk

### Copper, Free, Pocket Colorimeter II, #5870019

97014-526 CuVer® 1 Copper Reagent Powder Pillows, 10 mL, 100/pk

#### Replacement Reagents

97009-502 CuVer® 2 Copper Reagent AccuVac® Ampules, 25/pk

### Cyanuric Acid, CY 3, #185102, extinction/turbidimeter

97026-542 Cyanuric Acid 2 Reagent Powder Pillows, 50/pk

### DEHA, DH 1, #2168200

89231-394 Oxygen Scavenger Reagent Set

#### Replacement Reagents

97026-654 DEHA Reagent 1 Powder Pillows, 100/pk

97026-596 DEHA Reagent 2 Solution, 100 mL

### Detergents, DE 2, #143203

89231-088 Reagent Set, Detergents

### Dissolved Oxygen, High Range, AccuVac Test Kit #2515050

97014-596 Dissolved Oxygen AccuVac® Ampules, High Range, 25/pk

## For Single Parameter Test Kits

### Prod. No. Description

#### DO, High Range, Pocket Colorimeter, #4670003

97026-684 Dissolved Oxygen AccuVac® Ampules, LR, 25/pk

#### Dissolved Oxygen, OX 2P, #146900, drop count

89231-082 Dissolved Oxygen Reagent Set, 60 mL sample

#### Replacement Reagents

97026-658 Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N, 100 mL MDB

89230-906 Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk

#### Ferrous Iron, IR 18C, #2667200

97009-458 Ferrous Iron Reagent Powder Pillows, 100/pk

#### Fluoride, Pocket Colorimeter II, #5870005

97009-512 SPADNS Fluoride Reagent AccuVac® Ampules, 25/pk

#### Replacement Reagents

97026-692 SPADNS Fluoride Reagent Solution, 500 mL

#### Glutaraldehyde, GT 1, #2587200

89230-906 Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk

#### Replacement Reagents

89230-906 Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk

#### Hardness, Total and Calcium Hardness, HAC DT, #2063900, Digital Titrator

#### Replacement Reagents

97026-590 EDTA Digital Titrator Cartridge, 0.0800 M

97026-602 EDTA Digital Titrator Cartridge, 0.800 M

97026-728 Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB

97026-364 Hardness 1 Buffer Solution, 100 mL MDB

89230-886 Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk

89230-898 CalVer® 2 Calcium Indicator Powder Pillows, 100/pk

#### Hardness, Total and Calcium, HA 4P MG L, #145701, drop count

97026-700 EDTA Standard Solution, 0.035N, 100 mL MDB

97026-728 Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB

97026-364 Hardness 1 Buffer Solution, 100 mL MDB

89230-872 Hardness 2 Indicator Solution, 100 mL MDB

89230-898 CalVer® 2 Calcium Indicator Powder Pillows, 100/pk

#### Hardness, Total and Calcium, HA 4P, #145700, drop count, gpg

97026-728 Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB

97026-364 Hardness 1 Buffer Solution, 100 mL MDB

89230-872 Hardness 2 Indicator Solution, 100 mL MDB

89230-874 Hardness 3 Solution, 100 mL MDB

89230-898 CalVer® 2 Calcium Indicator Powder Pillows, 100/pk

#### Hardness, Total, 5 EP, MG L, #145401

97026-700 EDTA Standard Solution, 0.035N, 100 mL MDB

89230-900 UniVer® 3 Hardness Reagent Powder Pillows, 100/pk

#### Hardness, Total, 5 EP, #145400, drop count, gpg

#### Replacement Reagents

89230-874 Hardness 3 Solution, 100 mL MDB

89230-900 UniVer® 3 Hardness Reagent Powder Pillows, 100/pk

### Prod. No. Description

#### Hardness, Total, HA 71A, #145201, drop count

#### Replacement Reagents

97026-364 Hardness 1 Buffer Solution, 100 mL MDB

89230-872 Hardness 2 Indicator Solution, 100 mL MDB

#### Hardness, Total, HA DT, #2063600, Digital Titrator

#### Replacement Reagents

97026-590 EDTA Digital Titrator Cartridge, 0.0800 M

97026-364 Hardness 1 Buffer Solution, 100 mL MDB

#### Hydrazine, HY 2, #184900

97026-508 HydraVer® 2 Hydrazine Reagent, 100 mL

89230-864 Water, Deionized, 100 mL

#### Hydrogen Sulfide, HS C, #2537800, color chart

89231-118 Hydrogen Sulfide Paper, 100/pk

#### Replacement Reagents

97026-904 AlkaSeltzer Tablets (18 Tablets)

89231-118 Hydrogen Sulfide Paper, 100/pk

#### Hydrogen Sulfide, HS WR, #223801, color disc

#### Replacement Reagents

97026-630 Sulfide 1 Reagent, 100 mL MDB

97026-280 Sulfide 2 Reagent, 100 mL MDB

89230-930 Phenol Solution, 30 g/L, 29 mL

89230-932 Bromine Water, 30 g/L, 29 mL

89230-864 Water, Deionized, 100 mL

#### Iron, see also Ferrous Iron

#### Iron, IR 18B, 0 10 mg/L, #146401, color disc

89230-894 FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk

#### Iron, IR 24, #255600, color disc

89231-276 FerroZine® Iron Reagent Solution Pillows, 50/pk

#### Iron, Pocket Colorimeter II, #5870016

89231-148 TPTZ Iron Reagent Powder Pillows, 10 mL, 100/pk

#### Replacement Reagents

89231-114 TPTZ Iron Reagent AccuVac® Ampules, 25/pk

#### Manganese, Low Range, MN PAN, #2350800

89231-020 Manganese Reagent Set, LR, PAN, 25 mL

#### Replacement Reagents

89231-294 Ascorbic Acid Powder Pillows, 100/pk

89231-324 Alkaline Cyanide Reagent, 100 mL MDB

97026-644 PAN Indicator Solution, 0.1%, 100 mL

#### Manganese, MN 5, #146700, color disc

#### Replacement Reagents

89230-904 Sodium Periodate Powder Pillows for Manganese, 25 mL, 100/pk

#### Manganese, Pocket Colorimeter II, #5870018

89231-420 Manganese Reagent Set, LR, PAN, 10 mL

#### Replacement Reagents

89231-294 Ascorbic Acid Powder Pillows, 100/pk

89231-322 Alkaline Cyanide Reagent, 50 mL SCDB

97026-624 PAN Indicator Solution, 0.1%, 50 mL SCDB

# Replacement Reagents

## For Single Parameter Test Kits

Prod. No. Description

### Molybdenum, Pocket Colorimeter II, #5870010

97026-990 Molybdenum Reagent Set, LR, 20mL

### Monochloramine and Free Ammonia, Pocket Colorimeter II, #5870026

89231-436 Free Ammonia and Monochloramine Reagent Set, 50 tests

### Nickel and Cobalt, Pocket Colorimeter II

#### Replacement Reagents

97026-648 PAN Indicator Solution, 0.3%, 100 mL

89231-150 Phthalate-Phosphate Reagent Powder Pillows, 10 mL, 100/pk

89230-942 EDTA Reagent Powder Pillows, 100/pk

### Nitrate, High Range, Cube, #1403700

89230-952 NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 50/pk

### Nitrate, High Range, NI 11, #146803, color disc

97026-562 NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk

### Nitrate, High Range, NTrak

#### Replacement Reagents

89230-946 Calcium Sulfate Powder, 50 Tests

97021-460 Nitrogen-Nitrate Standard Solution, 15 mg/L as NO<sub>3</sub>-N (NIST), 100 mL MDB

### Nitrate, Pocket Colorimeter II, #5870002

97009-474 NitraVer® 5 Nitrate Reagent Powder Pillows, 10 mL, 100/pk

#### Replacement Reagents

97009-506 NitraVer® 5 Nitrate Reagent AccuVac® Ampules, 25/pk

### Nitrate, Low Range, NI 14, #1416100, color disc

89231-094 Nitrogen-Nitrate Reagent Set, LR, 5 mL Sample

#### Replacement Reagents

97026-706 NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk

89230-958 NitraVer® 6 Nitrate Reagent Powder Pillows, 5 mL, 100/pk

### Nitrate Nitrite, NI 12, #1408100, color disc

97026-562 NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk

97026-706 NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk

### Nitrite, High Range, NI 6, #224000, color disc

97026-272 NitriVer® 2 Nitrite Reagent Powder Pillows, 100/pk

89230-864 Water, Deionized, 100 mL

### Nitrite, Low Range, NI 15, #2182000, color disc

97026-706 NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk

### Orthophosphate, see *Phosphate*

### Oxygen, Dissolved, see *Dissolved Oxygen*

### Oxygen Scavenger, OS 1, #2349500, color disc

89231-394 Oxygen Scavenger Reagent Set

#### Replacement Reagents

97026-654 DEHA Reagent 1 Powder Pillows, 100/pk

97026-596 DEHA Reagent 2 Solution, 100 mL

### Ozone, High Range, AccuVac Test Kit, #2518050

97026-462 Ozone AccuVac® Ampules, HR, 25/pk

Prod. No. Description

### Ozone, OZ 2, #2064400, color disc

97026-218 DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk

### Ozone, Pocket Colorimeter II, #5870004

97026-460 Ozone AccuVac® Ampules, LR, 25/pk

97026-172 Ozone AccuVac® Ampules, MR, 25/pk

### PCB in Soil Kit, #2773400

97026-278 PCB Reagent Set

### pH, 4.0 10.0, Wide Range, 17 N, #147011, color disc

97026-686 Wide Range pH Indicator Solution, 100 mL MDB

### pH, 5.5 8.5, Bromthymol Blue, 17 F, #147006, color disc

89230-862 Bromthymol Blue Indicator Solution, 100 mL MDB

### pH, 6.5 8.5, Phenol Red, 17 H, #147008, color disc

97026-640 Phenol Red Indicator Solution, 100 mL MDB

### pH, 7.8 10.0, Thymol Blue, 17 J, #147009, color disc

97026-732 Thymol Blue Indicator Solution, 100 mL MDB

### Phenols, PL 1, #2483600, color disc

89231-096 Phenol Reagent Powder Pillows (for nonextraction method), 100/pk

89230-870 Hardness 1 Buffer Solution, 50mL SCDB

89230-942 EDTA Reagent Powder Pillows, 100/pk

### Phosphate, PO 19, #224800, color disc

89231-262 PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk

89230-864 Water, Deionized, 100 mL

### Phosphate, PO 23, #224902, color disc

89231-262 PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk

97026-682 Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB

97026-576 Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB

89230-864 Water, Deionized, 100 mL

### Phosphate, PO 9A, #147301, color ampule

#### Replacement Reagents

97026-518 Phosphate 2 Reagent Powder Pillows, 100/pk

### Phosphate, Total, PO 24, #225001, color disc

#### Replacement Reagents

97026-736 PhosVer® 3 Phosphate Reagent Powder Pillows, 25 mL, 100/pk

97026-682 Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB

97026-576 Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB

89230-940 Potassium Persulfate Powder Pillows, 100/pk

89231-092 Phosphorus Digestion Reagent Set

89230-864 Water, Deionized, 100 mL

### Phosphonate, PN 10, #2113300 and #2113302, color disc

#### Replacement Reagents

89231-262 PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk

## For Single Parameter Test Kits

### Prod. No. Description

#### Phosphonate, Pocket Colorimeter II, #5870007, #5870008

|           |                                                            |
|-----------|------------------------------------------------------------|
| 97026-350 | Potassium Persulfate Powder Pillows, 100/pk                |
| 97009-438 | PhosVer® 3 Phosphate Reagent Powder Pillows, 10 mL, 100/pk |

#### Silica, Low Range, SI 7, #2462200, color disc

|           |                                        |
|-----------|----------------------------------------|
| 89231-256 | Molybdate 3 Reagent, 100 mL            |
| 89231-354 | Citric Acid F Reagent Solution, 100 mL |

#### Sulfate, SF 1, #225100, extinction/turbidimetric

|           |                                                           |
|-----------|-----------------------------------------------------------|
| 97026-716 | SulfaVer® 4 Sulfate Reagent Powder Pillows, 25-mL, 100/pk |
|-----------|-----------------------------------------------------------|

#### Sulfide, see *Hydrogen Sulfide*

#### Sulfite, SU 5, #148002, drop count

|           |                                  |
|-----------|----------------------------------|
| 89231-084 | Sulfite Reagent Set for SU-5 Kit |
|-----------|----------------------------------|

#### Sulfite, SU DT, #2063300, Digital Titrator

|           |                                       |
|-----------|---------------------------------------|
| 89231-360 | Sulfite Reagent Set, Digital Titrator |
|-----------|---------------------------------------|

#### Replacement Reagents

|           |                                                    |
|-----------|----------------------------------------------------|
| 97026-236 | Iodate-Iodide Digital Titrator Cartridge, 0.3998 N |
| 97026-746 | Starch Indicator Solution, 100 mL MDB              |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk  |

### Prod. No. Description

#### TPH in Soil Kit, #2775000

|           |                 |
|-----------|-----------------|
| 97026-584 | TPH Reagent Set |
|-----------|-----------------|

#### TPH in Water Kit, #2774200

|           |                 |
|-----------|-----------------|
| 97026-584 | TPH Reagent Set |
|-----------|-----------------|

#### Triazole, TZ 1, #2167500 and #2167502, color disc

|           |                                         |
|-----------|-----------------------------------------|
| 97026-574 | Triazole Reagent Powder Pillows, 100/pk |
|-----------|-----------------------------------------|

#### Zinc, Pocket Colorimeter II, #5870009

|           |                                                        |
|-----------|--------------------------------------------------------|
| 97026-216 | Cyclohexanone, ACS, 100 mL                             |
| 97026-642 | ZincoVer® 5 Zinc Reagent Powder Pillows, 20 mL, 100/pk |

# Replacement Reagents

## For Application Test Kits

Reagents for application (multi-parameter) kits are listed by model number, kit name, product number, and method. Reagents for single parameter kits are listed alphabetically by parameter beginning on page 117. Where a reagent set is available, it is listed first, followed by the individual reagents contained in the set. Sample sizes for powder pillows are given in parentheses.

Some abbreviations used:

|                                    |                    |                       |                           |
|------------------------------------|--------------------|-----------------------|---------------------------|
| crtg—cartridge                     | DB—dropping bottle | gpg—grains per gallon | MDB—marked dropper bottle |
| mg/L—milligrams/liter              | P—pillow           | pk—package            | PP—powder pillow          |
| SCDB—self-contained dropper bottle | Soln—solution      |                       |                           |

### Prod. No. Description

#### 15 E, Water Conditioning Demo, #148201

|           |                                                     |
|-----------|-----------------------------------------------------|
| 97026-640 | Phenol Red Indicator Solution, 100 mL MDB           |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB              |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB           |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |

#### AD 16E, Water Conditioning Demo Deluxe, #148410

|           |                                                          |
|-----------|----------------------------------------------------------|
| 89230-900 | UniVer® 3 Hardness Reagent Powder Pillows, 100/pk        |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk      |
| 97026-562 | NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk |

#### AL 36B, Water Ecology, #180202, drop count, color disc

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| 97026-680 | Manganous Sulfate Powder Pillows, 50/pk                          |
| 97026-268 | Alkaline Iodide-Azide Reagent Powder Pillows, 50/pk              |
| 89230-292 | Sodium Hydroxide Digital Titrator Cartridge, 1.600 N             |
| 97026-488 | Sodium Hydroxide Digital Titrator Cartridge, 3.636 N             |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                |
| 89230-976 | Bromphenol Blue Indicator Powder Pillows, 100/pk                 |
| 97026-536 | Sodium Thiosulfate Digital Titrator Cartridge, 0.200 N           |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                     |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                            |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                           |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk     |
| 89230-918 | Phenolphthalein Indicator Solution, 1 g/L, 15 mL                 |
| 89230-878 | Sodium Hydroxide Standard Solution, 0.01 N, 100 mL MDB           |

#### AL 36DT Water Ecology, #2063800, Digital Titrator, color disc

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| 97026-680 | Manganous Sulfate Powder Pillows, 50/pk                          |
| 97026-268 | Alkaline Iodide-Azide Reagent Powder Pillows, 50/pk              |
| 89231-292 | Sodium Hydroxide Digital Titrator Cartridge, 1.600 N             |
| 97026-488 | Sodium Hydroxide Digital Titrator Cartridge, 3.636 N             |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                |
| 97026-602 | EDTA Digital Titrator Cartridge, 0.800 M                         |
| 89230-976 | Bromphenol Blue Indicator Powder Pillows, 100/pk                 |
| 89231-000 | Sulfamic Acid Powder Pillows, 50/pk                              |
| 97026-536 | Sodium Thiosulfate Digital Titrator Cartridge, 0.200 N           |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                     |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                            |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                           |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk                 |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk     |

### Prod. No. Description

#### AL 94 MG L, Alkalinity, Chloride, Hardness, Iron, pH, #222403, drop count, and color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                  |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                 |
| 97026-494 | Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB         |
| 97026-478 | Chloride Titrant, Silver Nitrate, 0.0493N, 100 mL MDB        |
| 97026-700 | EDTA Standard Solution, 0.035N, 100 mL MDB                   |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                       |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                    |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk          |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

#### AL 94WR, Alkalinity, Chloride, Hardness, Iron, pH, #222401, drop count, and color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                  |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                 |
| 97026-300 | Sulfuric Acid Standard Solution, 0.030 N, 100 mL             |
| 89230-868 | Chloride Titrant, 100 mL MDB                                 |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                       |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                    |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk          |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

#### AL 95, Alkalinity, Chloride, Hardness, #208300, drop count

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                  |
| 97026-300 | Sulfuric Acid Standard Solution, 0.030 N, 100 mL             |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                       |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

## For Application Test Kits

### Prod. No. Description

#### BC 3, Boiler/Cooling Water Complete, #230500, color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                  |
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk      |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk    |
| 97026-494 | Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB         |
| 97026-478 | Chloride Titrant, Silver Nitrate, 0.0493N, 100 mL MDB        |
| 97026-682 | Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB          |
| 97026-576 | Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB        |
| 89230-862 | Bromthymol Blue Indicator Solution, 100 mL MDB               |
| 97026-732 | Thymol Blue Indicator Solution, 100 mL MDB                   |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                       |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

#### BSC 1, Boiler Feed And Scale Control, #2350300, drop count

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                  |
| 97026-494 | Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB         |
| 97026-478 | Chloride Titrant, Silver Nitrate, 0.0493N, 100 mL MDB        |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                       |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

#### BTC 2, Boiler Treatment And Control, #2350400, color disc

|           |                                                           |
|-----------|-----------------------------------------------------------|
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk |
| 97026-682 | Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB       |
| 97026-576 | Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB     |
| 97026-732 | Thymol Blue Indicator Solution, 100 mL MDB                |

#### BT DT, Professional Boiler Treatment, #2350600, Digital Titrator, color disc

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| 97026-590 | EDTA Digital Titrator Cartridge, 0.0800 M                        |
| 97026-506 | Sulfuric Acid Digital Titrator Cartridge, 0.1600 N               |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                |
| 97026-694 | Mercuric Nitrate Digital Titrator Cartridge, 0.2256 N            |
| 97026-602 | EDTA Digital Titrator Cartridge, 0.800 M                         |
| 97026-236 | Iodate-Iodide Digital Titrator Cartridge, 0.3998 N               |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk        |
| 97026-682 | Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB              |
| 97026-576 | Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB            |
| 97026-732 | Thymol Blue Indicator Solution, 100 mL MDB                       |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                            |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                           |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk |
| 97026-360 | Mercuric Nitrate Digital Titrator Cartridge, 2.256 N             |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk                 |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk     |

### Prod. No. Description

#### CA 10WR, Carbon Dioxide, Dissolved Oxygen, pH, #143801, drop count, color disc

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| 89230-918 | Phenolphthalein Indicator Solution, 1 g/L, 15 mL                       |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                           |
| 97026-658 | Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N, 100 mL MDB |
| 89230-878 | Sodium Hydroxide Standard Solution, 0.01 N, 100 mL MDB                 |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                      |

#### CEC 2, Chlorine, Coliform, pH, #2223111 and #2223112, color disc

|           |                                                          |
|-----------|----------------------------------------------------------|
| 97009-470 | DPD Total Chlorine Reagent Powder Pillows, 25 mL, 100/pk |
| 97009-468 | DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk  |
| 97026-186 | Lauryl Tryptose/MUG Tubes pk/15                          |

#### Chlorine and pH, Pocket Colorimeter II, #5870012, colorimeter

|           |                                                         |
|-----------|---------------------------------------------------------|
| 89230-944 | Buffer Solution, pH 7.00 (NIST), Colorless, 25 mL       |
| 97026-490 | Phenol Red Indicator Solution, Spec. Grade, 50 mL       |
| 97009-468 | DPD Free Chlorine Reagent Powder Pillows, 25 mL, 100/pk |

#### CM 1, Corrosion Management, #2495700, drop count, color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk    |
| 97026-494 | Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB         |
| 97026-700 | EDTA Standard Solution, 0.035N, 100 mL MDB                   |
| 97026-728 | Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |
| 89230-898 | CalVer® 2 Calcium Indicator Powder Pillows, 100/pk           |

#### CN 39WR, Chlorine, Hardness, Iron, pH, #223002, drop count, color disc

|           |                                                         |
|-----------|---------------------------------------------------------|
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB            |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                  |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB               |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk     |

#### CN 67, Chlorine and pH, #1411100, color disc

|           |                                                         |
|-----------|---------------------------------------------------------|
| 97026-640 | Phenol Red Indicator Solution, 100 mL MDB               |
| 97026-740 | DPD Free Chlorine Reagent Powder Pillows, 5 mL, 100/pk  |
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk |

#### FF 1A, Fish Farming, #243002, drop count, color disc

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| 97026-714 | Chloride 2 Indicator Powder Pillows, 100/pk                            |
| 97026-706 | NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk               |
| 97026-708 | Rochelle Salt Solution, 29 mL DB                                       |
| 89230-918 | Phenolphthalein Indicator Solution, 1 g/L, 15 mL                       |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                           |
| 97026-658 | Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N, 100 mL MDB |
| 97026-300 | Sulfuric Acid Standard Solution, 0.030 N, 100 mL                       |
| 89230-868 | Chloride Titrant, 100 mL MDB                                           |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                                 |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                              |
| 89230-878 | Sodium Hydroxide Standard Solution, 0.01 N, 100 mL MDB                 |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk           |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                      |

# Replacement Reagents

## For Application Test Kits

Prod. No. Description

### FF 2, Fish Farming, #243001, Digital Titrator, color disc

|           |                                                                     |
|-----------|---------------------------------------------------------------------|
| 97026-706 | NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk            |
| 97026-240 | Sodium Hydroxide Digital Titrator Cartridge, 0.3636 N               |
| 89231-292 | Sodium Hydroxide Digital Titrator Cartridge, 1.600 N                |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                   |
| 97026-602 | EDTA Digital Titrator Cartridge, 0.800 M                            |
| 89230-976 | Bromphenol Blue Indicator Powder Pillows, 100/pk                    |
| 97026-708 | Rochelle Salt Solution, 29 mL DB                                    |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                        |
| 89231-068 | Sodium Thiosulfate Digital Titrator Cartridge, Stabilized, 0.0250 N |
| 89230-864 | Water, Deionized, 100 mL                                            |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                               |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                              |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk                    |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk        |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                   |

### FF 3, Fish Farming, #243003, Digital Titrator, color disc

|           |                                                                     |
|-----------|---------------------------------------------------------------------|
| 97026-706 | NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk            |
| 97026-240 | Sodium Hydroxide Digital Titrator Cartridge, 0.3636 N               |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                   |
| 97026-602 | EDTA Digital Titrator Cartridge, 0.800 M                            |
| 89230-976 | Bromphenol Blue Indicator Powder Pillows, 100/pk                    |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                        |
| 97026-486 | Mercuric Nitrate Digital Titrator Cartridge, 2.570 N                |
| 89231-382 | Ammonia Salicylate Reagent Powder Pillows, 5 mL, 50/pk              |
| 89231-384 | Ammonia Cyanurate Reagent Powder Pillows, 5 mL, 50/pk               |
| 89231-068 | Sodium Thiosulfate Digital Titrator Cartridge, Stabilized, 0.0250 N |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                               |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                              |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk    |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk                    |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk        |
| 89230-902 | Diphenylcarbazone Powder Pillows, 100/pk                            |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                   |

### HA 62, Hardness, Iron, pH, #183700, drop count, color disc

|           |                                                     |
|-----------|-----------------------------------------------------|
| 97026-640 | Phenol Red Indicator Solution, 100 mL MDB           |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB              |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB           |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |

### HA 62A, Hardness, Iron, pH, #183701, drop count, color disc

|           |                                                     |
|-----------|-----------------------------------------------------|
| 97026-640 | Phenol Red Indicator Solution, 100 mL MDB           |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB              |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB           |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |

Prod. No. Description

### HA 62B, Hardness, Iron, pH, #183702, drop count, color disc

|           |                                                     |
|-----------|-----------------------------------------------------|
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB           |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB              |

### HA 77, Hardness and Iron, #202300, drop count, color disc

|           |                                                     |
|-----------|-----------------------------------------------------|
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB              |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB           |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |

### HA 95A, Hardness and Iron, #145602, drop count, cube

|           |                                                     |
|-----------|-----------------------------------------------------|
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |
| 89230-900 | UniVer® 3 Hardness Reagent Powder Pillows, 100/pk   |

### IR 20, Iron and Manganese, #146300, color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk          |
| 89230-904 | Sodium Periodate Powder Pillows for Manganese, 25 mL, 100/pk |

### IR 23, Iron and pH, #256200, color disc

|           |                                                     |
|-----------|-----------------------------------------------------|
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk |
|-----------|-----------------------------------------------------|

### MD 2, Acid Mine Drainage, #1405800, drop count, color disc

|           |                                                              |
|-----------|--------------------------------------------------------------|
| 89230-920 | Sodium Hydroxide Standard Solution, 0.030 N, 100 mL MDB      |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB                 |
| 97026-300 | Sulfuric Acid Standard Solution, 0.030 N, 100 mL             |
| 89230-864 | Water, Deionized, 100 mL                                     |
| 89230-894 | FerroVer® Iron Reagent Powder Pillows, 5 mL, 100/pk          |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk             |
| 97026-224 | Bromcresol Green-Methyl Red Indicator Powder Pillows, 100/pk |

### NPK 1, Fertilizer Requirement, #2495900, drop count, color disc

|           |                                                                                      |
|-----------|--------------------------------------------------------------------------------------|
| 89230-946 | Calcium Sulfate Powder, 50 Tests                                                     |
| 97026-562 | NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk                             |
| 89230-966 | Potassium 2 Reagent Solution Pillows, 25/pk                                          |
| 89230-968 | Potassium 3 Reagent Powder Pillows, 100/pk                                           |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk                            |
| 89231-024 | Mehlich 2 Soil Extractant Solution, 500 mL                                           |
| 89231-028 | Alkaline EDTA Solution, 100 mL MDB                                                   |
| 97021-460 | Nitrogen-Nitrate Standard Solution, 15 mg/L as NO <sub>3</sub> -N (NIST), 100 mL MDB |

## For Application Test Kits

### Prod. No. Description

#### **PBC DT, Professional Boiler/Cooling Water, #2350700, Digital Titrator, color disc**

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk          |
| 97026-590 | EDTA Digital Titrator Cartridge, 0.0800 M                        |
| 97026-506 | Sulfuric Acid Digital Titrator Cartridge, 0.1600 N               |
| 97026-514 | Sulfuric Acid Digital Titrator Cartridge, 1.600 N                |
| 97026-694 | Mercuric Nitrate Digital Titrator Cartridge, 0.2256 N            |
| 97026-602 | EDTA Digital Titrator Cartridge, 0.800 M                         |
| 97026-236 | Iodate-Iodide Digital Titrator Cartridge, 0.3998 N               |
| 97026-272 | NitriVer® 2 Nitrite Reagent Powder Pillows, 100/pk               |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk        |
| 97026-682 | Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB              |
| 97026-576 | Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB            |
| 89230-862 | Bromthymol Blue Indicator Solution, 100 mL MDB                   |
| 97026-732 | Thymol Blue Indicator Solution, 100 mL MDB                       |
| 97026-746 | Starch Indicator Solution, 100 mL MDB                            |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                           |
| 89230-886 | Manver 2 Hardness Indicator Powder Pillows, 50 mL Sample, 100/pk |
| 97026-360 | Mercuric Nitrate Digital Titrator Cartridge, 2.256 N             |
| 97026-726 | Phenolphthalein Indicator Powder Pillows, 100/pk                 |
| 97026-224 | Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk    |

#### **Pool Master MG/L, #2315001, drop count, color disc**

|           |                                                               |
|-----------|---------------------------------------------------------------|
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk       |
| 97026-740 | DPD Free Chlorine Reagent Powder Pillows, 5 mL, 100/pk        |
| 97026-640 | Phenol Red Indicator Solution, 100 mL MDB                     |
| 97026-494 | Sulfuric Acid Standard Solution, 0.035 N, 100 mL MDB          |
| 97026-700 | EDTA Standard Solution, 0.035N, 100 mL MDB                    |
| 97026-542 | Cyanuric Acid 2 Reagent Powder Pillows, 50/pk                 |
| 97026-728 | Potassium Hydroxide Standard Solution, 8.00 N, 100 mL MDB     |
| 97026-380 | Sodium Thiosulfate Standard Solution, 0.1 N, 100 mL MDB       |
| 97026-224 | Bromocresol Green-Methyl Red Indicator Powder Pillows, 100/pk |
| 89230-898 | CalVer® 2 Calcium Indicator Powder Pillows, 100/pk            |

#### **Saltwater Master, #2068600, color cube**

|           |                                                          |
|-----------|----------------------------------------------------------|
| 97026-706 | NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk |
|-----------|----------------------------------------------------------|

#### **SIW 1, Soil and Irrigation Water, #2496000, drop count, color disc, Pocket Pal Testers**

|           |                                                                                      |
|-----------|--------------------------------------------------------------------------------------|
| 89230-946 | Calcium Sulfate Powder, 50 Tests                                                     |
| 97026-562 | NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk                             |
| 97026-604 | Hydrochloric Acid Standard Solution, 2.5 N, 100 mL MDB                               |
| 89230-966 | Potassium 2 Reagent Solution Pillows, 25/pk                                          |
| 89230-968 | Potassium 3 Reagent Powder Pillows, 100/pk                                           |
| 97026-170 | Phenolphthalein Indicator Solution, 5 g/L, 100 mL MDB (APHA)                         |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk                            |
| 97021-748 | Buffer Powder Pillows, pH 7.00 (NIST), Color-coded yellow, 50/pk                     |
| 89231-024 | Mehlich 2 Soil Extractant Solution, 500 mL                                           |
| 89231-028 | Alkaline EDTA Solution, 100 mL MDB                                                   |
| 97021-460 | Nitrogen-Nitrate Standard Solution, 15 mg/L as NO <sub>3</sub> -N (NIST), 100 mL MDB |
| 89231-110 | Sodium Hydroxide Standard Solution, 0.075 N, 100 mL MDB                              |
| 89231-112 | EDTA Standard Solution, 0.0075N, 100 mL MDB                                          |
| 97026-364 | Hardness 1 Buffer Solution, 100 mL MDB                                               |
| 89230-872 | Hardness 2 Indicator Solution, 100 mL MDB                                            |
| 89230-880 | Potassium Chloride, 454 g                                                            |

### Prod. No. Description

#### **Storm Water, SW 1, #2481399, pH, Chlorine, Copper, Phenol, Detergents**

|           |                                                                  |
|-----------|------------------------------------------------------------------|
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk          |
| 97026-350 | Potassium Persulfate Powder Pillows, 100/pk                      |
| 97021-770 | Buffer Powder Pillows, pH 7.00 (NIST), Color-coded yellow, 15/pk |
| 89231-096 | Phenol Reagent Powder Pillows (for nonextraction method), 100/pk |
| 89230-870 | Hardness 1 Buffer Solution, 50mL SCDB                            |
| 89230-942 | EDTA Reagent Powder Pillows, 100/pk                              |

#### **STPL WRT, Wastewater Treatment Plant, #188703**

|           |                                                         |
|-----------|---------------------------------------------------------|
| 97026-218 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 100/pk |
| 97026-686 | Wide Range pH Indicator Solution, 100 mL MDB            |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk       |

#### **Stream Survey Kit, #2712000**

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| 97026-706 | NitriVer® 3 Nitrite Reagent Powder Pillows, 5 mL, 100/pk               |
| 89230-958 | NitraVer® 6 Nitrate Reagent Powder Pillows, 5 mL, 100/pk               |
| 97026-736 | PhosVer® 3 Phosphate Reagent Powder Pillows, 25 mL, 100/pk             |
| 89231-382 | Ammonia Salicylate Reagent Powder Pillows, 5 mL, 50/pk                 |
| 89231-384 | Ammonia Cyanurate Reagent Powder Pillows, 5 mL, 50/pk                  |
| 97026-658 | Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N, 100 mL MDB |
| 97026-682 | Sulfuric Acid Standard Solution, 5.25 N, 100 mL MDB                    |
| 97026-576 | Sodium Hydroxide Standard Solution, 5.0 N, 100 mL MDB                  |
| 89230-940 | Potassium Persulfate Powder Pillows, 100/pk                            |
| 89230-864 | Water, Deionized, 100 mL                                               |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                      |

#### **Stream Survey Kit, #4650100**

|           |                                               |
|-----------|-----------------------------------------------|
| 97026-738 | Silicone Oil                                  |
| 97026-512 | Formazin Turbidity Standard, 4000 NTU, 100 mL |

#### **Surface Water Test Kit, #2559800**

|           |                                                                        |
|-----------|------------------------------------------------------------------------|
| 97026-562 | NitraVer® 5 Nitrate Reagent Powder Pillows, 5 mL, 100/pk               |
| 89231-332 | DPD Free Chlorine Reagent Powder Pillows, 5 mL, 50/pk                  |
| 89231-334 | DPD Total Chlorine Reagent Powder Pillows, 5 mL, 50/pk                 |
| 89231-262 | PhosVer® 3 Phosphate Reagent Powder Pillows, 5 mL, 100/pk              |
| 89231-382 | Ammonia Salicylate Reagent Powder Pillows, 5 mL, 50/pk                 |
| 89231-384 | Ammonia Cyanurate Reagent Powder Pillows, 5 mL, 50/pk                  |
| 97026-658 | Sodium Thiosulfate Standard Solution, Stabilized, 0.0109 N, 100 mL MDB |
| 89230-864 | Water, Deionized, 100 mL                                               |
| 89230-906 | Dissolved Oxygen 3 Reagent Powder Pillows, 100/pk                      |

# Hach Water Quality Test Strips



## Convenient Water Testing Solutions

- Simplify testing and get results in less than 1 minute
- Eliminate chemical handling and clean up

Reduce analytical guess work by using Hach test strips as a pre-test validation tool. Test strip bottle labels contain the color key for easy readings in the lab or in the field.

| Parameter                                                  | Range*                                   | Steps                                             | # Tests      | Prod. No. |
|------------------------------------------------------------|------------------------------------------|---------------------------------------------------|--------------|-----------|
| <b>5-in-1 Water Quality Test Strips</b>                    |                                          |                                                   |              |           |
| Free Chlorine                                              | 0-10 mg/L                                | 0, 0.5, 1.0, 2.0, 4.0, 10.0                       | 50           | 97026-318 |
| Total Chlorine                                             | 0-10 mg/L                                | 0, 0.5, 1.0, 2.0, 4.0, 10.0                       |              |           |
| Total Hardness as CaCO <sub>3</sub>                        | 0-25 gpg                                 | 0, 1.5, 3, 7, 15, 25                              |              |           |
| Total Alkalinity as CaCO <sub>3</sub>                      | 0-425 mg/L                               | 0, 25, 50, 120, 250, 425                          |              |           |
| pH                                                         | 0-240 mg/L                               | 0, 40, 80, 120, 240                               |              |           |
|                                                            | 6.2-8.4                                  | 6.2, 6.8, 7.2, 7.8, 8.4 pH units                  |              |           |
| Alkalinity, Total                                          | 0- 240 mg/L (ppm)                        | 0, 40, 80, 120, 240                               | 50           | 97026-316 |
| <b>Ammonia (see Nitrogen, Ammonia)</b>                     |                                          |                                                   |              |           |
| Arsenic, Low Range†                                        | 0- 500 ppb As                            | 0, 10, 30, 50, 70, 300, 500                       | 100          | 89231-430 |
| Arsenic, EZ, Dual Range†                                   | 0- 500 ppb As                            | 0, 10, 25, 50, 100, 250, 500                      | 100          | 89231-434 |
|                                                            | 0- 4,000 ppb As                          | 0, 35, 75, 175, 1500, 4000                        |              |           |
| <b>Calcium (see Hardness)</b>                              |                                          |                                                   |              |           |
| Chloride - as Cl                                           | 30 - 600 mg/L Cl                         | 10-20 mg/L increments                             | 40           | 97009-460 |
| Chloride - as Cl                                           | 300 - 6000 mg/L Cl                       | 100-200 mg/L increments                           | 40           | 97009-462 |
| Chlorine, low range - as free & total Cl <sub>2</sub>      | 0- 10 mg/L Cl <sub>2</sub>               | 0, 0.5, 1, 2, 4, 10                               | 250          | 97026-358 |
|                                                            |                                          |                                                   | Ind. wrapped |           |
| Chlorine, low range - as free & total Cl <sub>2</sub>      | 0- 10 mg/L Cl <sub>2</sub>               | 0, 0.5, 1, 2, 4, 10                               | 50           | 97026-504 |
| Free Chlorine, High Range                                  | 0- 600 mg/L Cl <sub>2</sub>              | 0, 25, 50, 100, 200, 400, 600                     | 100          | 97026-782 |
| Copper (Free and Total)                                    | 0- 3 mg/L Cu                             | 0,0.2,0.5,1,3                                     | 25           | 97026-366 |
| Hardness, Total - as CaCO <sub>3</sub>                     | 0 - 425 ppm                              | 0, 25, 50, 120, 250, 425                          | 1000         | 97026-520 |
|                                                            | (0-25 gpg)                               |                                                   | Ind. wrapped |           |
| Hardness, Total - as CaCO <sub>3</sub>                     | 0 - 425 ppm                              | 0, 25, 50, 120, 250, 425                          | 250          | 97026-526 |
|                                                            | (0-25 gpg)                               |                                                   | Ind. wrapped |           |
| Hardness, Total - as CaCO <sub>3</sub>                     | 0 - 425 ppm                              | 0, 25, 50, 120, 250, 425                          | 50           | 97026-320 |
|                                                            | (0-25 gpg)                               |                                                   |              |           |
| Iron, Total Dissolved                                      | 0- 5 ppm Fe                              | 0, 0.15, 0.3, 0.6, 1, 2, 5                        | 25           | 97026-440 |
| <b>Magnesium (see Hardness)</b>                            |                                          |                                                   |              |           |
| Nitrate and Nitrite                                        | Nitrate: 0- 50 mg/L<br>Nitrite: 0-3 mg/L | 0, 1, 2, 5, 10, 20, 50<br>0, 0.15, 0.3, 1, 1.5, 3 | 25           | 97026-442 |
| Nitrogen, Ammonia                                          | 0- 6 mg/L NH <sub>3</sub> -N             | 0, 0.25, 0.5, 1, 3, 6                             | 25           | 97026-438 |
| pH, mid range                                              | 4 - 9 pH                                 | 4.5, 6, 7, 8, 9 pH                                | 50           | 97026-444 |
| pH                                                         | 0 - 14 pH                                | 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14  | 100          | 97027-086 |
| Phosphorus, Orthophosphate (reactive) - as PO <sub>4</sub> | 0- 50 mg/L PO <sub>4</sub>               | 0, 5, 15, 30, 50                                  | 50           | 97026-446 |

\*mg/L unless otherwise noted; ppb = µg/L; ppm = mg/L.; gpg = grains per gallon; 1 gpg = 17.1 mg/L or 17.1 ppm.

†Cannot determine organic forms of arsenic; sulfide correction only available with purchase of additional reagents. ‡Individually wrapped.

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