



SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 11/28/2013

Version 1. 0

SECTION 1. Identification

Product identifier

Catalog No. 188025
Product name Test Kit for water determination according to Karl Fischer apura®

apura® - Titrant for test kit

Relevant identified uses of the substance or mixture and uses advised against

Identified uses Reagent for analysis

Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,
United States of America | SDS Phone Support: +1-978-715-1335 |
General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to
4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Skin corrosion, Category 1B, H314

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word

Danger

Hazard Statements

H314 Causes severe skin burns and eye damage.

Precautionary Statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact

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lenses, if present and easy to do. Continue rinsing.

P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature	Mixture of inorganic and organic compounds
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Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

Iodine monochloride ($\geq 5\%$ - $< 10\%$)

7790-99-0

pyridinium chloride ($\geq 1\%$ - $< 5\%$)

628-13-7

SECTION 4. First aid measures

Description of first-aid measures

General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

Eye contact

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, Dizziness, narcosis, Diarrhea, Nausea, Vomiting, Risk of blindness!

Indication of any immediate medical attention and special treatment needed

No information available.

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SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Water, Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Hydrogen chloride gas, nitrogen oxides, hydrogen iodide

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

SECTION 7. Handling and storage

Precautions for safe handling

Observe label precautions.

Conditions for safe storage, including any incompatibilities

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Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

The data applies to the entire pack.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Contains no substances with occupational exposure limit values.

Engineering measures

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Tightly fitting safety goggles

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	tan
Odor	No strong odor known.
Odor Threshold	No information available.
pH	No information available.
Melting point	No information available.

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Boiling point	No information available.
Flash point	194 °F (90 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	1.0385 g/cm³ at 68 °F (20 °C)
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

SECTION 10. Stability and reactivity

Reactivity

Forms explosive mixtures with air on intense heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Chemical stability

Reacts with air to form peroxides.

Possibility of hazardous reactions

Exothermic reaction with:

Strong oxidizing agents

Generates dangerous gases or fumes in contact with:

Aluminum, Organic Substances

Possible formation of:

Hydrogen

Violent reactions possible with:

metals, Acid chlorides, Acid anhydrides, acids

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Conditions to avoid

Strong heating.

Incompatible materials

Aluminum, artificial and/or natural resins, Copper

Hazardous decomposition products

Peroxides

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact

Acute oral toxicity

Acute toxicity estimate: > 2,000 mg/kg

Calculation method

Symptoms: Nausea, Vomiting, Diarrhea, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute inhalation toxicity

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

absorption

Skin irritation

Mixture causes burns.

Eye irritation

Mixture causes serious eye damage. Risk of blindness!

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential

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NTP	carcinogen by OSHA. No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

After absorption of large quantities:

Dizziness, narcosis, hemolysis

Damage to:

Lungs, Liver, Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Ingredients

Iodine monochloride

Acute oral toxicity

LDLO rat: 50 mg/kg (RTECS)

Acute dermal toxicity

LDLO rat: 500 mg/kg (RTECS)

pyridinium chloride

Acute oral toxicity

LD50 rat: 1,600 mg/kg (RTECS)

SECTION 12. Ecological information

Ecotoxicity

No information available.

Persistence and degradability

No information available.

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

Ingredients

Iodine monochloride

No information available.

pyridinium chloride

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No information available.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Combustible Liquid
Harmful if swallowed.
Corrosive to skin
Corrosive to eyes

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Respiratory irritant

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard

Acute Health Hazard

SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Ingredients

diethylene glycol monoethyl ether

111-90-0

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Remarks

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Ingredients

diethylene glycol monoethyl ether

Iodine monochloride

pyridinium chloride

New Jersey Right To Know

Ingredients

diethylene glycol monoethyl ether

Iodine monochloride

pyridinium chloride

California Prop 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: This product contains one or several components listed in the Canadian NDSL.
Ingredients
pyridinium chloride

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H314 Causes severe skin burns and eye damage.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue: 11/28/2013

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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Identified uses Reagent for analysis

Details of the supplier of the safety data sheet

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Emergency telephone

800-424-9300 CHEMTREC (USA)
+1-703-527-3887 CHEMTREC (International)
24 Hours/day; 7 Days/week

SECTION 2. Hazards identification

GHS Classification

Flammable liquid, Category 2, H225
Eye irritation, Category 2, H319
Specific target organ systemic toxicity - single exposure, Category 3, Central nervous system, H336
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling

Hazard pictograms



Signal Word

Danger

Hazard Statements

H225 Highly flammable liquid and vapor.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

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Precautionary Statements

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P403 + P235 Store in a well-ventilated place. Keep cool.

OSHA Hazards

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Chemical nature Mixture of inorganic and organic compounds

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

1-Methoxy-2-propanol ($\geq 50\%$ - $< 70\%$)

107-98-2

ethanol ($\geq 10\%$ - $< 30\%$)

64-17-5

Benzoic acid ($\geq 10\%$ - $< 30\%$)

65-85-0

toluene ($\geq 0.1\%$ - $< 1\%$)

108-88-3

SECTION 4. First aid measures

Description of first-aid measures

Inhalation

After inhalation: fresh air. Consult doctor if feeling unwell.

Skin contact

After skin contact: wash off with plenty of water. Remove contaminated clothing.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

Most important symptoms and effects, both acute and delayed

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irritant effects, respiratory paralysis, Dermatitis, Dizziness, narcosis, inebriation, euphoria, Nausea, Vomiting, CNS disorders, drowsiness, Drowsiness, Diarrhea, Gastrointestinal discomfort

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

Advice for firefighters

Special protective equipment for fire-fighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Cool closed containers exposed to fire with water spray. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Keep away from heat and sources of ignition. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

Environmental precautions

Do not empty into drains. Risk of explosion.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

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SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at +15°C to +25°C (+59°F to +77°F).

The data applies to the entire pack.

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>1-Methoxy-2-propanol (107-98-2)</i>			
ACGIH	Time Weighted Average (TWA):	100 ppm	
	Short Term Exposure Limit (STEL):	150 ppm	
	Recommended exposure limit (REL):	100 ppm 360 mg/m³	
NIOSH/GUIDE	Short Term Exposure Limit (STEL):	150 ppm 540 mg/m³	
	Short Term Exposure Limit (STEL):	150 ppm 540 mg/m³	
Z1A	Short Term Exposure Limit (STEL):	150 ppm 540 mg/m³	
	Time Weighted Average (TWA):	100 ppm 360 mg/m³	

ethanol (64-17-5)

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ACGIH	Short Term Exposure Limit (STEL):	1,000 ppm
NIOSH/GUIDE	Recommended exposure limit (REL):	1,000 ppm 1,900 mg/m ³
OSHA_TRANS	PEL:	1,000 ppm 1,900 mg/m ³
Z1A	Time Weighted Average (TWA):	1,000 ppm 1,900 mg/m ³

Engineering measures

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

Flame retardant antistatic protective clothing

Respiratory protection

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	No strong odor known.
Odor Threshold	No information available.
pH	No information available.
Melting point	No information available.

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Boiling point	No information available.
Flash point	68 °F (20 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	0.993 g/cm ³ at 68 °F (20 °C)
Water solubility	No information available.
Partition coefficient: n-octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

SECTION 10. Stability and reactivity

Reactivity

Vapors may form explosive mixture with air.

Chemical stability

hygroscopic

Sensitivity to light

Reacts with air to form peroxides.

Possibility of hazardous reactions

Violent reactions possible with:

acid halides, Acid anhydrides, Acid chlorides, halogen-halogen compounds

Risk of explosion/exothermic reaction with:

hydrogen peroxide, perchlorates, perchloric acid, Nitric acid, mercury(II) nitrate, permanganic acid, Nitriles, peroxi compounds, Strong oxidizing agents, nitrosyl compounds, Peroxides, sodium, Potassium, halogen oxides, calcium hypochlorite, nitrogen dioxide, metallic oxides, uranium hexafluoride, iodides, Chlorine, Alkali metals, Alkaline earth metals, alkali oxides, Ethylene oxide

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silver, with, Nitric acid

silver compounds, with, Ammonia

potassium permanganate, with, conc. sulfuric acid

Risk of ignition or formation of inflammable gases or vapors with:

halogen-halogen compounds, chromium(VI) oxide, chromyl chloride, Fluorine, hydrides, Oxides
of phosphorus, platinum

Nitric acid, with, potassium permanganate

Conditions to avoid

no information available

Incompatible materials

rubber, various plastics

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact

Target Organs

Liver

Blood

Eyes

Skin

Respiratory system

Central nervous system

reproductive system

Mucous membranes

upper respiratory system

Acute oral toxicity

Acute toxicity estimate: > 2,000 mg/kg

Calculation method

Symptoms: Nausea, Vomiting, Diarrhea, Gastrointestinal discomfort, Irritations of mucous
membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

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Acute inhalation toxicity

absorption

Symptoms: Possible damages: mucosal irritations

Acute dermal toxicity

absorption

Skin irritation

After long-term exposure to the chemical:

Eye irritation

Mixture causes serious eye irritation.

Sensitization

Sensitization possible in predisposed persons.

Carcinogenicity

Carcinogen classifications of IARC, NTP, California proposition 65 for Ethanol CAS 64-17-5 apply to beverage use only. This product is NOT intended for this use.

Specific target organ systemic toxicity - single exposure

Target Organs: Central nervous system

Mixture may cause drowsiness or dizziness.

Specific target organ systemic toxicity - repeated exposure

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

Further information

Systemic effects:

After absorption of toxic quantities:

euphoria, CNS disorders, Dizziness, inebriation, narcosis, respiratory paralysis

Toxic effect on:

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Liver, Kidney

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Ingredients

1-Methoxy-2-propanol

Acute oral toxicity

LD50 rat: > 5,000 mg/kg (IUCLID)

Acute inhalation toxicity

LC50 rat: > 6 mg/l; 4 h ; aerosol (IUCLID)

Acute dermal toxicity

LD50 rabbit: 11,000 mg/kg (External MSDS)

Skin irritation

rabbit

Result: No irritation

(IUCLID)

Eye irritation

rabbit

Result: slight irritation

(IUCLID)

Sensitization

Sensitization test: guinea pig

Result: negative

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Result: negative

Method: OECD Test Guideline 471

ethanol

Acute oral toxicity

LD50 rat: 6,200 mg/kg (IUCLID)

Acute inhalation toxicity

LC50 rat: 95.6 mg/l; 4 h (RTECS)

Skin irritation

rabbit

Result: No irritation

OECD Test Guideline 404

Sensitization

Sensitization test (Magnusson and Kligman):

Result: negative

(IUCLID)

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 188025
Product name Test Kit for water determination according to Karl Fischer apura®
apura® - Solvent for test kit

Version 1. 0

Benzoic acid

Acute oral toxicity

LD50 rat: 1,700 mg/kg (IUCLID)

LDLO human: 500 mg/kg (RTECS)

Acute inhalation toxicity

LC50 rat: > 12.2 mg/l; 4 h (External MSDS)

Acute dermal toxicity

LD50 rabbit: > 5,000 mg/kg (IUCLID)

Eye irritation

rabbit

Result: Severe irritations
(RTECS)

Germ cell mutagenicity

Genotoxicity in vitro

Mutagenicity (mammal cell test):

Result: negative
(IUCLID)

Ames test

Result: negative
(Lit.)

toluene

Acute oral toxicity

LD50 rat: 636 mg/kg (IUCLID)

Acute inhalation toxicity

LC50 rat: 28.1 mg/l; 4 h (IUCLID)

Acute dermal toxicity

LD50 rabbit: 12,124 mg/kg (IUCLID)

Skin irritation

rabbit

Result: Irritations
OECD Test Guideline 404

Eye irritation

rabbit

Result: Eye irritation
OECD Test Guideline 405
(Regulation (EC) No 1272/2008, Annex VI)

Germ cell mutagenicity

Genotoxicity in vitro

Mutagenicity (mammal cell test): micronucleus.

Result: negative
(IUCLID)

Ames test

Result: negative
(Lit.)

SAFETY DATA SHEET

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SECTION 12. Ecological information

Ecotoxicity

No information available.

Persistence and degradability

No information available.

Bioaccumulative potential

No information available.

Mobility in soil

No information available.

Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

Ingredients

1-Methoxy-2-propanol

Toxicity to fish

LC50 Leuciscus idus (Golden orfe): 4,600 - 10,000 mg/l; 96 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): > 500 mg/l; 48 h (IUCLID)

Toxicity to algae

IC50 Pseudokirchneriella subcapitata (green algae): > 1,000 mg/l; 72 h (External MSDS)

Toxicity to bacteria

EC50 activated sludge: > 1,000 mg/l (External MSDS)

Biodegradability

ca. 90 %; 29 d

OECD Test Guideline 301E

Readily biodegradable.

ethanol

Toxicity to fish

LC50 Leuciscus idus (Golden orfe): 8,140 mg/l; 48 h (IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC5 E.sulcatum: 65 mg/l; 72 h (Lit.)

EC50 Daphnia magna (Water flea): 9,268 - 14,221 mg/l; 48 h (IUCLID)

Toxicity to algae

IC5 Scenedesmus quadricauda (Green algae): 5,000 mg/l; 7 d (Lit.)

Toxicity to bacteria

EC5 Pseudomonas putida: 6,500 mg/l; 16 h (IUCLID)

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Version 1. 0

Biodegradability

94 %

OECD Test Guideline 301E

Readily biodegradable.

Biochemical Oxygen Demand (BOD)

930 - 1,670 mg/g (5 d)

(Lit.)

Theoretical oxygen demand (ThOD)

2,100 mg/g

(Lit.)

Ratio COD/ThBOD

90 %

(Lit.)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

Benzoic acid

Toxicity to fish

LC50 *Lepomis macrochirus* (Bluegill sunfish): 44.6 mg/l; 96 h (External MSDS)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 102 mg/l; 24 h (Lit.)

EC50 *Tetrahymen pyriformis*: 252 mg/l; 48 h (ECOTOX Database)

Toxicity to algae

IC50 algae: 10 - 100 mg/l; 72 h (External MSDS)

Toxicity to bacteria

microtox test EC50 *Photobacterium phosphoreum*: 17 mg/l; 30 min (Lit.)

EC50 activated sludge: > 1,000 mg/l; 3 h

OECD Test Guideline 209

Biodegradability

> 71 %; 5 d

OECD Test Guideline 301D

Readily biodegradable.

> 90 %; 2 d

OECD Test Guideline 302B

Easily eliminable.

toluene

Toxicity to fish

LC50 *Oncorhynchus mykiss* (rainbow trout): 5.8 mg/l; 96 h (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 6 mg/l; 48 h (ECOTOX Database)

NOEC *E.sulcatum*: 456 mg/l; 72 h (IUCLID)

Toxicity to algae

IC50 *Pseudokirchneriella subcapitata* (green algae): 12 mg/l; 72 h (Lit.)

SAFETY DATA SHEET

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Version 1. 0

Toxicity to bacteria

EC50 Photobacterium phosphoreum: 20 mg/l; 30 min (Lit.)

Theoretical oxygen demand (ThOD)

3,130 mg/g
(Lit.)

Distribution among environmental compartments

Adsorption/Soil
log Koc: 2.15
(experimental)
Moderately mobile in soils

Henry constant

683 Pa·m³/mol
(Lit.) Distribution preferentially in air.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3
Packing group	II
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 1993
Proper shipping name	FLAMMABLE LIQUID, N.O.S.
Class	3

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number	188025
Product name	Test Kit for water determination according to Karl Fischer apura® apura® - Solvent for test kit

Version 1. 0

Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-E S-D

THIS TRANSPORT DATA APPLIES TO THE ENTIRE PACK!

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Flammable Liquid
Target organ effects
Harmful if swallowed.
Eye irritant

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

SARA 311/312 Hazards

Fire Hazard
Acute Health Hazard
Chronic Health Hazard

SARA 313

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 188025
Product name Test Kit for water determination according to Karl Fischer apura®
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Version 1. 0

SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

toluene

Benzoic acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

toluene

Benzoic acid

DEA List I

Listed

Ingredients

Iodine

7553-56-2

DEA List II

Listed

Ingredients

toluene

108-88-3

US State Regulations

Massachusetts Right To Know

Ingredients

1-Methoxy-2-propanol

ethanol

Benzoic acid

Pennsylvania Right To Know

Ingredients

1-Methoxy-2-propanol

ethanol

Benzoic acid

New Jersey Right To Know

Ingredients

1-Methoxy-2-propanol

ethanol

Benzoic acid

toluene

California Prop 65 Components

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ingredients

ethanol

toluene

California Prop 65 Components

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number	188025
Product name	Test Kit for water determination according to Karl Fischer apura® apura® - Solvent for test kit

Version 1. 0

WARNING: this product contains a chemical known in the State of California to cause cancer.

Ingredients

ethanol

Notification status

TSCA:

Not Listed on TSCA inventory. For Research and Development Use only. Not For Manufacturing or Commercial Purposes.

Ingredients

alkyl sulfite

DSL:

diethanol amine protonated form for Karl-Fischer solutions

This product contains one or several components that are not on the Canadian DSL nor NDSL.

Ingredients

alkyl sulfite

diethanol amine protonated form for Karl-Fischer solutions

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Full text of H-Statements referred to under sections 2 and 3.

H225

Highly flammable liquid and vapor.

H319

Causes serious eye irritation.

H336

May cause drowsiness or dizziness.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Date of issue: 11/28/2013

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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