Operator's Manual

VCV - Variable Comb Vertical System

Vertical Electrophoresis Unit

Gel Size: 22cm x 18cm

IBI Catalog Number: **IB62000**

IBI SCIENTIFIC

9861 Kapp Court • P.O. Box 219 • Peosta, IA 52068
Tele: (563) 690-0484 • Toll Free: (800) 253-4942
Fax: (563) 690-0490 • E-Mail: info@ibisci.com
WWW.IBISCI.COM

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A. Safety Information

Important Safety Information!

- Please read this manual carefully before operating your new IBI VCV unit.
- This manual contains important operating and safety information.
- To best use the product, please read the entire manual carefully prior to use.
- To avoid possible injury, this product should only be used for its intended purpose.

B. Package Contents

Upon receiving this product, please verify all of the noted parts and accessories are contained in this package.

- Model IB62000 Vertical Electrophoresis System
- Removable Clear Acrylic Lid
- Inner Glass Plate
- Outer Glass Plate
- Frosted Inner Glass Plate
- 1.5mm Spacer Set
- 1.5mm x 12 Tooth Analytical Comb
- 1.5mm x 20 Tooth Analytical Comb
- (4) Gel Sandwich Clips
- One Set of Power Cords (Red and Black)
- Operation Manual

NOTE: Carefully inspect all items in the package to insure no items are broken or missing. If there are items broken, please inspect the package carefully for signs of shipping damage. If there is ANY sign of shipping damage, please contact the carrier and file a claim with them immediately. Contact the distributor from which you purchased the item or IBI Scientific for assistance at (800) 253-4942 or (563) 690-0484.

C. Product Specifications

	Height	Width	Length
Unit Dimensions	29cm	36cm	12.5cm
Gel Dimensions		22cm	18cm

Maximum Sample Capacity: 20 Samples
Buffer Capacity: 550ml Upper / 550ml Lower
Voltage Limit: 600VDC

D. Operating Instructions

Your new VCV System allows rapid analysis of protein and nucleic acid samples in a 22cm X 18cm format utilizing either agarose or polyacrylmaide gels. This system allows analysis to be completed in less than 90 minutes, while still maintaining comparable resolution.

NOTE: The current to the unit, provided from the external power supply, enters through the lid assembly providing a safety interlock to the user. When the lid is removed, the current to the unit is broken. Do not attempt to use the unit without the safety lid in place, and always turn the power supply off before opening the lid.

E. Assembling the Gel Sandwich

Preparation of Gel Sandwich Assembly: Acrylamide gels

Wash each clear plate with warm soapy water, and rinse well. Allow to dry. Apply a liberal amount of ethanol to each plate and wipe clean with a lint free cloth to remove any additional dirt or grease. Any dirt or dust left on the plates may cause bubbles to form during pouring the gel.

Carefully wipe the polystyrene spacers to remove any particles that may have accumulated on them during storage. Remove the backing from the two spacer tabs and place of the top of each side spacer. Place the longer plate on the bench. Align the side spacers with the sides edges of the glass plate so that their corners fit flushly with the bottom of the plate. Insert the bottom spacer such that the two side spacers fit snugly into the two notches (note the side of the bottom spacer will overlap the glass plate for easy removal). Place the smaller glass plate squarely over the larger plate and spacers, taking care not to disturb them, but ensuring that the plate clears the spacer tabs. Using the four clamps supplied, clamp each of the four outside corners of the gel sandwich assembly.

Casting the gel: Acrylamide gels

Rest the plate assembly on one of its bottom corners, and angle it at a 45º angle. Using a large syringe or pipette, slowly introduce the acrylamide solution along the side spacer so that the liquid flows down into the lower corner. As the assembly begins to fill, slowly bring it to a horizontal position. If a bubble forms a gentle tapping on the glass plate in the region of the bubble may help release it.

Allow gel to polymerize for 2 hours. Remove the 1% butanol and wash with ddi water. Pour the stacking gel into the gel sandwich and carefully insert the comb between the two plates with the flat edge facing the larger plate taking care not to form bubbles.

Allow gel to polymerize for 2 hours.

NOTE: Always wear gloves when working with acrylamide. Acrylamide is a known neurotoxin.

Preparation of Gel Sandwich Assembly: Agarose gels

When pouring an agarose gel, be sure to use the frosted plate and the reversible spacers. The frosted surface improves the adhering ability of the agarose to the glass plate. When setting up the gel sandwich be sure that the reversible spacers have the notches facing inward, and that the end of the spacers with no notches is placed at the top of the gel.

Wash each plate with warm soapy water, and rinse well. Allow to dry. Apply a liberal amount of ethanol to each plate and wipe clean with a lint free cloth to remove any additional dirt or grease. Any dirt or dust left on the plates may cause bubbles to form during pouring the gel.

Carefully wipe the polystyrene reversible side spacers to remove any particles that may have accumulated on them during storage.

Place the longer plate on the bench. Align the side spacers with the notched sides facing inward, the sides should fit along the edges of the glass plate so that their corners fit flush with the bottom of the plate. Insert the bottom spacer such that the two side spacers fit snugly into the two notches (note the side of the bottom spacer will overlap the glass plate for easy removal). Remove the backing from the two spacer tabs and place on the tops of the side spacers. Place the smaller frosted glass plate squarely over the larger plate and spacers, taking care not to disturb them, but ensuring that the plate clears the spacer tabs. Using the four clamps supplied, clamp each of the four outside corners of the gel sandwich assembly.

Casting the gel: Agarose gels

Rest the plate assembly on one of its bottom corners, and angle it at a 45º angle. Using a large syringe or pipette, slowly introduce the agarose solution along the side spacer so that the liquid flows down into the lower corner. As the assembly begins to fill, slowly bring it to a horizontal position. If a bubble forms a gentle tapping on the glass plate in the region of the bubble may help release it. Gently insert the comb into the top of the gel assembly taking care to trap bubbles.

F. Assembling the Buffer Chamber

Assembly

NOTE: To ensure a leakproof seal, make sure the clear U-shaped gaskets are clean. Inspect the gasket for small cuts that could result in an upper buffer leak. Make sure that the side exposed for contact with the gel sandwich is not damaged.

Place the lower chamber on the lab bench making sure the surface is level. Carefully remove the lower spacer from the gel sandwich. Move the bottom clamps to the center of the gel sandwich and insert the gel sandwich into the lower reservoir taking care to place the bottom edges against the support blocks. To secure the gel sandwich to the upper reservoir remove the two upper clamps and firmly place the smaller plate face against the gasket and clamp to upper reservoir making sure the top of the gel sandwich is centered.

NOTE: Lubricating the raised portions of the U-shaped gasket with a drop of running buffer or water helps the glass plate sandwich slide in properly.

G. Operating the VCV

Buffer Preparation.

1. Prepare 1100ml of electrode buffer by combining 220ml of 5X electrode buffer with 880ml of deionized water.
2. Add approximately 550ml of buffer to the upper buffer chamber of frame. Fill until the buffer reaches a level halfway between the two plates. Do not overfill the upper buffer chamber.
3. To the lower buffer chamber add the remainder of the buffer.

NOTE: Overfilling the upper buffer chamber will result in siphoning of the buffer over the top of the gasket, resulting in buffer loss and interruption of the electrophoresis experiment.

Loading Sample Wells

Sample loading can be done in two ways. The most common method is to load samples into wells formed in the gel by a well-forming comb. The second method uses the entire gel surface as a single well for liquid samples depending upon gel

1. Remove the comb by gently rocking it back and forth.
2. Load the samples into the wells under the electrode buffer with a pipette. Insert the pipette in about 1-2mm from the well bottom before delivery. Disposable pieces of plastic tubing may be attached to the syringe to eliminate the need for rinsing the syringe between samples.

NOTE: The sample buffer must contain either 10% sucrose or 10% glycerol in order to underlay the sample in the well without mixing.

H. Running the Gel

1. Place the lid on top of the upper buffer chamber to fully enclose the cell. The correct orientation is made by matching the black banana jack with the black cord on the lid.

   NOTE: The lid is indexed so it will only connect one way properly.

2. Attach the electrical leads to a suitable power supply (200 V minimum) with the proper polarity.
3. Apply the power to the VCV and begin electrophoresis. The recommended power condition for optimal resolution with minimal thermal band distortion is 150 volts, constant voltage setting. No adjustment of the setting is necessary for thickness or number of gels. The usual run time is approximately 90 to 120 minutes. Current should be approximately 1000mA per gel (2000mA for two gels) at the beginning of the run. During the 90 minute run, the current will slowly drop to about 200mA per gel. This drop is caused by the change in buffer ions in the gel, causing a slow rise in the resistance in the gel. As one would expect from the Ohms law (V=I*R), at constant voltage (V) a rise in the resistance (R) results in a drop in the current (I).

I. Removing the Gel

1. After electrophoresis is complete, turn off the power supply and disconnect the electrical leads from the power source.
2. Remove the lid and clamps, wearing gloves carefully pull the Gel Sandwich out of the lower buffer chamber.
3. Place the Gel Sandwich horizontally on the benchtop. Take care to remove any casting tape that may remain on glass plates. Gently separate the plates by inserting a flat edge spatula in between them and lifting it in an upward motion. The gel should come free of the plate.

J. Preparation of the Agarose Gel and Electrophoresis Buffer - DNA

1. Select the percentage gel necessary to effectively resolve your sample.
2. Weigh an appropriate quantity of agarose (0.3% means 0.3gm of agarose per 100ml of gel volume) and place it into a 250ml flask.
3. Make 500ml of either 1X TAE or 1X TBE electrophoresis buffer (see below).

Electrophoresis Buffers

The two most commonly used buffers for horizontal electrophoresis of double stranded DNA in agarose gels are Tris-Acetate-EDTA (TAE) and Tris-Borate-EDTA (TBE). While the resolving powers of these buffers are very similar, the relative buffer capacities are very different, and conferring different run attributes which are summarized below:

TAE: Tris-acetate has traditionally been the more commonly used buffer. However, its relatively low buffer capacity will become exhausted during extended electrophoresis, making buffer recirculation necessary in runs exceeding 140 mA-hours. Potential advantages of using TAE buffer over TBE buffer include superior resolution of supercoiled DNA and approximately 10 % faster migration of double-stranded linear DNA fragments.

TBE: Tris-borate's significantly greater buffering capacity and its relatively low current draw eliminates the need for recirculation in all but the most extended runs (> 300 mA-hours). TBE buffer systems are not recommended when fragments are to be recovered from the gel after electrophoresis.

Tris Acetate EDTA Buffer (TAE):

1X Working Concentration:	10X Stock Solution:
40mM Tris base	48.4gm Tris Base
20mM Glacial Acetic Acid (NaOAc)	16.4gm or 11.42ml NaOAc
2.0mM EDTA	7.4gm EDTA or 20ml 0.5M EDTA (pH 8.0)
pH 8.3	H_2O to 1 liter

Tris Borate EDTA Buffer (TBE):

1X Working Concentration:	10X Stock Solution:
89mM Tris Base	108gm Tris Base
89mM Boric Acid	55gm Boric Acid
2.0mM EDTA	6.72gm EDTA or 0ml 0.5M EDTA (pH 8.0)
pH 8.0	H_2O to 1 liter

K. Polyacrylamide Gels

Acrylamide is a primary component of polyacrylamide gels for protein electrophoresis.

SDS-PAGE Gels

Product	7.5% T	10% T	12% T
Water			

Premixed Acrylamide & Bisacrylamide

InstaPAGE	IB70014	40%	19:1 38% Acrylamide 2% Bisacrylamide
Instabis-2	IB70012	2%	w/v Bisacrylamide
Acyliquid-40	IB70010	40%	w/v Acrylamide solution

Use the supplied reference table to determine the correct volumes of Acryliquid-40 and the InstaBis-2 to make 100ml of X% Gel. Acryliquid-40 is a 40% (w/v) solution of ultra-pure acrylamide in deionized water. To determine the volumes of InstaBis-2 and Acryliquid-40 to add for gel percentages not listed, use the following formula:

(ml) InstaBis-2:		(ml) Acryliquid-40:		Cross-Linker Content	Monomer Content
=2.500 (gel %)	19:1	=2.375 (gel %)	19:1	0.05	0.95
=1.667 (gel %)	29:1	=2.417 (gel %)	29:1	0.033	0.966
=1.299 (gel %)	37.5:1	=2.435 (gel %)	37.5:1	0.026	0.974

Volume of Acrylliquid-40% to use (ml) = $\frac{\text{MC X Gel Concentration needed X Gel Volume needed}}{40\%}$

Volume of InstaBis-2 to use (ml) = $\frac{\text{cC X Gel Concentration needed X Gel Volume needed}}{2\%}$

Volume of InstaPAGE to use (ml) = $\frac{\text{Gel Concentration needed X Gel Volume needed}}{40\%}$

Resolving Gel Preparation

	12%	8%	6%
1.5M TRIS-HCL pH 8.8	10ml	10ml	10ml
10% SDS solution	400µl	400µl	400µl
Acrylamdie/Bis 40% sol	11.4ml	7.6ml	6ml
10% Ammonium persulfate	200µl	200µl	200µl
TEMED	20µl	20µl	20µl
Deionized water	13.4ml	19.4ml	23.38ml
Total volume	40ml	40ml	40ml

Buffers

TRIS- Glycine Running Buffer 10X Native gels

TRIS	29gm
Glycine	144gm
ddi Water	1.0L

Dilute 10x with ddi water pH of 1X Solution should be 8.3

TRIS- Glycine SDS Running Buffer 10X Denatured gels

TRIS	29gm
Glycine	144gm
SDS	10gm
ddi Water	1.0L

Dilute 10X with ddi water pH of 1X Solution should be 8.3

TRIS-Tricine SDS Running Buffer 10x

TRIS	12.1gm
Tricine	179.0gm
SDS	10.0gm
ddi Water	Adjust to 1L

Sample Loading Buffers

Sample Loading Buffer SDS 2X*

Bromophenol blue with Glycerol

2X Stock Solution:

10% SDS	4.0ml
50 % Glycerol	2.0ml
0.1% Bromophenol blue	1.0ml
0.5M TRIS-HCL pH 6.8	2.5ml
2-mercaptoethanol	0.2-0.5ml
ddi Water to	10ml

Sample Loading Buffer, 2X

2X Stock Solution:

50 % Glycerol	2.0ml
0.1% Bromophenol blue	1.0ml
0.5M TRIS-HCL pH 6.8	2.5ml
ddi Water to	10ml

***Sample Preparation**

Add an equal amount of Sample loading buffer to your sample. Heat the sample for 3-5 minutes at 100C. If the sample becomes cloudy you can centrifuge for 3 minutes at 6,000RPM.

L. Maintenance Of Unit

Care must be observed in the handling of this unit.

DO NOT expose the unit to temperatures above 60°C

DO NOT expose the unit to organic solvents
DO NOT clean the unit with abrasive cleaners or cleaning aids.

Use mild cleaning solution (dish soap recommended) for routine cleaning. For heavier dirt, hand wash with soft cloth. In most cases, a rinse in deionized water is sufficient to clean the unit. To remove residual Ethidium Bromide from the gel unit, soak occasionally in 1% commercial bleach solution for 16 hours, and rinse well.

NOTE: The degradation of acrylic by solvents may result in substantial discoloration, cracking, warpage or etching of the electrophoresis unit. DO NOT apply any of the following solvents to the unit: benzene, xylene, toluene, chloroform, carbon tetrachloride, alcohol, phenol, ketones, or esters. Do not use the Delrin combs supplied with this unit in formaldehyde for long periods of time. The formaldehyde damages these combs with long exposures.

If an electrode breaks, contact Technical Support and Information Services at (800) 253-4942 for an electrode replacement.

Elimination of RNase Contamination

Should treatment of the unit to eliminate RNase contamination be desired, clean the unit with a mild detergent as described above, followed by soaking for 10 minutes in a solution of 3% hydrogen peroxide and then 1 hour in 0.1% DEPC (diethyl pyrocarbonate). Pour out final rinse and air dry.

CAUTION: DEPC is a suspected carcinogen, handle with care.

Alternatively, soak the unit and accessories in freshly made 2.2mM acetic anhydride treated water (200ul/liter) for at least five minutes. Solutions for RNA work (electrophoresis buffers, etc.) may be made from the same acetic anhydride treated water as well.

M. Replacement Parts & Accessories

VCV Accessory Items and Replacement Parts:

Catalog #	Description
IB62200	Replacement Lid w/Power Cords
IB62600	Replacement Gasket
IB62425	0.8mm VCV Reversible Spacer Set
IB62235	1.5mm VCV Reversible Spacer Set
IB62445	3.0mm VCV Reversible Spacer Set
IB62545	VCV Inner Glass Plate
IB62555	VCV Frosted Inner Glass Plate
IB62585	VCV Outer Glass Plate
SPC-M4	Replacement Power Cords

VCV Combs

Catalog #	Description	Well Width	Sample Volume per mm Gel
IB62045	Analytical Comb, 0.8mm x 12 tooth	10mm	40µl
IB62105	Analytical Comb, 0.8mm x 20 tooth	5mm	25µl
IB62055	Analytical Comb, 1.5mm x 12 tooth	10mm	70µl
IB62115	Analytical Comb, 1.5mm x 20 tooth	5mm	75µl
IB62065	Analytical Comb, 3.0mm x 12 tooth	10mm	120µl
IB62125	Analytical Comb, 3.0mm x 20 tooth	5mm	150µl
IB62345	Preparative Comb, 0.8mm x 2 Markers, 2 Samples	65mm	250µl
IB62355	Preparative Comb, 1.5mm x 2 Markers, 2 Samples	2mm	500µl
IB62365	Preparative Comb, 3.0mm x 2 Markers, 1 Sample	2mm	500µl
IB62375	Preparative Comb, 3.0mm x 2 Markers, 2 Samples	3/2mm	1000µl

N. Related IBI Products

IB50000 IBI QSH Lab-Pal (5 X 7cm Horizontal Electrophoresis Unit)
Comes complete with buffer tank, vented lid, 2-place casting tray, two 1.5mm by 5-tooth combs, four glass slide, power cords, and manual.

IB51000 IBI QS-710 (7 X 10cm Horizontal Electrophoresis Unit)
Comes complete with buffer tank, vented lid, casting fixture and UVT tray, two 1.5mm by 8-tooth combs, power cords, leveling bubble, and manual.

IB53000 IBI MP-1015 (10 X 15cm Horizontal Electrophoresis Unit)
Comes complete with buffer tank, vented lid, casting fixture and UVT tray, two 2.0mm by 16-tooth combs, power cords, buffer port set, leveling bubble and manual.

IB56000 IBI HR-2025 (20 X 25cm Horizontal Electrophoresis Unit)
Comes complete with buffer tank, vented lid, casting fixture and UVT tray, two 2.0mm by 20-tooth combs, power cords, buffer port set, leveling bubble and manual.

IB57000 IBI HR-2525 (25 X 25cm Horizontal Electrophoresis Unit)
Comes complete with buffer tank, vented lid, casting fixture and UVT tray, four 2.0mm by 50-tooth combs, power cords, buffer port set, leveling bubble and manual.

IB80000 IBI STS-45i Manual Sequencer (36 X 43cm Vertical Electrophoresis Unit)
Comes complete with main assembly, aluminum thermoplate, two glass plates, one 0.4mm comb and spacer set (includes two 32-tooth and 64-tooth conventional combs, two 64-tooth sharkstooth combs, one bottom and two sided spacers and four spacer tabs) one set of power cords, and manual.

IB94000	IBI MaGELin Universal Protein System (for Cast-Your-Own or Precast Gels) Comes complete with buffer tank, gel capture device, vented lid, vertical casting fixture, two sets of 0.8mm side spacers, three outer glass plates, three inner notched plates, two 0.8mm by 12-tooth combs, power cords, and manual
SH-300	IBI 300V Power Supply (300V / 400mA / 120W) The SH-300 has constant voltage or constant current capability, memory settings, and a LED display. Comes complete with power supply, 120V grounded power cord, and manual.
SH-500	IBI 500V Power Supply (500V / 300mA / 150W) The SH-500 has constant voltage or constant current capability, memory settings, gel saver feature, and a LED display. Comes complete with power supply, 120V grounded power cord, and manual.
SH-3000	IBI 3000V Power Supply (300V / 300mA / 300W) The SH-3000 has constant voltage or constant current capability, memory settings, gel saver feature, and a LED display. Comes complete with power supply, 120V grounded power cord, and manual.

O. Related IBI Certified Reagents

IB01010	6X Loading Dye	5ml
IB01015	5X RNA Gel Loading Dye Kit	100RxN
IB01020	10X TBE Pouch	1 Pouch
IB01030	25X Tris-Acetate EDTA Buffer Pouch	1 Pouch
IB74020	Acridine Orange	25gm
IB70016	Acrylamide:Bisacrylamide, 29:1	40gm
IB70017	Acrylamide:Bisacrylamide, 29:1	200gm
IB70020	Acrylamide	100gm
IB70022	Acrylamide:Bisacrylamide, 19:1	40gm
IB70023	Acrylamide:Bisacrylamide, 19:1	200gm
IB70024	Acrylamide	500gm
IB70026	Acrylamide	1.5kg
IB70028	Acrylamide	3kg
IB70018	Acrylamide:Bisacrylamide, 37.5:1	40gm
IB70019	Acrylamide:Bisacrylamide, 37.5:1	200gm
IB70010	Acryliqud-40 (40% (w/v) Acrylamide solution)	500ml
IB70035	Agarose	25gm
IB70040	Agarose	100gm
IB70041	Agarose	250gm
IB70042	Agarose	500gm
IB70045	Agarose	1kg
IB70050	Agarose, Low Melting Point	50gm
IB70051	Agarose, Low Melting Point	25gm
IB70056	Agarose, Low Melting Point	100gm
IB70057	Agarose, Low Melting Point	250gm
IB70058	Agarose, Low Melting Point	500gm
IB70059	Agarose, Low Melting Point	1Kg
IB70052	3:1 Super Sieve Agarose	50gm
IB70053	3:1 Super Sieve Agarose	250gm
IB70054	Ultra Sieve Agarose	25gm
IB70055	Ultra Sieve Agarose	250gm
IB70060	Agarose, PFGE	25gm
IB70061	Agarose, PFGE	50gm
IB70062	Agarose, PFGE	100gm
IB70063	Agarose, PFGE	250gm
IB70064	Agarose, PFGE	500gm
IB70065	Agarose, PFGE	1Kg

IB15720	Alcohol-Anhydrous (Ethanol)	500ml
IB15721	Alcohol-Anhydrous (Ethanol)	1L
IB15724	Alcohol-Anhydrous (Ethanol)	4L
IB15620	Ammonium Acetate	500gm
IB70080	Ammonium Persulfate	100gm
IB02040	Ampicillin, Sodium Salt	25gm
IB70100	Bisacrylamide	25gm
IB70102	Bisacrylamide	100gm
IB70096	Boric Acid	2.5kg
IB74040	Bromophenol Blue	25gm
IB02010	Carbenicillin	1gm
IB02020	Carbenicillin	5gm
IB37060	Cesium Chloride, Optical Grade	100gm
IB37062	Cesium Chloride, Optical Grade	1kg
IB37042	Cesium Chloride, Technical Grade	1kg
IB02080	Chloramphenicol	25gm
IB05040	Chloroform	500ml
IB21040	Dithiothreitol (DTT)	5gm
IB21045	Dithiothreitol (DTT)	25gm
IB70180	EDTA, disodium salt	100gm
IB70182	EDTA, disodium salt	500gm
IB70184	EDTA Solution (0.5M), pH 8	100ml
IB70185	EDTA Solution (0.5M), pH 8	4x100ml
IB40060	Ethidium Bromide	5gm
IB40075	Ethidium Bromide Solution, 10mg/mL	10ml
IB72028	Formamide, ACS Grade	500ml
IB72020	Formamide, Spectral Grade	100ml
IB72024	Formamide, Spectral Grade	500ml
IB02030	Gentamycin Solution	20ml
IB15760	Glycerol	500ml
IB15762	Glycerol	1L
IB70194	Glycine	2.5kg
IB05080	Guanidine Hydrochloride	500gm
IB05085	Guanidine Hydrochloride Solution (6M)	500ml
IB05100	Guanidine Thiocyanate	500gm
IB01120	HEPES, Sodium Salt	100gm
IB01130	HEPES, Free Acid	50gm
IB01131	HEPES, Free Acid	250gm
IB01132	HEPES, Free Acid	500gm
IB01133	HEPES, Free Acid	1Kg
IB70012	InstaBIS-(2% (w/v) Bisacrylamide solution)	500ml
IB70000	InstaPAGE-(30% sol., 19:1 Acrylamide:Bisacrylamide)	500ml
IB70001	InstaPAGE-(30% sol., 19:1 Acrylamide:Bisacrylamide)	1L
IB70002	InstaPAGE-(30% sol., 29:1 Acrylamide:Bisacrylamide)	500ml
IB70003	InstaPAGE-(30% sol., 29:1 Acrylamide:Bisacrylamide)	1L
IB70004	InstaPAGE-(30% sol., 37.5:1 Acrylamide:Bisacrylamide)	500ml
IB70005	InstaPAGE-(30% sol., 37.5:1 Acrylamide:Bisacrylamide)	1L
IB70006	InstaPAGE-(40% sol., 29:1 Acrylamide:Bisacrylamide)	500ml
IB70007	InstaPAGE-(40% sol., 29:1 Acrylamide:Bisacrylamide)	1L
IB70008	InstaPAGE-(40% sol., 37.5:1 Acrylamide:Bisacrylamide)	500ml
IB70009	InstaPAGE-(40% sol., 37.5:1 Acrylamide:Bisacrylamide)	1L
IB70014	InstaPAGE-(40% sol., 19:1 Acrylamide:Bisacrylamide)	500ml
IB70015	InstaPAGE-(40% sol., 19:1 Acrylamide:Bisacrylamide)	1L
IB02100	IPTG	1gm
IB02105	IPTG	5gm
IB02125	IPTG	25gm

IB05120	Isobutanol	500ml
IB15730	Isopropanol	500ml
IB15735	Isopropanol	1L
IB02120	Kanamycin Sulfate	25gm
IB15750	Methanol - HPLC Grade	1L
IB15755	Methanol - Ultra Pure Grade	500ml
IB15756	Methanol - Ultra Pure Grade	1L
IB15757	Methanol - Ultra Pure Grade	4L
IB74050	Methylene Blue, Chloride, trihydrate	25gm
IB70170	MOPS	100gm
IB70175	MOPS Decp, 10X	100ml
IB05160	Phenol - Crystalline	100gm
IB05164	Phenol - Crystalline	500gm
IB05174	Phenol Chloroform Solution	400ml
IB05182	Phenol, Buffer Saturated, pH 6.6-8.0	100ml
IB05184	Phenol, Buffer Saturated, pH 4.3	100ml
IB05400	Proteinase K	100mg
IB05406	Proteinase K Solution (20mg/mL)	5ml
IB07080	Sarkosyl	100gm
IB07060	Sodium Dodecyl Sulfate (SDS)	100gm
IB07062	Sodium Dodecyl Sulfate (SDS)	500gm
IB07064	Sodium Dodecyl Sulfate (SDS) Solution, 20%	100ml
IB72010	SSC (20X)-Nucleid Acid Prep and Blotting Solution	1L
IB72015	SSPE (20X) - Nucleid Hybridization Solution	1L
IB02180	Streptomycin Sulfate	25gm
IB37160	Sucrose	1kg
IB70120	TEMED	50gm
IB02200	Tetracycline Hydrochloride	25gm
IB70142	Tris	500gm
IB70144	Tris	1kg
IB70145	Tris	5kg
IB70150	Tris Borate EDTA (10X TBE Buffer)	1L
IB70153	Tris Borate EDTA (10X TBE Buffer)	4L
IB70154	Tris Borate EDTA (10X TBE Buffer)	10L
IB70155	Tris Borate EDTA (20X Modified TBE Buffer)	1L
IB70160	Tris Acetate EDTA (10X TAE) Buffer	1L
IB70162	Tris-Hydrochloride	500gm
IB07100	Triton X-100	100ml
IB72060	Urea	500gm
IB72064	Urea	2.5kg
IB02260	X-GAL	1gm
IB02264	X-GAL	100mg
IB72120	Xylene Cyanol FF	25gm

P. REFERENCES

1.) Lehrach, H., et al. 1977. Biochemistry 16:4743.

2.) Sambrook, J., Fritsch, E.F., and Maniatis, T., (1989). Molecular Cloning, A Laboratory Manual, volume 1. Cold Spring Harbor Press, New York.

3.) Selden, R.F. (1988) Analysis of RNA by Northern Hybridization," in Current Protocols in Molecular Biology, F.M. Ausubel, et. al, editors, volume 1, p.4.9.1. Green Publishing Associates and Wiley-Interscience.

Q. Limited Warranty

Our limited warranty for all electrophoresis gel boxes is four (4) years to the original buyer only (non-transferable). Warranty does not apply to electrodes or platinum wires.

Our limited warranty as noted above extends to the direct end user of IBI Scientific products only. This warranty is in lieu of all other warranties whether expressed or implied, including warranties of merchantability or fitness for a particular purpose. In no situation shall IBI Scientific be liable for any incidental or consequential damages of any kind, even though IBI Scientific has been advised of the possibility of such damages arising out of, or resulting from, the products or the use or modification thereof or due to the breach of this warranty or any other obligation of IBI Scientific to the customer, whether based on contract, tort, or any other legal theory. In no such event shall IBI Scientific be liable for damages which exceed the purchase price of any products.

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