Operator's Manual

STS45I - Vertical SeQuencer

Vertical Sequencing Electrophoresis Unit

Gel Size: 36cm x 43cm

IBI Catalog Number: **IB80000**

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 STS-45i 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 IB80000 Sequencing Unit w/Thermoplate
- Removable One-Piece Lower Buffer Reservoir
- Inner Glass Plate
- Outer Glass Plate
- 0.4mm Spacer Set
- (2) 0.4mm x 32 Tooth Conventional Combs
- (2) 0.4mm x 64 Tooth Conventional Combs
- (2) 0.4mm x 64 Tooth Sharkstooth Combs
- 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	22cm	49cm	48cm
Gel Dimensions		36cm	43cm

Maximum Sample Capacity: 96 Samples
Gel Volume (minimum): 30ml 0.2mm Gels / 60ml 0.4mm Gels
Buffer Capacity: 530ml Upper / 530ml Lower
Voltage Limit: 3000VDC

D. Operating Instructions

Your new STS-45i is to be supplied by an external DC voltage power supply. This power supply must be ground isolated in such a way that the DC voltage output floats with respect to ground. All of IBI's power supplies meet this safety requirement. Regardless of the power supply used, the maximum specified operating parameters for this unit are; 3000VDC, 70W, and 50C ambient temperature.

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 opened, 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.

Preparation of the Gel Assembly

1. Wash each set of the plates with warm soapy water and rinse well. Allow to dry. Proper cleaning (including removal of silanes) may be accomplished by exposing the plate to a thin layer of 0.5m NaOH for about 15 minutes.
2. 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 residue or dust left on the plates may cause bubbles to form while pouring the gel or cause inappropriate gel thickness.
3. If desired, treat the shorter (inner) plate with a siliconizing agent, such as 10% dichlorodimethylsilane in 1,1,1-trichloroethane or chloroform. Siliconizing one of the plates will improve the ability to recover the gel after the run. The gel plates will need to be re-siliconized after running approximately 10 gels.
4. Siliconizing Protocol
   a. In a fume hood apply the siliconizing agent to the glass plate.
   b. Spread evenly with a lint free cloth.
   c. Allow the plate to dry.
   d. Wipe with ethanol.

NOTE: IBI recommends cleaning the plates thoroughly after each run to remove residual acrylamide and urea. Harsh abrasives that will scratch the plate surface should be avoided. Scratched plates make gel pouring difficult and increase the possibility of plate breakage with subsequent use.

5. Carefully wipe the supplied mylar spacers to remove any debris that may have accumulated on them during storage.
6. Place the longer (outer) plate on the bench.
7. Align the side spacers (if one is used) along the bottom edges of the plate. The bottom edge can be either of the shorter edges.
8. Align the side spacers with the side edges of the glass plate so that their bottom corners fit flush into the notches cut into the bottom spacer.

NOTE: If you do not wish to use the bottom spacer: simply align the bottom edge of the side spacer with the bottom of the glass plate.

Casting the Gel

Presented are two procedures for casting thin acrylamide gels. Protocols other than those listed here may work as well. Recipes for acrylamide gel solutions can be found in XXXXXXXXXX.

CAUTION: Acrylamide is a neurotoxin, always ware gloves.

Conventional Gel Pouring Technique

1. Place the longer plate on the bench. Align the spacers as described on the previous page.
2. Place the shorter glass plate over the longer plate, aligning the corresponding edges. Examine the assembly to ensure it is free of dust particles.
3. Adjust the spacers so that they are flush with the plate edges and with the bottom spacer. Clamp into place and seal the bottom and side edges with waterproof sealing tape [IB81630] to prevent excessive acrylamide leakage.
4. Rest the plate assembly on one of its bottom corners and angle it at 45°. Using a large syringe or pipette, slowly pour the acrylamide solution along the side spacer so that the solution flows down into the lower corner of the gel assembly.
5. As the assembly begins to fill, slowly bring it to a horizontal position. If bubbles form, raise the assembly to a more vertical position to force the bubbles to the surface. A gentle tapping on the glass plate in the region of the bubble may also help release it.
6. With the upper portion of the assembly not clamped, gently slide the edge (toothed edge of conventional combs: smooth edge of the Sharkstooth combs) of the comb between the plates approximately 3cm into the gel. When inserting the combs, be careful not accumulate air bubbles.
7. When the comb is positioned, clamp the upper portion of the assembly together in the comb area. Placement of a single clamp over the comb on the top edge of the assembly will help eliminate sample leakage between wells during loading. If desired, additional clamps may be positioned along the edge of the assembly as well.

Allow the gel to polymerize for approximately 2 hours. Check the gel periodically during this time and add extra acrylamide solution if you see the gel solution beginning to retract.

The Sliding Technique

1. Place the longer plate on a slightly raised platform on a level bench.
2. Align the side spacers along the edges of the longer plate, securing them to the plate with a droplet of water or with a small piece of double sided tape. Since the bottom spacers are not used in this procedure, the side spacers should be positioned flush with the bottom of the glass plates.
3. Wearing gloves, hold the shorter glass plate so that it overlaps the bottom edges of the longer plate approximately one inch.
4. Place a small amount of acrylamide solution at the leading edge of the top (shorter) plate using a pipette or syringe. Spread the solution evenly along the entire width of the plate. Capillary action will draw the liquid into the space between the two plates.
5. Slowly slide the top plate over the bottom plate (from bottom to top) evenly adding and spreading solution along the leading edge of the overlap. If bubbles appear between the plates, pull the top plate back to release them, and then continue to slide it forward.

Electrophoresis Buffers

The two most commonly used buffers for horizontal electrophoresis of double stranded DNA in agarose gels are Tris-Acetate-EDTA (TAE) [IB70160] and Tris-Borate-EDTA (TBE) [IB70150]. While the resolving powers of these buffers are very similar, the relative buffer capacities are very different, conferring different run attributes which are summarized below:

TAE (IB70160): 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 (IB70150): 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.

Removing the Comb

When the gel is solidified and fully opaque, carefully remove the comb with a gentle wiggling, upward motion. If the comb is difficult to remove or if a low percentage gel is being used, overlay the comb area with a small volume of 1X electrophoresis buffer to preserve the integrity of the wells. Check the wells to ensure their bases are intact.

CAUTION: Prolonged exposure of the combs to gels containing formaldehyde will cause them to degrade. Be sure to remove the comb(s) from formaldehyde gels as soon as gel hardening is complete and rinse them well prior to storage.

Nucleic Acid Sequencing

Nucleic acid sequencing, the determination of the order of the nucleotides in a molecule of DNA or RNA can also include the identification of modifications. Nucleic acid sequencing is not usually an end in itself, but an important step towards understanding features such as function, structure, or changes of a molecule. The two central methods are the chain terminator DNA sequencing of Sanger and the chemical or Maxam-Gilbert9 DNA sequencing method. Both of these methods depend on analytical polyacrylamide gel electrophoresis to resolve oligonucleotides with one identical end and one varying by a single nucleotide end. Both methods depend on the availability of small defined fragments of DNA.

Vertical Gel Electrophoresis Recipes

A primary component of polyacrylamide gels used for sequencing. A sequencing gel is a high-resolution denaturing polyacrylamide gel (typically 6% or 8%) designed to fractionate radiolabeled single-stranded oligodeoxynucleotides on the basis of size.

Recipe for a 6%, 100ml Gel Mixture

- 6gm 19:1 Acrylamide:Bisacrylamide, (or 15ml of 40% solution)
- 48gm Urea
- 10ml of 10X TBE Buffer (if using a Klenow or Reverse Transcriptase kit)

Add 5ml of 20X modified TBE buffer (if using a TaqPolymerase kit). Bring to a final volume of 99ml with water. Mix with a stir bar until completely dissolved. Filter sterilize. Next add:

- 1.0ml of 10% Ammonium Persulfate (APS)
- 50µl TEMED

Pour gel immediately. Allow to polymerize for 1 hour.

To make a 40% solution:

- For the 40gm size, add 63ml double distilled H_2O directly to the bottle
- For the 200gm size, add 325ml double distilled H_2O directly to the bottle

Recommended Use: A primary component of polyacrylamide gels.

To make a 30% Solution:

- For the 40gm size, add 97ml double distilled H_2O directly to the bottle
- For the 200gm size, add 484ml double distilled H_2O directly to the bottle

Recommended Use: A primary component of polyacrylamide gels used for sequencing and protein electrophoresis.

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

(ml) Acryliquid-40:		**(ml) InstaBis-2:**	
= 2.375 (X% gel)	19:1	= 2.500 (X% gel)	19:1
= 2.417 (X% gel)	29:1	= 1.667 (X% gel)	29:1
= 2.435 (X% gel)	37.5:1	= 1.299 (X% gel)	37.5:1

Recommended Use: A primary component of polyacrylamide gels for sequencing and protein electrophoresis.

Recipe for a 6% 100ml Sequencing Gel:

- 5.7gm Acrylamide
- 0.3gm Bisacrylamide
- 48gm Urea
- 10ml 10X TBE buffer (if using a Klenow or reverse Transcriptase kit)

or

- 5ml 20X modified TBE buffer (if using Taq polymerase kit)
- 1.0ml 10% Ammonium Persulfate (APS)
- 50µl TEMED

8% Denaturing Gel: For 50ml of solution

- 10ml 40% acrylamide*
- 5ml 10X TBE Buffer
- 24gm Urea
- 14ml H_2O

Dissolve by stirring @ 37°C for 30 minutes

*6% denaturing gel add 7.5ml 40% acrylamide

NOTE: Always filter a gel solution through a 1u filter

Gradient Gels

Top Gel Solution

For 260ml

- 39ml 40% acrylamide
- 13ml (pH 8.3) 10X TBE Buffer
- 128.6gm Urea
- H_2O bring finial volume to 260ml

Bottom Gel Solution

For 62ml

- 9.3ml 40% acrylamide
- 15.5ml (pH 8.3) 10X TBE Buffer
- 29.76gm Urea
- 6.2gm Sucrose*
- 620µl Bromophenol Blue*
- (.01gm/ml in 1X TBE)
- H_2O bring finial volume to 62ml

*Add sucrose after the urea has dissolved. Allow the sucrose to dissolve then add the Bromophenol Blue

Dissolve by stirring @ 37°C for 30 minutes. Cool to room Temperature. Filter and store at 4°C.

NOTE: These solutions can be stored cold in dark glass bottles. The urea may precipitate out of solution. If this occurs let the solutions equilibrate to room temperature. Prolonged storage is not recommended since the urea hydrolyzes to produce ions.

1L	10X TBE	IB70150
25gm	Bromophenol Blue	IB74040
1Kg	Sucrose	IB37160
500ml	Acryliquid-40 40% Solution	IB70010
500gm	Urea	IB72060

E. 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.

F. Replacement Parts & Accessories

STS-45i Accessory Items and Replacement Parts:

Catalog #	Description
IB50500	Replacement Power Cords
IB80200	Replacement Upper Electrode
IB80300	Replacement Lower Electrode
IB80420	0.2mm Spacer Set
IB80424	0.2mm Comb and Spacer Set
IB80440	0.4mm Spacer Set
IB80444	0.4mm Comb and Spacer Set
IB80520	Replacement Inner Glass Plate
IB80540	Replacement Outer Glass Plate
IB80550	Replacement Glass Set, Inner and Outer
IB80600	Replacement Gasket Kit

STS-45I Accessory Items and Replacement Parts: *(continued)*

IB81200	Replacement Thermoplate Kit
IB81203	Replacement Lower Reservoir Lid
IB81204	Replacement Upper Reservoir Lid
IB81206	Replacement Drain Hose w/Clamp
IB81630	Sequencing Sealing Tape
8154601	Replacement Knobs, Right
8483133	Replacement Knobs, Left
8846289	Replacement Knob Upgrade Kit, Right and Left

STS-45I Combs

Catalog #	Description	Well Width	Sample Volume per mm Gel
IB80040	Analytical Comb, 0.2mm x 32 tooth	8mm	1.6ul
IB80050	Analytical Comb, 0.2mm x 64 tooth	3mm	0.6ul
IB80100	Analytical Comb, 0.4mm x 32 tooth	8mm	3.2ul
IB80110	Analytical Comb, 0.4mm x 64 tooth	3mm	1.2ul
IB80250	Sharkstooth Comb, 0.2mm x 64 tooth	3mm	0.6ul
IB80355	Sharkstooth Comb, 0.2mm x 64/96 tooth	3/2mm	0.4/0.2ul
IB80310	Sharkstooth Comb, 0.4mm x 64 tooth	3mm	1.2ul
IB80350	Sharkstooth Comb, 0.2mm x 96 tooth	2mm	0.4ul
IB80380	Sharkstooth Comb, 0.4mm x 96 tooth	2mm	0.8ul
IB80385	Sharkstooth Comb, 0.4mm x 64/96 tooth	3/2mm	1.2/0.8ul

G. 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.

IB62000 IBI VCV Vertical Electrophoresis System (18 X 22cm Vertical Electrophoresis Unit)
Comes complete with main assembly, safety cover, three glass plates (inner, outer, and frosted), one 1.5mm by 12-tooth and 1.5mm by 20-tooth combs, a 1.5mm spacer set (which includes one bottom and two sided spacers as well as two spacer tabs), one set of power cords, four sandwich clips, 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.

H. 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

I. 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.

J. 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.

For further assistance please contact IBI Scientific Technical Service at (800) 253-4942, (563) 690-0484 or visit us on the web at www.ibisci.com.


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