ElectroPrep™ System

USER'S MANUAL

ElectroPrep System **74-1196**

Quik PREP

a brand of Harvard Bioscience, Inc.

Publication 9511-073 REV-1.0

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Warranty Information

RESEARCH USE ONLY

Harvard Apparatus
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Web: www.harvardapparatus.com

Warranty

Harvard Apparatus warranties the QuikPrep ElectroPrep System for a period of one year from the date of purchase. At its option, Harvard Apparatus will repair or replace the unit if it is found to be defective as to workmanship or materials. This warranty does not extend to any instrumentation which has been (a) subjected to misuse, neglect, accident or abuse, (b) repaired or altered by anyone other than Harvard Apparatus without Harvard Apparatus express and prior approval, (c) used in violation of instructions furnished by Harvard Apparatus. This warranty extends only to the original customer purchaser. **IN NO EVENT SHALL HARVARD APPARATUS BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.** Some states do not allow exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR USE, OR OF ANY OTHER NATURE.** Some states do not allow this limitation on an implied warranty, so the above limitation may not apply to you. Without limiting the generality of the foregoing, Harvard Apparatus shall not be liable for any claims of any kind whatsoever, as to the equipment delivered or for non-delivery of equipment, and whether or not based on negligence. Warranty is void if the instrument is changed in any way from its original factory design or if repairs are attempted without written authorization by Harvard Apparatus. Warranty is void if parts, connections not manufactured by Harvard Apparatus are used with the QuikPrep ElectroPrep System. If a defect arises within the warranty period, promptly contact Harvard Apparatus, 84 October Hill Road, Holliston, Massachusetts, USA 01746-1388 by phone at 800-547-6766 or 508-893-8999 or email at support@hbiosci.com.

Goods will not be accepted for return unless an RMA (Returned Materials Authorization) number has been issued by our returns/repairs department. The customer is responsible for shipping charges. Please allow a reasonable period of time for completion of repairs, replacement and return. If the unit is replaced, the replacement unit is covered only for the remainder of the original warranty period dating from the purchase of the original device. This warranty gives you specific rights, and you may also have other rights, which vary from state to state.

Warranty Information

Out of Warranty Service

Proceed exactly as for Warranty Service above. If our service department can assist you by phone or other correspondence, we will be glad to help at no charge.

Repair service will be billed on the basis of labor and materials. A complete statement of time spent and materials used will be supplied. Shipment to Harvard Apparatus should be prepaid. Your bill will include return shipment freight charges.

Disassembly by the user is prohibited. Service should only be carried out by experienced Harvard Apparatus technicians.

Repair Facilities and Parts

Harvard Apparatus stocks replacement and repair parts. When ordering, please describe parts as completely as possible, preferably using our part numbers. If practical, enclose a sample photo or drawing.

Safety Precautions

- Always isolate ElectroPrep unit from the power supply before removing the safety cover. Isolate the power supply from the main first then disconnect the leads
- DO NOT exceed the maximum operating voltage or current.
- DO NOT operate the unit in metal trays.
- Following the replacement of electrodes, have the unit inspected and approved by your safety officer prior to use.
- DO NOT fill the unit with running buffer above the maximum fill line.
- DO NOT move the unit when it is running
- CAUTION: During use very low quantities of various gases are produced at the ElectroPrep electrodes. The type of gas produced depends on the composition of the buffer employed. To disperse these gases, make sure that the apparatus is run in a well ventilated area.

Safety Information

Please read the following safety precautions to ensure proper use of your generator. If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

To Prevent Hazard or Injury

Make Proper Connections

Make sure all connections are made properly and securely. Any signal wire connections to the unit must be no longer than three meters.

Observe All Terminal Ratings

Review the operating manual to learn the ratings on all connections.

Avoid Exposed Circuitry

Do not touch any electronic circuitry inside of the product.

Do Not Operate with Suspected Failures

If damage is suspected on or to the product do not operate the product. Contact qualified service personnel to perform inspection.

Orient the Equipment Properly

Do not orient the equipment so that is difficult to manage the connection and disconnection of devices.

Place Product in Proper Environment

Review the operating manual for guidelines for proper operating environments.

Observe all Warning Labels on Product

Read all labels on product to ensure proper usage.

If there are any questions about the operation of this instrument, call Harvard Apparatus Technical Service at 800-272-2775, or 508-893-8999.

Safety Information

Caution Notice

The QuikPrep ElectroPrep System is intended for laboratory use only and may be used in research and development applications. These systems have been designed to meet the applicable safety requirements for electrical equipment for measurement, control, and laboratory use. The unit itself does not generate waste, but may be used to treat samples that are hazardous. Please use appropriate PPE and ensure disposal in accordance with local regulations and practices.

This product should not be used in the presence of a flammable atmosphere such as an anesthetic mixture with air, oxygen, or nitrous oxide.

Caution

Caution Risk of Electric Shock

Product Overview

The QuikPrep® ElectroPrep™ Electrodialysis System is an extremely versatile patented sample preparation technology that is capable of separating samples by both size and charge. It is ideal for the rapid purification of proteins, nucleic acids, carbohydrates and other biomolecules. Membranes of different MWCO (molecular weight cut off), from 100 to 300,000 daltons, can be used for selective buffer exchange, dialysis, filtration, concentration, fractionation and elution.

The ElectroPrep System provides faster dialysis times due to movement of charged molecules in an electric field during dialysis, thus combining electrophoresis with dialysis. With a run time of 5 to 10 minutes, ElectroPrep provides speed and convenience, even at the very low currents (5 to 10 mA) used with this system.

Applications

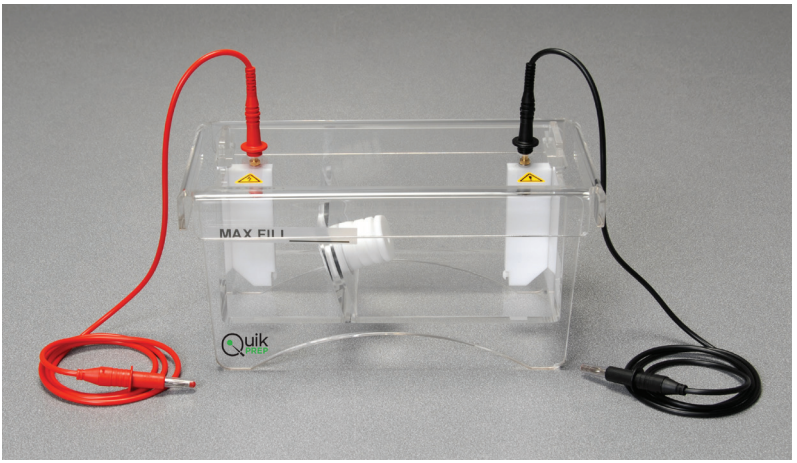
- Electroelution from gels and solutions, e.g. gel extraction of vector and insert during cloning
- Electrodialysis (with an average buffer exchange time of 5 to 10 minutes)
- Electroconcentration
- Selective electrofiltration
- Size fractionation of DNA and proteins from complex lysates
- Primer removal following PCR amplification
- Salt removal from DNA mini-preps
- Detergent removal
- Dye-terminator removal

Using the ElectroPrep Unit

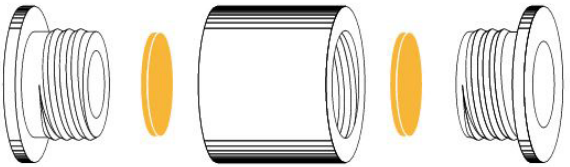
Assembly and Use

A functional ElectroPrep System consists of the ElectroPrep Tank, power supply, and one or more Dialyzer Units.

The ElectroPrep Tank (74-1196) is supplied with a tank, lid and connectors, and a replacement gasket. Power supply and Dialyzer Units must be purchased separately.



The ElectroPrep System uses at least one Dialyzer Unit to perform a sample electrodialysis. A basic Dialyzer Unit is comprised of a dialyzer chamber, dialysis membranes at one or both ends of the chamber, and two end caps.



Example of basic Dialyzer Unit, unassembled, comprised of one dialysis chamber, two membranes and two end caps.

Using the ElectroPrep Unit

Dialyzer Units can be configured in a number of more complex ways to perform different applications using a combination of components:

- **Dialysis Chamber:** the major receptacles for either samples or dialyzed materials. Includes one main chamber with two open ports and two open end caps. The sample chambers are made of PTFE, an inert material especially suited for high sample recovery and are available in a range of 50 µl to 1500 µl volumes. All Dialysis Chambers use 15/16" diameter membranes.

  -Two end caps may be used, one at the end of each chamber

- **Union:** joins two dialysis chambers together

  - Without membranes to make a larger volume chamber

  - With dialysis membranes of appropriate MWCOs for serial dialysis. (The junction between a Dialysis Chamber and a Union accommodates the same size 15/16" diameter membranes as the junction between a Dialysis Chamber and its end cap).

- **Link Chambers:** Link chambers may be used for concentration of dialyzed samples or for size fractionation of samples using membranes of different MWCOs. As with Unions, Link Chambers may also be connected to Chambers without membranes to make a larger volume chamber. Each Link Chamber comes with one open end cap. Primary and Secondary Link Chambers accept different size membranes at their junctions on either side facing the Dialysis Chamber or the Link Chamber cap.

  - **Primary Link Chamber:** can be joined directly to a dialysis chamber on one end and joined to a cap or a secondary link chamber on the other end. Primary link chambers are available in a range of 50 µl to 1500 µl volumes. The junction between a Dialysis Chamber and a Primary Link Chamber accepts a 15/16" diameter membrane and the junction between a Primary link chamber and a Secondary Link Chamber or cap accepts an 11/16" diameter membrane.

  - **Secondary Link Chamber:** can be joined to a primary link chamber on one end and can be joined to a cap on the other end. Secondary link chambers are available in either 50 µl or 100 µl volumes. The junction between a Primary and Secondary Link Chambers accepts an 11/16" size membrane and the junction between a Secondary Link Chamber and its cap accepts a 7/16" diameter membrane.

Using the ElectroPrep Unit

- **Dialysis Membranes** are added at one or both ends or between Dialysis Chamber and/or Link Chambers and Unions. Membranes with molecular weight cut off points (MWCOs), ranging from 500 to 300,000 daltons, may be used in combination with different Dialysis and Link Chambers for selective elution, filtration, dialysis, fractionation and concentration of complex samples. Dialysis Membranes are available in three sizes: 7/16", 11/16", and 15/16" Membrane diameters are available. The Ordering Information at the end of this manual indicates what diameter membrane is used for various components and chamber sizes.

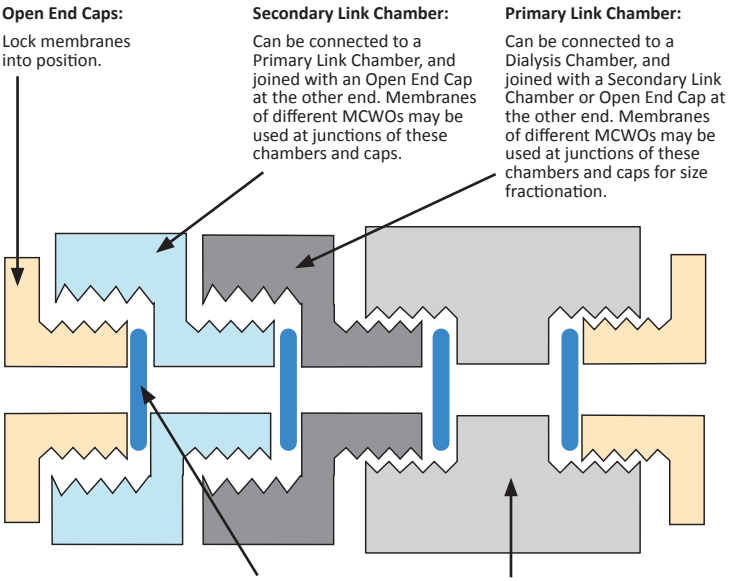
Dialysis Chamber

Link Chamber

Union

NOTE: ElectroPrep dialysis chambers, unions, link chambers and membranes are purchased separately. Components required depend on configuration.

Using the ElectroPrep Unit



How to Select Your Chamber and Membrane Configuration

1. **Decide upon your application**, e.g., electrodialysis, electroelution, electrofiltration, electroconcentration, electroseparation.
2. **Select a Dialysis Chamber** able to hold the desired sample volume (50 to 1500 µl.) Note that two Dialysis Chambers can be joined with a Union (with or without membranes added between the Union and Chambers) to increase sample volume (up to 600 or 3500 µl).

Using the ElectroPrep Unit

3. Choose Dialysis Membranes of suitable size, type and MWCO depending on the application being done and the molecular weight of the biological molecule of interest.

a. Membrane Type: Take into account the membrane's suitability for use in aqueous or organic solvents.

- For organic solvents, use either regenerated cellulose or polycarbonate
- For aqueous solutions, use cellulose acetate

b. Membrane Size: Refer to the Ordering Information (Pages 18-21) for what membrane diameter you need for each component in your configuration.

4. Assemble Dialysis Unit

- With one Dialysis Chamber, two membranes and two Open End Caps for desalting or buffer exchange (Configuration #1)
- With two Dialysis Chambers of equal volume, three membranes, a Union, and two Open End Caps for electroseparation and electroelution (Configuration #2)
- With Dialysis Chamber, three membranes, a smaller volume Link Chamber, and two Open End Caps for electroconcentration or electrofiltration (Configuration #3)
- With Dialysis Chambers, six membranes of different MWCO, a Union, and multiple Link Chambers for electrofractionation (Configuration #4)
- Note: Configurations 1 to 4 are just a few examples of Electroprep Unit assembly. Additional configurations for electrofractionation are possible using additional combinations of Dialysis Chambers, Unions, Primary Link Chambers, and Secondary Link Chambers.

Example Configurations

Most Basic:
To Desalt or Buffer Exchange

Configuration #1: Single Chamber with two matching open-ended caps

Two Different Volume Chambers:
To Selectively Concentrate

Configuration #3: Single chamber with primary link and two open end caps.

Larger Volume Chambers:
To Purify and Concentrate or Filter

Configuration #2: Two chambers connected with a union and enclosed with two matching open end caps.

Complex Configuration:
For Concentration/Filtration/Separation

Configuration #4: Two chambers connected with a union, each using a primary link that is enclosed with two matching open end caps.

Electrodialysis through Simultaneous Exchange of Buffers (Configuration #1)

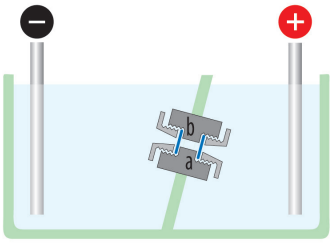
Applications

- Rapidly remove 100% of primer after PCR reaction (5 to 10 minutes).
- De-salting of neutral materials that do not move in an electric field (such as sugars) or charged molecules at their isoelectric point.

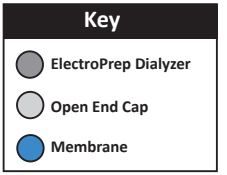
In this configuration, a sample is placed in the Dialysis Chamber between Membranes (a) and (b), both of which have MWCOs lower than the molecular weight of the desired biomolecules. The sample is dialyzed through the simultaneous exchange of buffers in the electric field. This method is very fast and very effective.

Steps

1. Select the proper size Dialyzer Chamber to use as much of the available chamber volume as possible (minimize air gaps).
2. Chose membranes, (a) and (b), that have MWCOs lower than the molecular weight of the biomolecule(s) of interest.
3. Assemble Dialyzer Unit by placing one membrane on the platform of the Dialyzer Chamber and hand-tightening one End Cap.
4. Place the sample in the Dialysis Chamber between the two membranes.
5. Place the second membrane and assemble the second End Cap to create the completed Dialysis Chamber unit.
6. Install the Dialysis Chamber unit into the tank by gently pushing the unit through the ElectroPrep tank gasket to secure in place.
7. Fill the Electroprep tank with buffer and ensure the Dialysis Chamber is covered, but the buffer does not flow over the partition. Dialysis Chamber and caps must be completely immersed in buffer so that no air bubbles are present. Keeping all parts submersed in buffer prevents the introduction of air bubbles into the Dialyzer Chambers.
8. Assemble the lid with cables and connect to your power supply. Use current and voltage settings as required for the sample and buffer (5 to 10 mA suggested as a starting point).



Electrodialysis through Simultaneous Exchange of Buffers



Selective Electrofiltration/Concentration/Separation Based on Different Charges of Biomolecules (Variation of Configuration #2)

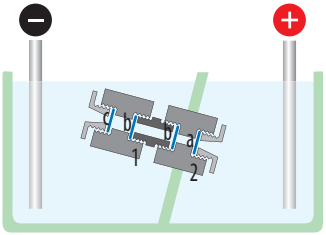
Applications

• Separation and purification of biomolecules with unknown isoelectric potential

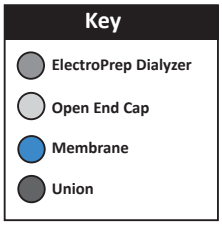
In Configuration #2 the sample is placed in a union between two membranes (b), both of which should have a MWCO larger than the desired biomolecules. Membranes (a) and (c) should have MWCOs smaller than the desired biomolecules.
Based on their charges, the desired biomolecules will move to either dialysis Chamber (1) or Chamber (2), whereas the lowest molecular weight molecules will migrate through membranes (a) and (c) into the tank. Biomolecules with unknown isoelectric points can also be separated and purified using this method. Dialysis chambers of smaller volume can be used to concentrate samples.

Steps

1. Select the proper size Dialyzer Chamber and Union to use as much of the available chamber volume as possible (minimize air gaps).
2. Assemble Dialyzer Unit by placing one membrane (a) on the platform of the Dialyzer Chamber and hand-tightening an End Cap.
3. Add buffer to the Dialyzer chamber.
4. Place your next membrane (b) on the other side of the Dialyzer Chamber and assemble the Union.
5. Add your sample to the Union compartment and place your next membrane (b) and Dialyzer Chamber.
6. Add buffer to the second Dialyzer Chamber, place the last membrane (c), and place End Cap to create the completed Dialysis Chamber unit.
7. Gently push the Dialysis Chamber unit through the ElectroPrep tank gasket to secure the unit in place.
8. Fill the Electroprep tank with buffer and ensure the Dialysis Chambers are covered, but the fluid does not flow over the partition. Chambers and caps must be completely immersed in buffer so that no air bubbles are present. Keeping all parts submersed in buffer prevents the introduction of air bubbles into the Dialyzer Chambers.
9. Assemble the lid with cables and connect to your power supply. Use current and voltage settings as required for the sample and buffer (5 to 10 mA suggested as a starting point).



Selective Electro-Filtration/ Concentration/Separation Based on Different Charges on Biomolecules



Rapid and Selective Electrofiltration or Concentration (Variation of Configuration #2)

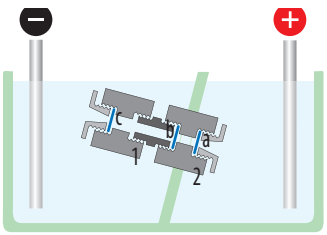
Applications

• Concentration of small samples and/or selective filtration

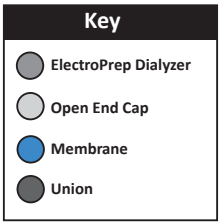
In this Configuration #2 variant, the sample is placed in the sample compartment comprised of a Dialysis Chamber (1) and the Union connected to a receiving Dialysis Chamber (2) of same or smaller volume. The MWCO of membrane (b) should be larger than the molecular weight of the biomolecules and the MWCO of membranes (a) and (c) should be smaller. Upon the passage of electric current, the biomolecules will pass through membrane (b) and collect in Dialysis Chamber (2) while smaller molecules will continue to pass through membrane (b) and (a). This is a fast and effective method for selective filtration, and for concentrating small samples.

Steps

1. Select the proper size Dialyzer Chamber to use as much of the available chamber volume as possible (minimize air gaps).
2. Assemble Dialyzer Unit by placing one membrane (a) on the platform of the Dialyzer Chamber (2) and hand-tightening an End Cap.
3. Add buffer to the Dialyzer Chamber.
4. Place your next membrane (b) on the other side of the Dialyzer Chamber and assemble the Union to create a combined large compartment.
5. Assemble second Dialyzer Chamber (1) to the Union and add your sample to the combined large compartment.
6. Place your next membrane (c) on the other side of the combined chamber and assemble End Cap.
7. Gently push the assemblage of chambers through the ElectroPrep tank gasket to secure the dialysis unit in place.
8. Fill the Electroprep tank with electroelution buffer and ensure the Dialysis Chambers are covered, but the fluid does not flow over the partition. Chambers and caps must be completely immersed in buffer so that no air bubbles are present. Keeping all parts submersed in buffer prevents the introduction of air bubbles into the Dialyzer Chambers.
9. Assemble the lid with cables and connect to your power supply. Use current and voltage settings as required for the sample and buffer (5 to 10 mA suggested as a starting point). Elution time can be calculated by measuring the time required for the biomolecule to migrate 1 cm during gel electrophoresis.



Rapid and Selective Electro-Filtration or Concentration



Electroelution and Electrofractionation of DNA, Proteins or Other Biomolecules from Gel Pieces (Variation of Configuration #2)

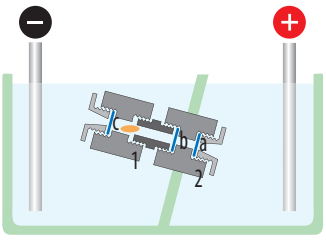
Applications

- Elution of DNA, proteins, or other biomolecules from one or more gel pieces. Optionally, electrofraction of eluted biomolecules by size may be done at the same time.

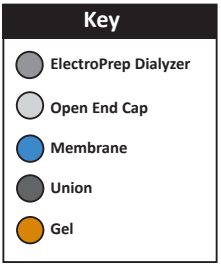
Using the ElectroPrep system in this Configuration #2 variant, elution of DNA, proteins, or any other biomolecules from a gel slice/plug can be achieved quickly and easily with excellent recovery. Using a Union, Chambers can be joined in any combination necessary to accommodate the required gel volume. Samples can be concentrated if desired, by choosing a receiving Chamber of suitable smaller volume. The MWCO of the membranes (a and b) can also be chosen to achieve very selective filtration or size fractionation during the electroelution process.

Steps

1. Choose desired elution and sample Dialyzer Chambers, Union and Membranes.
2. Assemble Dialyzer Unit (beginning with Dialyzer Chamber that will be the elution sample collection chamber). Place Membrane (a), lower MWCO than your biomolecule, on the membrane platform of the Dialyzer chamber (2) and add an Open End Cap (hand tighten).
3. Add buffer to the elution sample collection Dialyzer Chamber.
4. Place membrane (b), MWCO larger than your biomolecule, into the elution sample collection Dialyzer Chamber. Add Union onto other end.
5. Assemble second Dialyzer Chamber (1) to the Union to create a combined large compartment, and add gel slice(s) and buffer to the combined large compartment.
6. Place your next Membrane (c), lower MWCO than your biomolecule on the other side of the combined large compartment and assemble End Cap.
7. Gently push the assemblage of chambers through the ElectroPrep tank gasket to secure the dialysis unit in place.
8. Fill the Electroprep tank with electroelution buffer and ensure the Dialysis Chambers are covered, but the fluid does not flow over the partition. Chambers and caps must be completely immersed in buffer so that no air bubbles are present. Keeping all parts submersed in buffer prevents the introduction of air bubbles into the Dialyzer Chambers.
9. Assemble the lid with cables and connect to your power supply. Set current and voltage settings as required for the sample, gel, and buffer (15 mA suggested as a starting point). Elution time can be calculated by measuring the time required for the biomolecule to migrate 1 cm during gel electrophoresis.



Electro-Elution of DNA, Proteins or Other Biomolecules from Gel Pieces



Specifications

TECHNICAL SPECIFICATIONS	
Maximum Power	50 W
Maximum Voltage	1000 V
Maximum Current	500 mA
Maximum Liquid Temperature	45°C
Unit Dimensions (L x H x W)	9.8 x 5.2 x 5.5 in (25 x 13.2 x 13.14 cm)
Weight	1.9 lb (0.86 kg)
Maximum Buffer Volume	1000 ml
Power Output Connectors (Diameter)	Shrouded, 4 mm
Installation Category	II
ENVIRONMENTAL CONDITIONS	
Location	Indoor use only
Operation, Ambient Temperature	5 to 40°C
Operation, Maximum Relative Humidity	80% (non-condensing)
Operation, Altitude	2000 m
Shipping and Transportation, Ambient Temperature	-20 to 60°C
Shipping and Transportation, Maximum Relative Humidity	95% (non-condensing)
Pollution Degree	2*

** The apparatus is rated POLLUTION DEGREE 2 in accordance with IEC 60664-1. POLLUTION DEGREE 2, states that: "Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected".*

General Care & Maintenance

Tank

- Disconnect leads from power supply before servicing unit.
- To remove the safety lid, push thumbs down on the plastic lugs and lift the lid vertically with your fingers.
- Before use, clean and dry the apparatus with DISTILLED WATER ONLY.

IMPORTANT: Acrylic plastic is NOT resistant to aromatic or halogenated hydrocarbons, ketones, esters, alcohols (over 25%) and acids (over 25%); they will cause crazing and cracking of UV transparent plastic and should NOT be used for cleaning. DO NOT use abrasive creams or scourers. Dry components with clean tissues prior to use.

- Before use, check the unit for any leaks at the bonded joints. Place the unit on a sheet of dry tissue and then fill with DISTILLED WATER ONLY to the maximum fill line. Any leakage will be seen on the tissue paper. If any leakage is seen DO NOT ATTEMPT TO REPAIR OR USE THE APPARATUS, but notify Harvard Apparatus immediately.
- The replacement platinum electrodes are partially shrouded for protection. However, when cleaning the main tank DO NOT use cleaning brushes in the electrode area. Usually a thorough rinse with distilled water is all that is required.
- Ensure that the connectors are clean and dry before usage or storage.

PTFE Chambers

- Clean by rinsing with deionized (DI) water prior to each use.
- Take care to not damage the threads.
- For cases where contamination is severe, low concentration detergents may be used, followed by rinsing thoroughly with deionized (DI) water.

Membranes

- Prior to use, rinse with deionized (DI) water and treat with your buffer solution.
- Discard membranes after use. Do not reuse.

Ordering Information

Description	Item #
ElectroPrep Hardware	
ElectroPrep Tank, with lid, gasket, 4 mm red and black connector cables	74-1196
ElectroPrep Replacement Connector Cables, 4 mm, red and black (1 each)	74-1197
Power Supply for Electroprep, 300 V, 500 mAmp, 90W	74-1103
Replacement Gasket, Qty. of 3	74-1113
Dialysis Chambers, Qty. of 2, 15/16” Inner Diameter	
50 µl Chamber Volume	7411-502D
100 µl Chamber Volume	7411-1002D
250 µl Chamber Volume	7411-2502D
500 µl Chamber Volume	7411-5002D
1000 µl Chamber Volume	7411-10002D
1500 µl Chamber Volume	7411-15002D
Link Chambers, Qty. of 2	
50 µl Chamber Volume, (1) 11/16" dia Primary link and (1) 7/16'' dia Secondary link	7411-502L
100 µl Chamber Volume, (1) 11/16" dia Primary link and (1) 7/16'' dia Secondary link	7411-1002L
250 µl Chamber Volume, (2) 11/16" dia Primary links	7411-2502L
500 µl Chamber Volume, (2) 11/16" dia Primary links	7411-5002L
1000 µl Chamber Volume, (2) 11/16" dia Primary links	7411-10002L
1500 µl Chamber Volume, (2) 11/16" dia Primary links	7411-15002L
Union (Dialysis Chamber Connector), Qty. of 2, 15/16” Diameter	
(1) 600 µl and (1) 3500 µl to join Dialysis Chambers	74-1194
ElectroPrep Membranes for All Dialysis Chambers (50 to 1500 µl, 15/16” Diameter) Type and MWCO	
Regenerated Cellulose	
1 kDa MWCO	7410-RC1K
2 kDa MWCO	7410-RC2K
3.5 kDa MWCO	7410-RC3.5K
10 kDa MWCO	7410-RC10K

Ordering Information

Description	Item #
25 kDa MWCO	7410-RC25K
50 kDa MWCO	7410-RC50K
Cellulose Acetate	
500 Da MWCO	7410-CA500
1 kDa MWCO	7410-CA1K
2 kDa MWCO	7410-CA2K
5 kDa MWCO	7410-CA5K
10 kDa MWCO	7410-CA10K
25 kDa MWCO	7410-CA25K
50 kDa MWCO	7410-CA50K
100 kDa MWCO	7410-CA100K
300 kDa MWCO	7410-CA300K
Polycarbonate	
0.01 µm Pore Size	7410-PC01
0.05 µm Pore Size	7410-PC05
0.10 µm Pore Size	7410-PC10
0.60 µm Pore Size	7410-PC60
ElectroPrep Membranes for Primary Link Chambers (50 to 250 µl, 11/16" Diameter) Type and MWCO	
Regenerated Cellulose	
1 kDa MWCO	7416-RC1K
2 kDa MWCO	7416-RC2K
3.5 kDa MWCO	7416-RC3.5K
10 kDa MWCO	7416-RC10K
25 kDa MWCO	7416-RC25K
50 kDa MWCO	7416-RC50K
Cellulose Acetate	
500 Da MWCO	7416-CA500
1 kDa MWCO	7416-CA1K
2 kDa MWCO	7416-CA2K
5 kDa MWCO	7416-CA5K

Ordering Information

Description	Item #
10 kDa MWCO	7416-CA10K
25 kDa MWCO	7416-CA25K
50 kDa MWCO	7416-CA50K
100 kDa MWCO	7416-CA100K
300 kDa MWCO	7416-CA300K
Polycarbonate	
0.01 µm Pore Size	7416-PC01
0.05 µm Pore Size	7416-PC05
0.10 µm Pore Size	7416-PC10
0.60 µm Pore Size	7416-PC60
ElectroPrep Membranes for Primary Link Chambers (500 to 1500 µl, 11/16" Diameter) Type and MWCO	
Regenerated Cellulose	
1 kDa MWCO	7425-RC1K
2 kDa MWCO	7425-RC2K
3.5 kDa MWCO	7425-RC3.5K
10 kDa MWCO	7425-RC10K
25 kDa MWCO	7425-RC25K
50 kDa MWCO	7425-RC50K
Cellulose Acetate	
500 Da MWCO	7425-CA500
1 kDa MWCO	7425-CA1K
2 kDa MWCO	7425-CA2K
5 kDa MWCO	7425-CA5K
10 kDa MWCO	7425-CA10K
25 kDa MWCO	7425-CA25K
50 kDa MWCO	7425-CA50K
100 kDa MWCO	7425-CA100K
300 kDa MWCO	7425-CA300K

Ordering Information

Description	Item #
Polycarbonate	
0.01 µm Pore Size	7425-PC01
0.05 µm Pore Size	7425-PC05
0.10 µm Pore Size	7425-PC10
0.60 µm Pore Size	7425-PC60
ElectroPrep Membranes for Secondary Link Chambers (50 to 100 µl, 7/16" Diameter) Type and MWCO	
Regenerated Cellulose	
1 kDa MWCO	7424-RC1K
2 kDa MWCO	7424-RC2K
3.5 kDa MWCO	7424-RC3.5K
10 kDa MWCO	7424-RC10K
25 kDa MWCO	7424-RC25K
50 kDa MWCO	7424-RC50K
Cellulose Acetate	
500 Da MWCO	7424-CA500
1 kDa MWCO	7424-CA1K
2 kDa MWCO	7424-CA2K
5 kDa MWCO	7424-CA5K
10 kDa MWCO	7424-CA10K
25 kDa MWCO	7424-CA25K
50 kDa MWCO	7424-CA50K
100 kDa MWCO	7424-CA100K
300 kDa MWCO	7424-CA300K
Polycarbonate	
0.01 µm Pore Size	7424-PC01
0.05 µm Pore Size	7424-PC05
0.10 µm Pore Size	7424-PC10
0.60 µm Pore Size	7424-PC60

Notes

Notes

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