

Instructions for  
**EcoCell Vertical Electrophoresis Unit**

Cat. No.: AN 12005

### ***Warning***

**These units are capable of delivering potentially lethal voltage when connected to a power supply and are to be operated only by qualified technically trained personnel.**

**Please read the entire operator's manual thoroughly before operating this unit.**

The anamed vertical electrophoresis units are designed to give long service and reproducible results in your laboratory. A few moments spent reading these instructions will ensure that your expectations are reflected in the successful use of the apparatus.

First check that the apparatus has been received complete and undamaged following shipment. Any fault or losses must be notified to anamed Elektrophorese GmbH immediately, anamed cannot accept responsibility for goods returned without prior notification.

Refer to the packaging list and check that all components and accessories are present.

Please retain all packaging materials until warranty period has expired.

### ***Specification***

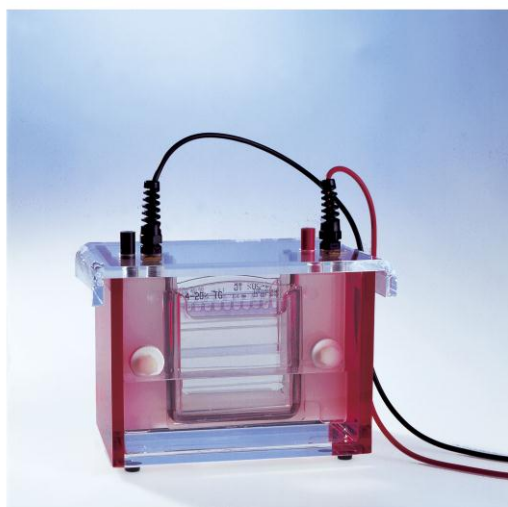
- Doubly insulated cables, rated safe up to 600 volts
- Gold plated electrical connectors, corrosion-free and rated safe up to 600 volts
- Recessed power connectors, integral with safety lid
- 0.2 mm diameter platinum electrodes, 99.99 % pure  
User replaceable platinum electrodes
- Silicone rubber seal provides leak-free sealing and are easy to clean and/or replace
- User friendly clamping system
  
- Dimensions: 210 x 140 x 150 mm (breadth, depth, height)
- Weight: 2100 g
- Material: PMMA, PVC, POM, Silicone, PA, V4A,
- Buffer Capacities: Upper chamber: ~ 200 ml  
Lower chamber: ~ 500 ml minimum, ~ 1300 ml maximum
- Electrical Limits: 250 V @ 400 mA per gel
- Temperature Limit: 55°C
- Chemical Resistance: not compatible with aromatic or halogenated hydrocarbons, ketones, esters, alcohols (above 25 %) and acids (above 25 %).

### ***Environmental Conditions***

- This apparatus is intended for indoor use only.
- This apparatus can be operated safely up to an altitude of 2000 m.
- The normal operating temperature range is between 4°C and 65°C.
- Maximum relative humidity 80 % for temperatures up to 31°C decreasing linearly to 50 % relative humidity at 40°C.

### *Packaging List*

- Outer buffer chamber (running tank) 1
- Safety lid with cables 1
- Internal running module for precast gels with a cassette format of 10 x 10 cm 1
- Dummy plate 1
- AnaCut gelknife 1
- Instruction manual 1



### *Using the EcoCell Vertical Gel Electrophoresis Unit*

#### **Safety Precautions**

- Read the instructions **before** using the apparatus.
- Always isolate electrophoresis units from their power supply before removing the safety lid. Isolate the power supply from the mains **first** then disconnect the leads.
- Do not exceed the maximum operating voltage or current

**Maximum operating voltage: 500 V**

**Maximum operating current: 250 mA**

- **Do not** operate the electrophoresis units in metal trays.
- Wear effective **protective clothing** and follow recommended handling and disposal procedures. Polymerised gels can contain some unpolymerised monomer. Handle with **gloves** only.
- Following the replacement of a platinum electrode 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 lines.
- **Do not** move the unit when it is running.
- **Caution:** During electrophoresis very low quantities of various gases are produced at the 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 ventilated area.

## General Care and Maintenance

- To remove the safety lid, push thumbs down on the plastic lugs and lift the lid vertically with your fingers.
- After use clean and dry the apparatus with **distilled water only**.
- **Important:** Acrylic plastic is **not** resistant to aromatic or halogenated hydrocarbons, ketones, esters, alcohols (above 25 %) and acids (above 25 %). These chemicals will cause “crazing” and should not be used for cleaning. **Do not** use abrasive creams or scourers. Dry components with clean tissue after use.
- Before use, and then on a monthly basis, 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 anamed Elektrophorese GmbH immediately.
- The replacement platinum electrodes are partially shrouded for protection. However, when cleaning the internal running module 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.

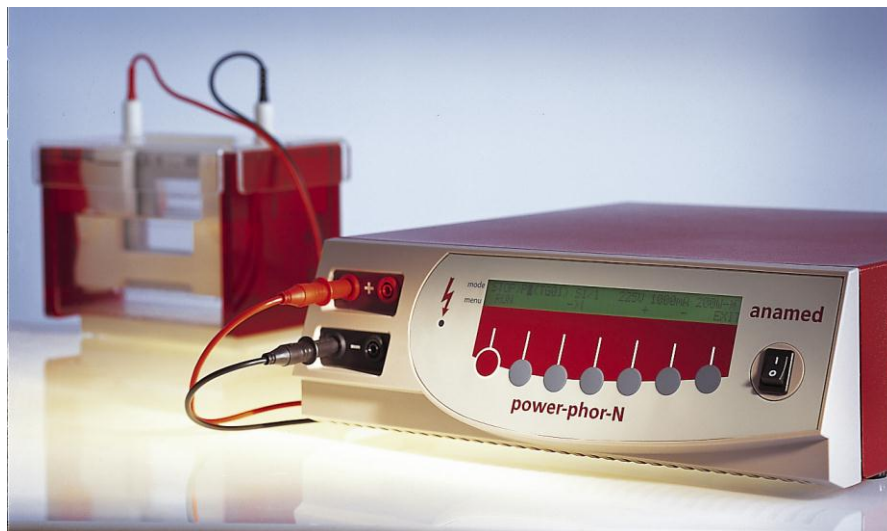
## Running Precast Gels

- Prepare the samples according to your procedures.
  - Remove the gel from the pouche and rinse the cassette with distilled water. Remove the tape at the lower part of the cassettes and the comb.
  - Remove the internal running module from the tank and put it on the bench. For easy loading of the samples insert the cassettes into the internal running module as follows: both notched plates facing the user, the rear cassette should sit slightly higher than the front gel (Fig. 1). Tighten the screws.
- Note:** If you are running only one gel, the dummy plate replaces the second gel cassette.



- Make sure the sample wells in the cassette are completely filled with running buffer, and underlay the samples.  
**Note:** If the wells are not filled with running buffer, samples from one well will flow into the adjoining wells by means of capillary action.
- Loosen the screws and insert cassettes with both notched plates facing inwards and push them down to the bottom of the internal running module. Tighten the screws. Do not over tighten.

- Place the inner running module into the tank and fill the upper buffer chamber with running buffer (~ 200 ml). Be careful not to disturb the contents of the wells. Check for tightness of seal. If you detect a leak from upper to lower chamber, recollect the buffer, reseal the chamber and refill.
- Fill the lower buffer chamber by pouring ~ 500 – 1300 ml of running buffer through the gap between the front gel and the front of the tank. The EcoCell will function as long as the lower buffer chamber is filled enough to cover the slot at the bottom of the cassette.  
**Note:** The volume depends on the expected Wattage during the run. Some gel systems like VarioGel create high power values during electrophoresis and heat dissipating can be achieved by using buffer volumes that the buffer level exceeds the level of the wells. For other gel types, a filled lower buffer chamber is not required.
- Replace the safety lid firmly making sure that the electrical connectors form a good contact.
- Connect the electrophoresis apparatus to the power supply and connect the power supply to the mains supply. Turn all settings to zero before turning on the mains supply. Adjust the controls to the desired settings. Follow manufacturer's instructions.
- Turn on the power.



### Disassembly of the EcoCell

- Upon completion of the run, turn off the power and disconnect the cables from the power supply.
- Remove the safety lid and the internal running module from the tank. Loosen the screws and remove the cassette from the inner module.
- Rinse the cassette with distilled water and open the cassette following the gel instructions.
- Immediately fix, stain or transfer as desired.
- Empty the lower buffer chamber and rinse the components of the EcoCell with distilled water and dry them with tissue.

### *Troubleshooting Guide*

| <b>Problem</b>                         | <b>Cause</b>   | <b>Remedy</b>   |
|--|--|---|
| Current is zero or very low            | <p>Tape left on the bottom of the cassette</p> <p>Connection to power supply not complete</p> <p>Buffer level not sufficient</p> | <p>Remove tape</p> <p>Check all connections and settings</p> <p>Make sure the upper buffer is covering the wells of the gel. Make sure there is sufficient buffer in the lower buffer chamber to cover the slot at the bottom of the gel.</p> |
| Run taking longer than usual           | <p>Buffers are too diluted or contaminated</p> <p>Upper buffer chamber is leaking</p> <p>Voltage is too low</p>                  | <p>Check buffer recipe; re-make if necessary</p> <p>Make sure the inner module is firmly sealed, the gaskets are in place</p> <p>Set correct voltage</p>  |
| Run is faster than normal              | <p>Buffers are too concentrated or incorrect</p> <p>Voltage, current or wattage is set too high</p>                              | <p>Check buffer recipe; dilute or re-make if necessary</p> <p>Decrease power conditions to recommended running conditions</p>   |
| Cannot see sample wells to load sample | <p>There is little contrast between sample well and rest of the gel</p>  | <p>Mark cassette at the bottom of the wells with marker pen prior to assembling or illuminate the bench area with a light source placed directly behind the EcoCell</p>   |