



NAVICYTE

THE DRUG SELECTION COMPANY

GLASS BARREL MICRO-REFERENCE ELECTRODE

This package should contain the following:

- 4 Ag/AgCl electrodes
- 4 Filling tubes
- 4 Replacement barrels
- 4 Electrode wires (under foam insert)
- 1 Bottle 3M KCl

Use of the Electrode

The Micro-Reference Electrode is composed of a silver-silver chloride electrode with an internal filling solution. This filling solution will usually be 3M KCl. The external buffer solution may also be used as an alternate filling solution. Before the electrode can be placed into operation, the glass reference barrel must be filled with an internal reference solution.

Filling the Reference Barrel

Filling of the reference barrel is accomplished in the following manner:

1. The glass barrel is removed from the electrode cap by grasping each end of the cap and pulling apart.
Note: The top and bottom sections of the cap are matched sets and should not be interchanged with other electrode sections.
2. The internal reference solution is added to the glass barrel using the polyethylene tubing (filling fiber) provided. A 26 ga. or 27 ga. syringe needle will fit inside the tubing.
3. After filling the glass barrel with the reference electrolyte, the silver wire is inserted into the PVC or glass barrel and the electrode cap is reassembled.

Cleaning and Storing of the Electrode

Cleaning: When using the electrode in solutions containing protein, the electrode should be soaked in an enzyme cleaning solution or a chromic/sulfuric acid glass cleaning solution after each use for 10-15 seconds to remove the protein from the reference barrel and the reference junction. This will prolong the useful life of the electrode.

Storing: Always clean the electrode before storing. Do not allow salt solutions to crystallize in the ceramic junction.

Long-term (over 4 weeks): remove the PVC or glass barrel containing the electrolyte and store the barrel in a stoppered test tube filled with reference electrolyte or distilled water. Rinse the silver wire and electrode cap to remove the salt solution and dry using an absorbent towel. Store the electrode in a closed container to keep dust off of the electrode.

Short-term: place the tip of the electrode into a test tube or beaker containing reference electrolyte.

Troubleshooting

A. Little or No Response:

Inspect the indicating electrode for visible cracks. If any exist, the indicating electrode is defective and must be replaced. The slightest crack in or around the tip of the indicating electrode will cause the electrode to read about the same in all solutions.

B. Response Pops Off Scale:

1. Visually inspect the reference electrode for broken or dissolving internal Ag⁺AgCl wire or for inadequate volume of reference electrolyte. Reference electrolyte level should be above the Ag-AgCl element.
2. Blocked or clogged liquid junction - Soak the tip of the electrode in warm (not hot) distilled water for 5 to 10 minutes. An ultrasonic bath may also be used. If still clogged, then soak overnight in distilled water or replace reference barrel with extra barrel supplied.

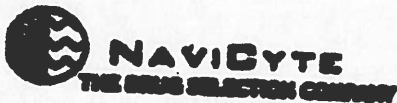


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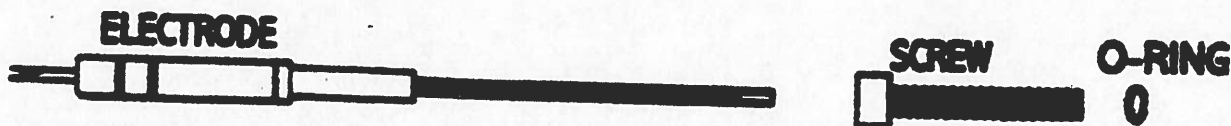
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INSTRUCTION FOR ELECTRODES PLACEMENT:



ELECTRODES ARE HELD IN PLACE BY A SCREW AND O-RING ASSEMBLY. THE ELECTRODE SHOULD BE PLACED THROUGH THE SCREW AND THEN THE O-RING. THE COMPLETE ASSEMBLY IS INSERTED INTO THE ELECTRODE PORT AND THE SCREW IS THREADED INTO THE HOLE. AS THE SCREW IS TIGHTENED, THE O-RING WILL COMPRESS AROUND THE ELECTRODE. WHEN THE O-RING BEGINS TO COMPRESS, THE ELECTRODE CAN BE SLID BACK AND FORTH IN THE ASSEMBLY TO ACHIEVE THE CORRECT POSITION. THE SCREW CAN THEN BE TIGHTENED TO HOLD THE ELECTRODE IN POSITION. DO NOT OVER TIGHTEN!

AT THE COMPLETION OF AN EXPERIMENT, LOOSEN BUT DO NOT REMOVE THE SCREW. THE ELECTRODE MAY BE SLID OUT OF THE CHAMBER WITHOUT REMOVING THE SCREW OR O-RING. TO REASSEMBLE, PUSH THE ELECTRODE BACK INTO THE ASSEMBLY.

FOR CHAMBER USE WITHOUT ELECTRODES, REPLACE THE ELECTRODE ASSEMBLY WITH THE SCREW SET WITHOUT THE CENTER HOLE. THESE MAY BE USED WITH OR WITHOUT THE O-RING. FOR CHAMBER USE WITHOUT ELECTRODES, REPLACE THE ELECTRODE ASSEMBLY WITH THE SCREW SET WITHOUT THE CENTER HOLE. THESE MAY BE USED WITH OR WITHOUT THE O-RING.