

pH/REF/ORP ELECTRODES OPERATING INSTRUCTIONS

PREPARATION FOR USE.

All sensors are shipped with the measuring end covered with a soaker teat. Remove the soaker teat from the electrode and keep in a safe place for future long term storage.

After rinsing the measuring end with deionised water, the electrode is ready for use.

During shipment it is possible for air bubbles to move into the glass bulb. To remove the air, shake down the electrode in the same manner as a clinical thermometer until the glass bulb is filled with solution.

ELECTRODE STORAGE

pH glass electrodes should be stored in a 4.0pH Buffer for both overnight and long term storage.

Reference and Glass/Plastic combination electrodes should be stored in a 3.0 Molar KCl solution (pH adjusted to 4.0) if they are single junction types.

Use a 3.0 Molar solution of the appropriate salt if double junction types.

ELECTRODE CARE & CLEANING

Slow response and non-reproducible measurements are signs that the electrodes have become coated or clogged.

If the glass becomes coated or clogged the time taken to make a measurement will increase (normally 95% of final reading should be achieved in less than 10 secs).

Rinsing with methyl alcohol should remove the coating and restore the speed of response.

O.R.P. electrodes may need additional cleaning from time to time with crocus paper.

If the methyl alcohol rinse does not restore the response, soak in 0.1M HCl for five minutes. Remove and rinse with water and place in 0.1 M NaOH for five mins. Remove, rinse again, and soak in 4.0pH buffer for 10 minutes before use.

If a pH electrode is continuously used above 60°C the outer layer of the pH glass loses its sensitivity. This can be restored as follows:-

1. Prepare a 10% solution of ammonium bifluoride.*
2. Immerse electrode for 10-20 secs.
3. Rinse in water.
4. Immerse in 5 Molar HCl for 5 mins to remove any excess bifluoride.
5. Rinse again in water.
6. Soak in 4pH buffer for 1 hour before use.

***THIS IS A HAZARDOUS CHEMICAL AND SHOULD ONLY BE HANDLED BY A QUALIFIED CHEMIST FAMILIAR WITH FLUORIDE COMPOUNDS.**

NOTE: All pH electrodes respond best after being stored in slightly acidic solutions such as 4.0 pH buffer.

Reference electrodes use a liquid junction for electrical contact to the solution being measured. If the junction becomes clogged or coated, the reference becomes erratic. Cleaning with **METHYL ALCOHOL** or **0.1 Molar HCl** periodically will enhance the electrodes performance.

Storage should be in slightly acidic 3.0 Molar KCl solution.

COMBINATION pH ELECTRODES, being a combination of **REFERENCE AND pH GLASS ELECTRODES**, should be cleaned as listed above and stored in slightly acidic 3.0 Molar KCl solution.

FILLING SOLUTIONS

NOTE: Certain combination Electrodes are filled with KCl gel. These do not require filling and have no filling hole on the side of the electrode.

**Reference Electrodes – Saturated KCl
Combination pH/ORP Electrodes –
3.0 Molar KCl saturated with AgCl**

To fill electrode, slide down plastic ring to reveal hole in side. Using a small syringe, fill the outer part of the electrode (via the hole) with the filling solution detailed above, until the filling solution is just level with the hole. Slide the plastic ring back to cover the hole.