OAKTON® TECH TIPS

Cleaning and Reconditioning pHTestr Series Electrodes

Tech Tip #3 ©1997

Often, the OAKTON® pHTestrs are used in applications which require regular cleaning of the electrode or reference. These applications involve very hard waters (i.e. those with high scale content), dirty samples like soil slurries, viscous materials or samples with high oil and protein content.

As with any procedure involving strong chemicals, please wear appropriate clothes and goggles, and provide adequate ventilation. We do not recommend these procedures for persons unfamiliar with or unable to use safe techniques involving these chemicals:

Detergents
HCl (Hydrochloric Acid)
NaOH (Sodium Hydroxide)

Method 1

Soak the electrode in a 0.1 molar concentration of HCl (hydrochloric acid) for one hour, then rinse the electrode with deionized or distilled water. This should remove any organic protein from the glass electrode and the surface of the reference electrode.

Method 2

Soak the electrode in a 3.8 or 4.0 molar KCl (potassium chloride) solution heated to 50ºC for one hour. Allow the KCl solution to cool down to room temperature, then rinse the electrode with deionized or distilled water. This will open and clear the reference electrode of all contaminants.

Method 3

Soak the electrode in a 4.01 pH buffer solution, heated to 50ºC for one hour. Allow the buffer to cool down to room temperature, then rinse the electrode with deionized or distilled water. This should open and clear the reference electrode.

Method 4

After each use, rinse the electrode in 0.5 N or 1% HCl . Soak in 1% HCl solution overnight. If you have a build-up of oil or protein contaminants, try soaking the electrode in a warm detergent and water solution. Degreasing dishwashing detergents or stain removing pre wash pretreatments are ideal for this: any brand will do. An overnight soak may be needed if build-up is heavy. Then rinse the pHTestr in deionized or distilled water and soak for 1hour in 1% HCl. Rinse the pHTestr in deionized or distilled water and check in buffers. If the pHTestr calibrates to buffers it can be used in tests. When the pHTestr cannot be calibrated even after attempts to clean it, it must be replaced.

Method 5

For protein removal, soak the Testr electrode in contact lens enzymatic cleaner solution overnight. The enzymes will remove proteins from glass and plastic.

pHTestr Economies

It is a common practice to replace electrodes regularly, especially in more troublesome applications. Since pHTestrs cost about the same or less than a typical general purpose pH electrode, it is also common practice to replace them on a regular basis when working in troublesome applications. Consider regular replacement of pHTestrs where metal ions are present; where organic materials such as oils, proteins, solvents, and polymers are present; when used in viscous samples like paint, and when used in slurries such as soil and sludge.