

## *Conditioning and Cleaning the ORPTestr™ for Maximum Response.*

Tech Tip #4 ©1997

### ***Background:***

The ORPTestr™ is a feature-rich, high-quality ORP indicator with a wide band platinum ORP sensor for extra stability and repeatability. Even under the best circumstances, ORP electrodes may require conditioning or cleaning in order to get maximum responsiveness. The ORPTestr is no different, so we describe some conditioning and cleaning procedures in this bulletin.

We also want to point out there is another aspect of ORP electrodes which can appear to the user as an indication of a problem when there really is no problem. All electrodes have a unique mV offset characteristic that is dependent on the reference cell chemistry. This is not practical to eliminate in lower cost electrodes and testers.

In anticipation of this, the ORPTestr has an offset calibration procedure which can be used to compensate for the reference electrode characteristics. This effectively eliminates this offset problem and brings the ORPTestr into agreement with either a reference standard or another ORP measurement system—whichever the user prefers. Please refer to the offset calibration procedures described on the “Calibration” instructions on the box. This feature makes the ORPTestr suitable for applications other ORP testing products cannot handle because of problems with accuracy and repeatability.

### ***Cleaning and Conditioning***

The platinum band on the ORPTestr electrode can have a reduction in its sensitivity if it is coated by foreign material. ORPTestr responsiveness can also be reduced when the reference junction is plugged by foreign material. There are some simple procedures that can correct these problems and improve sensitivity. These are:

1. Use soap and water (dish soap is O.K.) and a clean cloth to clean the platinum band. Be gentle so as not to break off the electrode. Soaking the electrode end of the ORPTestr will also help to clean the reference junction. See NOTE on next page.
2. Use acetone to rinse off the the electrode's platinum band to dissolve organic material, especially oil films, which may coat the platinum. See NOTE on next page.
3. Use hydrochloric acid (HCl) in a 10 to 1 dilution with water as a soak for the electrode, to remove any debris that may be attached to the platinum. This also helps clean the reference junction. See NOTE on next page.

4. Use a straight bleach solution, like that available in grocery stores, as a soak. This helps to clean the platinum band and reference junction. Also, if you let the ORPTestr condition in this for a few minutes, turn the tester on and look for readings around 800 mV or higher which indicates the slope or sensitivity of the ORPTestr is OK. See NOTE below.
5. Sometimes a conditioning of the ORPTestr can also improve the response and accuracy. Soaking the electrode over a period of hours in the solution to be tested can work as a temporary measure to improve the ORPTestr response prior to performing any of the procedures listed above.

**NOTE:** Procedures 2, 3 and 4 above involve moderately dangerous chemicals and should only be performed with proper ventilation, eyewear, gloves and other protective clothing. After any of these procedures, thoroughly rinse the ORPTestr in clean, deionized or distilled water before the next use.