

Appendix 7:

HELPFUL TIPS WHEN CALIBRATING YOUR YSI® HAND-HELD DISSOLVED OXYGEN METER

The following information contains helpful calibration tips for YSI® hand-held oxygen meters. Be sure to read and follow the manufacturer's manual for a complete description of operating procedures. Calibration must be conducted anytime the meter is turned off for more than 5 minutes.

Pre-calibration

Probe/calibration chamber. The sponge within this chamber should be kept moist (not soaking wet) at all times. Pour out any excess water within the chamber. Accurate calibration values will not be obtained if the sensor is in direct contact with water.

Sensor. Shake or blow off excess water on the sensor. Check for fouling or damage to the sensor, especially check for holes or tears in the membrane. Check for air bubbles beneath the membrane. If any of these things exist, replace the solution and membrane. When changing a membrane, note the condition of the silver anode and gold cathode. If they are tarnished, refer to the owner's manual for cleaning instructions.

Warm-up. Turn the meter on and watch the dissolved oxygen output; it must display a positive number and decrease to a value close to the calibration value (for Wisconsin this value is the 90's). Allow the meter to warm-up for at least 30 minutes. The warm-up and calibration procedures should take place where the meter has been stored. For example, do not take it from an air-conditioned house and calibrate it in a hot garage. The sensor is stored deep within the meter housing, and the temperature may not stabilize in the warm-up period if the meter is moved. Never calibrate the meter in direct sunlight on a hot day.

Location altitude. These meters require altitude (in feet) input for dissolved oxygen calibration. You can find your local altitude by using a *Wisconsin Atlas and Gazetteer* or a USGS topographic map. In the *Gazetteer*, elevations appear scattered throughout every page. Elevations may appear in meters. You can convert meters to feet by multiplying the meter value by 3.28. Elevations in USGS topographic maps are typically listed in feet.

Post-calibration

How do you know if you calibrated the meter to the correct value? Calibrate the meter in the dissolved oxygen mode. During calibration, after entering the proper altitude, the letters "CAL" will display in the lower left corner of the screen. The calibration value (e.g., 94.2) will display in the lower right corner, and the current dissolved oxygen reading will be seen on the main display. Note the calibration value; immediately after completing calibration, the dissolved oxygen value should be equal to the calibration value.

Post calibration drift. After calibration, check the meter reading for drift. This is a check to see how well the meter is holding its calibration. Leave the meter where you calibrated it and walk away for 5 minutes. Upon returning, if the dissolved oxygen value has changed by more than four tenths (0.4), you should change the solution and membrane and repeat all calibration procedures.

