Dissolved Oxygen

Dissolved Oxygen Measurement

Oxygen is one of the essential elements for the existence of life, but life can only exist when the concentration of oxygen falls within certain limits. When measuring oxygen in aquatic environments we are actually measuring the amount of oxygen dissolved in the water; thus the name Dissolved Oxygen or DO for short.

The level of DO in water depends on many physical, chemical, and biochemical activities in the sample or at the sample site. The three most important factors to consider are temperature, pressure, and salinity. The amount of oxygen a given sample can hold in solution will vary with the temperature of the sample, the pressure or altitude at which the sample is measured, and the concentration of salts dissolved in the sample.

The analysis of DO is one of the key tests performed in water pollution studies and at waste water treatment facilities. Some other areas where the analysis of dissolved oxygen is important are aquaculture (fish farming), aquatic environments such as fish ponds or aquariums, water quality testing, surface and ground water surveys, and evaluating the safety of potable water.

Ten Good Practices When Testing for Dissolved Oxygen

- ➤ Store your DO probe in a moist atmosphere to limit evaporation of the electrolyte solution.
- ➤ Rinse the probe membrane with distilled water after each test.
- ➤ Calibrate the probe and meter at temperatures as close as possible to the temperature of the sample.
- ➤ Ensure that the probe is always submersed deep enough to cover the membrane and automatic temperature compensation element.
- ➤ Stir your sample at no less than 15 cm/min to avoid oxygen starvation at the membrane.
- ➤ Use a zero oxygen solution to calibrate your meter.
- ➤ Remember that oxygen measurements are pressure/altitude dependent.
- ➤ Know the salinity of your sample; this will affect your reading.
- ➤ Polarographic probes require 15 to 30 minutes to polarize. OAKTON galvanic probes do not require this.
- ➤ Remember when changing membranes to remove all air bubbles from under the membrane surface.