

Standard Operating Procedure (SOP) 3.1.1.1

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DISSOLVED OXYGEN MEASURED WITH A COLORIMETRIC AMPOULE

Colorimetric ampoules are self-filling ampoules that contain pre-measured chemical reagents within a vacuum. By snapping the ampoule's tip, the sample will fill the ampoule automatically. A color forms almost instantaneously. Results can then be quantified by visual comparison or photometrically. Ampoules are available for colorimetric, photometric and titrimetric analysis for a variety of analytes.

Although the reagents are packaged within the ampoule caution is advised when performing any chemical operation. Some self-filling ampoule tests require the use of accessory reagents, which must be added directly to the sample. Disposal of all chemical materials is subject to governmental regulation. All tests will produce potentially dangerous sharp and pointed glass. These sharp objects must be handled and disposed of carefully.

The dissolved oxygen test employs the indigo carmine method. In an acidic solution, oxygen oxidizes the yellow-green colored leuco form of indigo-carmin to form a highly colored blue dye. The resulting blue color is proportional to the dissolved oxygen concentration in the sample. Test results are expressed in ppm (mg/l) dissolved oxygen.

Test Procedure (based on the Oxygen CHEMets® 1-12 ppm)

- 1) Fill the sample cup (provided in the kit) to the 25 ml mark with your sample.
- 2) Place the ampoule in the sample cup. Snap the tip by pressing the ampoule against the side of the cup. The ampoule will fill, leaving a small bubble (air-space) to facilitate mixing.
- 3) Mix the contents of the ampoule by inverting it several times, allowing the bubble to travel from end to end each. Then wipe all liquid from the exterior of the ampoule. Wait 2 minutes for color development.
- 4) Hold the comparator (included with kit) in a horizontal position while standing directly beneath a bright light source (try to avoid reflective interference). Place the ampoule between the color standards moving it from left to right along the comparator until the best color match is found. If the colors do not match, a concentration estimate can be made (range).

Tip: Ensure that the sample cup is not contaminated. Rinse it 3 times with sample water before conducting the test. After the test rinse it with distilled water.

Safety Tip: Pack along with your field kit safety glasses and a container to dispose of sharp objects.

CHEMets Instruction kit for Oxygen CHEMets® 1-12 ppm and information from their website www.chemetrics.com