

Dissolved Oxygen Procedure

NOTE: Wear goggles and gloves when performing this test

- 1** Place dissolved oxygen bottle (round bottle with ground glass stopper) under water at an angle with the mouth facing upstream for approximately **2 minutes** (use tongs from supply bag). This allows the water bottle temperature to equilibrate to the water temperature. Empty the bottle and hold the bottle under water again, facing upstream with the bottle tilted at an angle, for an additional **2 minutes**. Make sure that no air bubbles are present in the sample. Allow the water to overflow when bringing the bottle to the surface. Incline the bottle slightly and insert the stopper, avoiding trapping air bubbles. **If air bubbles are present discard sample and refill with stream water.**



- 2** Use scissors to open **Reagent Packets 1 and 2**. Add contents of one packet **#1** and then contents of one packet **#2** to the D.O. bottle. Hold the bottle at a slight angle again and carefully and quickly insert stopper insuring that no air is trapped inside. (If there are air-bubbles present in the sample, discard in “liquid waste bottle” and start again.) Gripping the bottle and stopper firmly, carefully invert to mix contents fully. **Do not shake!** Shaking the bottle and inverting the bottle will give different oxygen levels, and we want the inverted readings, not shaken. If oxygen is present in the sample a brownish-orange flocculent (floc) precipitate will form.
- 3** Allow the sample to stand **until the floc has settled approximately halfway** down in the bottle, leaving the upper half of the sample clear. If the floc has not settled within 5 minutes proceed anyway. Invert the bottle again and allow the contents to settle **one more time**.

Instructions continue on back!

- 4 Open **reagent pillow packet #3** using clippers or scissors to open one side of the powder pillow. Make sure the contents do not spill out. Remove stopper from the sample bottle, and add the contents of pillow packet **#3**. Carefully re-stopper the bottle and **invert to mix contents**. The precipitate should dissolve and the water might turn yellowish. Some clear crystals may remain un-dissolved.
- 5 Fill the **cylindrical measuring tube** (10 ml, glass) to the 10 ml line with the yellow sample from the round glass bottle. Pour this measured sample into the square-mixing bottle. Do not discard the remainder of the original sample in the D.O. bottle in case you need to rerun the final portion of the test.
- 6 Holding the dropper upright, **add the titrating solution drop by drop** to the prepared sample in the square mixing bottle, gently swirling the sample around in a circular motion after each drop. Count each drop as it is added. Continue to drop and swirl the sample until the **color changes** to clear or colorless. Hold the sample against a white background (such as a paper from the binder) to insure complete color change.
- 7 Each drop of titrating solution used is equal to 0.5 mg/l of dissolved oxygen. To determine the dissolved oxygen concentration, **divide the total numbers of drops used by 2** and record the results on the data sheet. Hence; 16 drops would equal 8 mg/l dissolved oxygen.
- 8 To **calculate % D.O. Saturation** use the attached "Level of oxygen saturation chart" and use the supplied clipboard to make a line between your measured dissolved oxygen (mg/l) and your measured water temperature (centigrade). Where the side of the clipboard intersects the % saturation line (diagonal line) is the percentage of saturation.
- 9 Discard of content in D.O. bottle and square mixing bottle in the "liquid waste bottle" supplied. **Do not pour on the ground!**