



Water Quality Test Procedures

TDS METER CALIBRATION

1. Calibrate meter by rinsing meter twice in calibrated standard.
2. Check that there are no air bubbles on probe. If bubbles are present, swirl meter to dislodge them. Keep meter from touching the sides or bottom of the beaker.
3. Turn meter on. After reading has stabilized (wait 1 min.) record initial value in calibration log.
4. Adjust with screwdriver until reading is the same as the calibration standard. Record standard value in calibration log.
5. Keep standard for post test. Rinse meter with DI water.

AIR TEMPERATURE

1. Place thermometer in the shade.
2. Wait 2-3 min.
3. Record air temperature in degrees C to the nearest 0.5 °C.

WATER TEMPERATURE

1. Place thermometer in the water.
2. Wait 2-3 minutes.
4. Read water temperature with the bulb still in the water.
5. Record water temperature to the nearest 0.5 °C.

DISSOLVED OXYGEN

See handout-wear goggles and gloves

TDS TESTING:

1. Rinse beaker and meter probe twice in water to be tested.
2. Check that there are not air bubbles on probe. If bubbles are present, swirl meter to dislodge them. Keep the meter from touching the side or bottom of the beaker.
3. Record value after reading stabilizes (at least 1 minute).
4. Rinse meter probe with distilled water. Cap and turn off.

POST TEST CALIBRATION (TDS)

1. Place meter in beaker used for calibration.
2. Turn meter on. Do not allow meter to touch the bottom or sides of the beaker during reading.
3. Allow reading to stabilize and record value in the post test space on the data sheet.
4. Rinse meter probe with DI water. Cap and turn off.

pH

1. Rinse test tube and cap twice with water to be tested.
2. Fill a test tube to the 5.0 mL line with sample water.
3. While holding dropper bottle or pipet vertically, add 10 drops of indicator solution.
4. Cap and mix
5. Insert test tube into Octet comparator. Match sample color to a color standard. Record as pH.
6. Dispose of waste in proper waste container.
7. Rinse test tube and cap with distilled water

NITRATE

1. Rinse square test tube and cap twice with water to be tested.
2. Fill the test tube so bottom of meniscus sits on the 5 mL line.
3. Add one Nitrate #1 TesTab. Cap the tube & mix until the tablet has disintegrated.
4. Add a #2 tablet. Mix by inverting test tube until it dissolves.
5. Wait 5 minutes. Using a white background, compare prepared sample with color comparator and record results as ppm Nitrate.
6. Dispose of waste in proper waste container.
7. Rinse test tube and cap with distilled water.

E. coli

1. Label the petri dish with site name, date, and your initials with a permanent marker.
2. Collect water in a sterile container. Perform remaining test in lab. Shake sample 25 times. Using sterile pipette, transfer 3-5mL from the sample container into the bottles of Coliscan Easygel. Swirl the bottle to distribute the inoculum. Keep the sample bottle on ice if in the field longer than 10 min.
3. In the lab-Pour the medium/inoculum mixture into the correctly labeled petri dish and place the lid back on the petri dish.
4. Gently swirl the poured dish until the entire dish is covered with liquid (be careful not to splash over the side or on the lid).
5. The dish may be placed right-side-up directly into a level incubator or warm level spot in the room while still liquid. Solidification will occur in approximately 40 min.
6. Incubate at 35° C (95°F) for 24 hrs. or at room temperature for 48 hrs.
7. See handout and back of sheet for interpreting results.

PHOSPHATE (Optional)

1. Rinse test tube and cap, twice, with water to be tested.
2. Fill a test tube to the 10 mL line with sample water.
3. Use the 1.0 mL pipet to add 1.0 ml of Phosphate Acid Reagent to one test tube. Cap and mix.
4. Use a 0.1 g spoon to add one level measure of Phosphate Reducing Reagent. Cap and mix until dissolved. Wait 5 minutes.
5. Insert test tube into Phosphate Comparator. Match sample color to a color standard.
6. Record as ppm Phosphate.
7. Dispose of waste in proper waste container. Rinse test tube and cap with distilled water.



E. coli

Instructions:

1. Label the petri dish with the appropriate information (Name, Date, Site).
2. Using a sterile pipette, collect 3-5ml of sample water and transfer the water to the Coliscan Easygel.
3. Swirl the bottle to distribute the inoculum and then pour the medium/inoculum mixtures into the labeled petri dish. Place the lid back on to the petri dish.
4. Gently swirl the poured dish until the entire dish is covered with liquid (be careful not to splash over the side or on the lid). Allow the mixture to solidify in the petri dish (try not to disturb the dish).

Interpreting Coliscan Pour Plates (*E. coli*):

1. The dish may be placed right-side-up directly into a level incubator or warm level spot in the room while still liquid. Solidification will occur in approximately 40 min.
2. Incubate upside down at 35° C (95°F) for 24 hrs. or upside down at room temperature for 48 hrs.
3. Count all the purple colonies on the Coliscan dish after 24 or 48 hrs. (disregard any light blue, blue-green or white colonies).
4. Formula for calculating results:
$$\frac{100}{\text{Volume of sample (ml)}} \times \text{\# of colonies counted}$$
5. Record as *E. coli*/100 ml of water

Example:

3 ml sample: $100/3 = 33.3$, So 4 *E. coli* colonies multiplied by 33.3 will equal 133.2 *E. coli* per 100 ml of water.

6. Do one of the following prior to disposal in normal trash (Handle as BIOHAZARDOUS MATERIALS):
 - a. Place dishes and Coliscan bottles in a pressure cooker and cook at 15 lbs. For 15 min. This is the best method.
 - b. Place dishes and Coliscan bottles in an ovenproof bag, seal it, and heat in an oven at 300°F for 45 min.
 - c. Place dishes and Coliscan bottles in a large pan, cover with water and boil for 45 min.
 - d. Place 5 ml (about 1tsp) of straight bleach onto the surface of the medium of each plate. Allow to sit at least 5 min. Place in a watertight bag and discard in trash.