How to use…

Pocket TDS Meter

INSTRUCTION SHEET **For Waterproof Oakton TDSTestr Low or LaMotte Tracer Conductivity/TDS/Salinity**

Testing Location - Field

This test using the TDS instrument should be performed in the field.

Materials

Oakton TDSTestr Low (light brown w/ yellow trim) or LaMotte Tracer (Gray w/ black trim)
TDSTestrLow: Three or four 1.4 volt (or 1.5 volt) batteries
Tracer: SR-44W button batteries
Small wide mouthed sample containers marked A and B
TDSTestrLow: TDS 210 calibration solution (clear)
Tracer: Conductivity 1413 calibration solution (clear)

Testing Background

If properly taken care of, the TDS meters we have provided can quickly give accurate numerical results. Some schools are using the new LaMotte Tracer (gray with black trim), while others have the older Oakton TDSTestr Low (light brown in color with yellow trim).

Calibration Instructions

The meters should be calibrated before each use.)

Oakton TDSTestr Low (light brown, yellow trim)

1. Remove the protective cap from the bottom of the meter. Rinse the metal electrodes at the bottom of the meter with distilled water. Immerse the bottom of the meter .5 to 1 inches (not any deeper!) in the TDS 210 calibration, buffer solution (clear).
2. Press the "on" button. Stir gently and wait for the displayed value to stabilize on one reading. If the stabilized reading is 210, go to step 4. If the reading is not 210, proceed to the next step.
3. Unscrew the top of the meter (battery compartment lid). *While still in the TDS 210 solution*, there are two small white buttons that you *gently* press to adjust the reading to 210. One button increases the value, the other decreases. After 3 seconds of not pressing a button the display will flash 3 times, and then show "ENT". When this occurs, the meter accepts the displayed value as the calibration value (it should be 210). You DO NOT and should not hit the "hold" button at all.

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LaMotte Tracer Conductivity/ Total Dissolved Solids/Salinity (gray, black trim)

1. Take off the bottom cap covering the electrodes.
2. Place the meter in 20 mL of 1413 µS/cm standard calibration solution. Turn the meter on by pressing the ON/OFF button. The meter must be in conductivity mode ("µS" will be displayed above the reading; to change modes, press the MODE button until it switches modes).
3. Press and hold the CAL button for ~2 seconds. "CAL" will appear on the bottom of the screen and 1413 will flash on the screen.
4. The device will automatically recognize and calibrate to the conductivity standard. 1413 will stop flashing and the display will briefly read "SA" and "End". ("SA" will not appear if the calibration fails.)
5. Rinse the meter with distilled water, shake dry, and turn the meter off. Proceed to testing instructions on next page.

4. Turn the meter off before removing it from the solution. Rise it with distilled water and proceed to testing instructions.

Test Instructions:

Oakton TDSTestr Low (light brown, yellow trim)

1. Pour water sample into a small, wide mouth container that the meter can fit into. You only need 1 inch of sample water.
2. While the meter is OFF, remove the protective cap from the bottom. Immerse the bottom of the meter .5 to 1 inches in water sample, just enough that the metal electrodes at the bottom are submerged.
3. Turn the meter ON. Let the display number stabilize. The stabilized display is the TDS value for the water sample. Record this value.
4. Turn the meter OFF and rinse the electrodes. Repeat steps 1 through 3 for Sample B.
5. When finished, make sure the meter is turned OFF. Rinse the metal electrodes on the bottom with distilled water and replace the cap.

LaMotte Tracer Conductivity/ Total Dissolved Solids/Salinity (gray, black trim)

1. Pour water sample into a small, wide mouth container that the meter can fit into. You only need 1 inch of sample water.
2. While the meter is OFF, remove the protective cap from the bottom. Immerse the bottom of the meter .5 to 1 inches in water sample, just enough that the metal electrodes at the bottom are submerged.
3. Press the **ON/OFF** button to turn on the meter- **SELF CAL** will flash on the display.
4. Press and hold the **MODE** button until you see the **TDS** on the bottom of the display and **ppm** in the top left corner. (*There should not be an "S" above the reading- that is the salinity mode and is not used*).
5. Allow the reading to stabilize, then record the TDS measurement on the data sheet.
6. If you also need a conductivity reading: Check to see that meter is in CONDUCTIVITY MODE (**µS** *should be displayed above the reading*). *To change modes, press and hold the* ***MODE*** *button until the correct units appear*.
7. Allow the reading to stabilize, then record the CONDUCTIVITY on the data sheet.
8. Rinse the meter with distilled water, shake dry & press **ON/OFF** button to turn off and replace cap.

Disposal and Clean Up

Calibration solution should be replaced after 4 sampling events/dates. Calibration solution can be flushed down the sink with plenty of water. Properly dispose of expired batteries; you can give them to Creek Connections.

Safety Precautions

Normal safety precautions should be taken when handling the water sample, buffer solution and the equipment to avoid breakage.

Trouble Shooting Tips

METER DOES NOT TURN ON

1. Check batteries. Make sure they are installed properly (see Changing Batteries instructions below).
2. If still not working, install new batteries (see Changing Batteries instructions below).
3. If the meter does not work after replacing batteries, recheck the direction of the batteries in the meter. Reversed batteries in meter will result in failure of the meter to work. If the new batteries are in the correct position, check to see if the red or black wires connecting to the battery compartment are broken. If they are broken, *you need to replace your meter*.
4. If the batteries are new and the meter is still not working, the battery contacts may be corroded or dirty. Check the metal contacts that the batteries fit between and look for rust or other oxidation. Clean them with isopropyl alcohol. You may need to carefully scrap away rust or dirt with a flathead screwdriver or pair of scissors. Replace batteries and try again.
5. If the meter still does not turn on, *you need to replace your meter.*

THE NUMBERS ARE FAINT OR DISAPPEAR

1. If the readout numbers are faint or disappear while meter is on and while it is IN a solution or if the meter's low battery indicator symbol appears, then the batteries need to be replaced (see Changing Batteries Section below).

METER WILL NOT CALIBRATE

1. Did you take the cap off the meter?
2. For both types of meters, if the digital reading does not stabilize when calibrating… rinse the metal electrodes with distilled water before calibrating. Make sure the meter is in <u>new</u> calibration solution (this should be replaced after a 3 or 4 creek trips). Make sure the meter is actually IN the calibration solution when turning the correct calibration screw on the back; numbers will go crazy if the meter is on while in the air and not in a solution. Before removing from any solution or sample, shut the meter off. After addressing these, if the reading still does not stabilize at all, the batteries may need to be replaced (see Battery Changing Section below).
3. If air bubbles are trapped near electrodes, tap the meter or stir sample to release the air bubbles.

NUMBERS ON METER WILL NOT STABILIZE IN A <u>SAMPLE</u>

1. Did you take the cap off the meter?
2. Do you have fresh calibration solution?
3. Just wait. It takes some time for the meter to stabilize. After a few minutes, if the readout number does not stabilize (it is "jumping around" still), shut off the meter, remove from the sample, and then rinse the meter's metal electrodes thoroughly with distilled water and try again.
4. If readout still does not stabilize, the batteries may need to be replaced (see Changing Batteries Section below).
4. If the batteries are new, installed correctly, the contacts and wiring are in good condition, and the readout still does not stabilize, then the electrodes may need cleaned more thoroughly. Long term care of the meter states that you should soak the stainless steel electrodes periodically in isopropyl alcohol for 10-15 minutes. This will help remove any buildup on the electrodes. Do this, rinse electrodes with water then try your sample again later.

METER STILL NOT WORKING

If you have done all of the above and the meter is still malfunctioning, contact Creek Connections for a replacement meter.

CHANGING BATTERIES

1. Open the top battery compartment lid carefully on top of the meter. Remove old batteries (give them to your teacher for proper disposal).
2. Replace the batteries with new ones noting polarity (+ and -) inside the meter and on the batteries. The red wire is the positive (+) side; black wire, negative (-).

What batteries to use: They are hearing aid batteries often found in pharmacies. Shop for 1.4 volt Eveready EP675E or EP675HP, Duracell DA675, or most any other 1.4 volt (or 1.5 volt) brand with the number 675 in its name. In the TDSTestr LOW, Eveready A76BP are supplied in meter, but the above mentioned batteries should also work. Tracer uses 1 SR-44W button battery.

LONG TERM CARE TIPS

1. Make sure the meter is turned off after each use. DO NOT have meter turned on unless it is in a solution, having it on when the electrodes are in the air is bad.
2. Rinse the electrodes thoroughly with distilled water after each use. It is okay to store the meter with some moisture in the electrode cap.
3. To improve meter performance and accuracy, periodically rinse/soak the metal electrodes in isopropyl alcohol for 10-15 minutes to help clean them.
4. Do not expose meters to excess moisture. Store in a dry place. Do not drop meter in the creek or leave out in rain.
5. Make sure students CAREFULLY calibrate the meter.

This instructions sheet was adapted from the instructions for the Oakton TDS Testr Low Waterproof and LaMotte Tracer as well as from Creek Connections staff observations.