

**KEEP ALL EQUIPMENT RINSED AND CLEAN TO ENSURE ACCURATE RESULTS WHILE MONITORING.**

If the results of a particular test seem out of range for your area, run the test again to make sure there was no human error. If the results were similarly odd, the following is an ordered list of possible problems:

**1. Reagents no longer viable**

- Analysis should be repeated using reagents of known quality.

**2. Equipment malfunction**

- Troubleshoot following manufacturers instructions (i.e.: replace batteries, clean measuring device, etc).

**3. Analyst error**

- A fellow Level 2 volunteer should observe the monitor's technique.

**Dissolved Oxygen**

-When filling the dissolved Oxygen bottle, be sure to fill the bottle slightly above the bottom of the frosted glass to avoid trapping air bubbles when inserting the glass stopper. After adding Dissolved Oxygen (D.O.) chemicals 1 and 2 (steps 1 & 2 of the instructions) and inserting the stopper, if there is an air bubble present you may do the following **IF** you have not shaken the bottle. Add a little stream water to the bottle to displace the water volume so that no bubbles (extra oxygen) will be present when inserting the glass stopper. However, if you have already shaken the sample bottle with the chemicals and come up with a bubble after this step, you will need to start your analysis over with a new sample.

- Securely hold the top stopper of the bottle while you vigorously shake the bottle to thoroughly mix the sample and the chemicals.
- Hold the dropper vertically to ensure the drops are always the same size.
- Use a white piece of paper behind your sample when you add sodium thiosulfate to turn the sample from yellow to clear. This will help you to see the end point easier.

## Nitrate

- Position yourself to have the wind at your side, so the nitrate reducing reagent will not be accidentally blown in your face and ingested.
- **Always** cap the nitrate reducing reagent tightly. Save the brown tape that came with the nitrate reagent bottle to re-tape the bottle when finished. Since this reagent is hydrophilic and will absorb any moisture in the air, the tape helps keep moisture out of the bottle.
- Keep the spoon used for measuring the reagent clean and free of debris, this allows accurate measurement of the chemical into the solution.
- Use exact measurements.

## pH

- If you have not used your pH meter recently, re-hydrate your meter by soaking the end of the meter in pH 7 buffer solution at least 12 hours before monitoring.
- Always calibrate before you monitor using 2 point calibration. If you are going to monitor multiple sites you will only have to calibrate once in the morning prior to monitoring. Always calibrate your meter using 7.0 and 10.0 buffer solution.
- To help keep the bulb of the meter hydrated, put a small piece of a paper towel with 7.0 calibration solution in the cap of the meter.

## Conductivity

- After receiving a new conductivity meter, remove the electrode cap and soak the end of the meter for a few minutes in rubbing alcohol to remove oils.
- Calibrate your meter with Sodium Chloride Standard Solution to 1000  $\mu\text{s}/\text{cm}$  prior to each sampling event.

## Temperature

- Measure the air temperature before measuring the water temperature.
- Read the water temperature while the thermometer is in the water to guarantee an exact reading.

## How Old Are Your Chemicals?

Look at the expiration dates on the following chemicals. If your chemicals are expired you will need to order new ones.

- Dissolved Oxygen (D.O.) chemicals 1 and 2. Expiration dates are on the foil packets.
- Nitrate Reducing Reagent (the small bottle of powder in the LaMotte Nitrate Kit). The expiration date is on the side of the bottle. If the reagent becomes clumped or damp, replace it!
- Conductivity and pH calibration standards. The expiration date is on the side of the bottle. Replace them every two years.

**Note: Sometimes the calibration standards do not have an expiration date on them (like D.O. chemical 3). When you receive a new standard, write the date received on the side of the bottle with a permanent ink marker.**

To order new reagents simply call us at 1-800-781-1989 or email us at [StreamTeam@mdc.mo.gov](mailto:StreamTeam@mdc.mo.gov) leaving your name with name, address (street address only, UPS will not deliver to a P.O. Box) and the chemicals you need. Or use the online chemical replacement form at <http://www.mostreamteam.org/kitform.htm>.

You can look up your Hach chemical's (D.O., pH, Conductivity) expiration dates online at Hach's website [www.hach.com](http://www.hach.com). Got to "tools" at the top of the tool bar and click on it to open the next page. At the bottom of the new page you will see a tool bar "Reagent Expiration Date Download". The information requested will be on the chemical reagents package.