

TIPS FOR CHEMICAL MONITORING EQUIPMENT

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 are no longer viable

Analysis should be repeated using reagents of known quality.

2. Equipment malfunction

Troubleshoot following manufacturer's instructions (i.e. replace batteries, clean measuring device, etc.).

3. Analyst error

Ask assistance from another monitor or staff.

Dissolved Oxygen

- When filling the round, stoppered dissolved oxygen bottle, be sure to fill the bottle to the top of the frosted portion of the glass. Do not insert stopper after filling with water until after adding both dissolved oxygen 1 and 2 reagents. The reagent packets contain excess chemical, so it will not affect the reaction if there is a little spill-over upon stoppering the bottle. If there are air bubbles present inside the bottle at this time, you will need to start your analysis over with a new sample.
- Securely hold the stopper in place while you vigorously shake the bottle to thoroughly mix the sample and chemicals.
- Hold the sodium thiosulfate dropper vertically to ensure the drops are the same size and do not adhere to the side of the glass titration bottle.
- Use a white background, such as the dissolved oxygen 3 plastic canister, behind your sample during titration. This will help you see the end point easier.

Nitrate

- Position yourself to have the wind at your side to avoid accidental exposure to any airborne chemical.
- Always cap the nitrate reducing reagent tightly. This reagent is hydrophilic and will absorb any moisture in the air. Retaping the reagent bottle with the original brown tape helps keep moisture out of the bottle.
- Take the nitrate reading at exactly ten minutes. The chemicals will continue to react, resulting in a darker solution and an inaccurate reading.

pH

- Always calibrate the pH meter within 12 hours of monitor using a 2-point calibration of 7.00 and 10.01 pH buffer solutions. Before calibration, soak probes in water for several minutes. Soaking probes will also remove white residue from built up potassium chloride.

Conductivity

- Always calibrate the conductivity meter within 12 hours of monitor using 1413 µS/cm sodium chloride solution.

Temperature

- Take all temperature measurements in the shade, if possible.
- Measure air temperature before measuring water temperature.
- While reading water temperature, keep thermometer underwater to ensure an accurate measurement.

How Old Are Your Chemicals?

Look at the expiration dates on all reagents and buffer solutions. If any chemicals are expired, contact Stream Team staff to order new chemicals.

- Dissolved oxygen 1 and 2 reagents – Expiration dates are on the foil packets. Once expired, dispose of sealed packets in the trash.
- Dissolved oxygen 3 reagent – Expiration date is on the side of the plastic canister. Once expired, disposed of sealed pillow packets in the trash.
- Conductivity and pH calibration solutions, sodium thiosulfate, and mixed acid – Expiration dates are on the side of the bottles. If bottles are left in extreme temperatures, become discolored, or expired, flush down a sink with ample cold water.
- Nitrate reducing reagent – Expiration date is on the side of the bottle. If the reagent becomes clumped, discolored, or expired, return remaining product to Stream Team staff and request a replacement.

To order new reagents, simply place an online chemical order request at www.mostreamteam.org.

You may also email streamteam@mdc.mo.gov or streamteam@dnr.mo.gov or call 800/781-1989. Be sure to leave your name, phone number, mailing address (no PO Box), and chemicals needed.