CHEMICAL MONITORING TIPS

Store chemicals in dry, temperature controlled spaces and keep all equipment rinsed and clean to ensure accurate results.

If results are out of range or abnormal for your site, repeat the test. The following is a list of common problems. If a water quality concern is suspected, contact VWQM staff at 800-781-1989.

A. **Reagents are no longer viable**
   Analysis should be repeated using reagents of known quality.
B. **Equipment malfunction**
   Troubleshoot following manufacturer's instructions and inspect equipment for damage.
C. **Analyst error**
   Ask assistance from another monitor or VWQM staff.

Dissolved Oxygen

- It is essential to ensure no air bubbles are present within the sample bottle while the chemical reaction is occurring. Fill the sample bottle to the middle of the frosted neck. Do not stopper the bottle until after DO 1 and DO 2 are added. The reagent packets contain more reagent than what is needed for sampling Missouri streams; a little spill-over will not affect the test.
- Securely hold the stopper in place while vigorously shaking the sample bottle.
- During titration, hold the sodium thiosulfate dropper vertically to ensure drops are the same size and do not run down the side of the square titration bottle. Squeeze the dropper bulb firmly and quickly to give a full drop. Practice a few times before beginning the titration.
- Hold the square titration bottle against a white background, like the DO 3 container, to better see the sample clarity.

Nitrate

- Do not conduct this test in windy conditions or while pregnant.
- Keep nitrate reducing reagent capped and sealed with provided tape. This reagent is hydrophilic and will absorb moisture from the air.
- Read nitrate results at exactly 10 minutes. The chemicals will continue to react, resulting in a deeper color and an inaccurate reading.

pH

- Calibrate the pH meter within 12 hours of monitoring using a 2-point calibration of pH 7.00 and 10.01 buffer solutions.
- Prior to calibration, condition pH bulb by soaking in tap water or buffer solution for several minutes. This will also remove white residue from leached potassium chloride.
- Routinely inspect the bulb to ensure it appears to be full of electrolyte solution. During shipping or transport, a bubble may appear in the meter's bulb. To remove bubbles, swing the meter in a downward motion.
- Take pH readings in the stream where there is some flow. Be patient with readings and allow the meter to fully stabilize.

Conductivity

- Calibrate the conductivity meter within 12 hours of monitoring using 1413 µS/cm calibration solution for Hach Pocket Pro meters or 1000 µS/cm calibration solution for all other meters.
- If meter is reading too low and will not calibrate, clean the probes by soaking in tap water with one drop of dish soap for a few hours, swirling occasionally.
- Take conductivity readings in the stream where there is some flow.

Temperature

- Take all temperature measurements in the shade.
- Measure air temperature before water temperature.
- Read water temperature while thermometer is in the water.

Replacing Chemicals

Check expiration dates on all chemicals at least three weeks prior to monitoring. Dispose or return chemicals according to the table below:

KIT	PRODUCT	DISPOSAL
DO	DO 1 Reagent	Dispose of packets, unopened, in trash receptacle.
	DO 2 Reagent	Return material to Missouri Stream Team Program for proper disposal in accordance to federal, state, and local regulations. Should not be released into the environment.
	DO 3 Powder Pillows	Dispose of packets, unopened, in trash receptacle.
	Sodium Thiosulfate	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.
NO3	Mixed Acid Reagent	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.
	Nitrate Reducing Reagent	Return material to Missouri Stream Team Program for proper disposal in accordance to federal, state, and local regulations. Should not be released into the environment.
pH	Buffer Solution pH 4	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.
	Buffer Solution pH 7	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.
	Buffer Solution pH 10	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.
Cond.	Sodium Chloride	Open cold water tap completely, slowly pour the material to the drain. Flush with plenty of cold water.

Order new reagents and equipment online at mostreamteam.org.

You may also contact streamteam@mdc.mo.gov or 800-781-1989.