

	<p>How to use... <b>Sulfate Kit</b> (Hach Model SF-1) INSTRUCTION SHEET</p>	
---	---	---

**Testing Location** – Field or Laboratory

If the sample is kept to conduct the test later in the laboratory, be sure to refrigerate the sample. It is best to conduct the test within 24 hours of collecting the water.

**Materials**

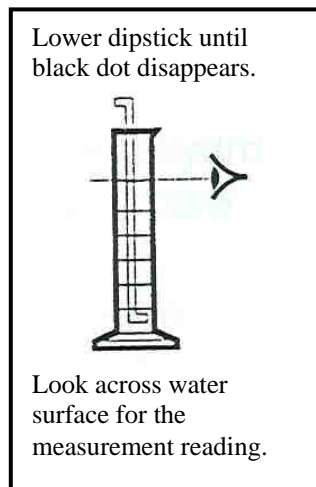
- Sulfa Ver 4 Powder Pillows
- 1 square plastic mixing bottle with lid
- 1 plastic 25 mL graduated cylinder
- 1 sulfate measuring dipstick (not a person, but a plastic stick with numbers)
- Clippers or scissors

**Testing Background**

This test is an optional test for classes participating in the project. This is a low cost test that only provides a narrow range of results. Broader ranged results would require more expensive testing methods.

**Testing Instructions**

1. Fill the square plastic mixing bottle to the 25 mL line with sample water.
2. Add the contents of one Sulfa Ver 4 Powder Pillow to the mixing bottle. Place the cap on the mixing bottle and shake for 15 seconds. A white precipitate (cloud) will appear if sulfate is present. Allow the sample to sit undisturbed for 5 minutes.
3. After 5 minutes, invert the bottle (turn upside down) to mix any solids left on the bottom. Remove the cap and pour all the contents into the CLEAN 25 mL graduated cylinder. The volume may be more than 25 mL now.
4. Hold the graduated cylinder vertically. Look straight down into the cylinder and slowly insert the sulfate-measuring dipstick down into the cylinder until the black dot visually disappears completely. At the exact point, hold the dipstick steady and still.
5. It is time to read the concentration of sulfate. Raise the cylinder to eye level from the side, but keep that dipstick still. Look across the top surface of the cloudy sample water and read the black number value on the dipstick. Read the number that corresponds closest to the top of the sample water, don't use any of the measurement lines on the graduated cylinder for this reading. Double check this several times to make sure the dipstick has not moved. Record this number on the data sheet.



6. If the black dot disappears quickly before the first test mark (200 mg/L), the concentration of sulfate is greater than 200 mg/L (no specific number can be determined). If the black dot does not disappear at the bottom of the cylinder, the sulfate concentration is less than 50 mg/L (no specific number can be determined).

### **Disposal and Clean Up**

The cloudy sample waste should be placed in a specially marked container “Sulfate Test Waste” because it contains barium, a hazardous waste that should not be dumped out on the ground or down a sink. Collect this waste throughout the year, and you can give it to Allegheny College at the end of the year for proper disposal. Do not use a recycled beverage container for this collection to avoid confusion.

Make sure you clean the graduated cylinder because if it is dirty, it will affect the test results. Clean all other equipment also with distilled water.

### **Safety Precautions**

The chemical in this kit may be hazardous to the health and safety of the user if inappropriately handled. Please read the warning on the package before performing the test. Use appropriate safety equipment and normal precautions.

*This test sheet was adapted from instructions from the HACH Company (Loveland, Colorado) Sulfate Test Kit Model SF-1*