

## HI 38000 Sulfate Test Kit

**HANNA**  
instruments  
www.hannainst.com

Dear Customer,  
Thank you for choosing a Hanna Product.  
Please read the instructions carefully before using the chemical test kit. It will provide you with the necessary information for correct use of the kit.

Remove the chemical test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- HI 38000A-0 Sulfate Reagent, packets (100 pcs);
- HI 38000B-0 Sulfate Reagent, 1 bottle (53 g);
- Complexing Agent, 1 bottle with dropper (10 mL);
- 1 glass test tube (50 mL);
- 1 plastic vessel (50 mL);
- 1 plastic pipette (3 mL);
- 1 spoon.

**Note:** Any damaged or defective item must be returned in its original packing materials.

ISTR38000 10/99 PRINTED IN ITALY

### SPECIFICATIONS

|                    |  |
|--------------------|--|
| Range              | 20 to 100 mg/L (ppm) as Sulfate                          |
| Smallest Increment | 5 mg/L from 20 to 30 mg/L<br>10 mg/L from 30 to 100 mg/L |
| Analysis Method    | Turbidimetric  |
| Sample Size        | 50 mL  |
| Number of Tests    | 100  |
| Case Dimensions    | 275x57x78 mm (10.8x2.2x3.1")                             |
| Shipping Weight    | 290 g (10.2 oz.)   |

### SIGNIFICANCE AND USE

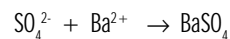
Sulfate is largely present in natural waters in a wide range of concentrations. It is not toxic but has to be kept below a certain threshold to prevent it from creating an unpleasant taste in water. The concentrations are particularly higher close to mine run-off water. Sulfate is extensively used as a nutrient in agriculture.

The procedure for determining sulfate is a modification of the Barium Sulfate Turbidimetric Method.

**Note:** mg/L is equivalent to ppm (parts per million).

### CHEMICAL REACTION

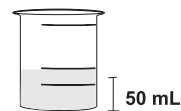
Sulfate is precipitated as barium sulfate by reaction with barium chloride in acidic medium. The turbidity is proportional to the concentration of sulfate:



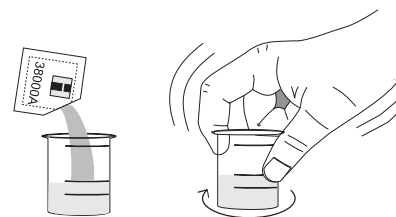
### INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

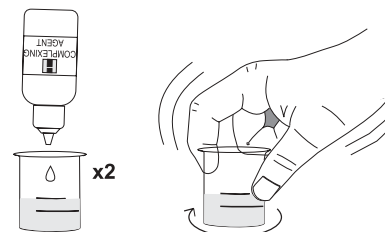
- Fill the plastic vessel with 50 mL of the sample, up to the mark.



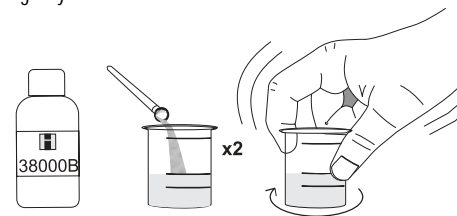
- Add 1 packet of HI 38000A-0 Sulfate Reagent and swirl gently to dissolve.



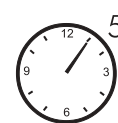
- Add 2 drops of Complexing Agent and swirl to mix.



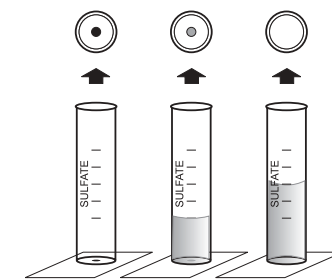
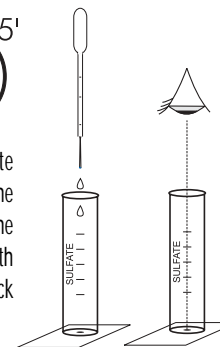
- Add two spoons of HI 38000B-0 reagent and swirl gently to mix.



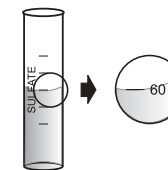
- Wait for 5 minutes to allow reaction to occur.



- Keep the test tube on a white surface and look from the top at the black spot on the bottom. Use the plastic pipette to fill the tube with the reacted sample until the black spot has completely disappeared.



- Read the concentration in mg/L (ppm) of Sulfate, in correspondence of the level of the liquid in the test tube.



**Note:** In the case the spot on the bottom disappears with the liquid level under the 100 ppm mark, the sulfate concentration is higher than 100 ppm; in the case the spot disappears with the liquid level above the 20 ppm mark, the sulfate concentration is lower than 20 ppm.

**Note:** To measure Sulfate in the 100 to 10000 ppm range, use the HI 38001 Sulfate Low and High Range Test Kit.

### REFERENCES

Adaptation of the Barium Sulfate Turbidimetric Method.

### HEALTH AND SAFETY

The chemicals contained in this kit may be hazardous if improperly handled. Read Health and Safety Data Sheet before performing this test.