



1200 COLORIMETER

SULFATE

MODEL 1200-SU • CODE 3683-01

QUANTITY	CONTENTS	CODE
10 g	*Sulfate Reagent	*V-6277-D
1	Colorimeter Tubes, with caps	0290-6
1	Spoon, 0.1 g, plastic	0699
1	Water Sample Collecting Bottle	0688
1	1200 Colorimeter for Sulfate	26740

***WARNING:** Reagents marked with a * are considered hazardous substances. Material Safety Data Sheets (MSDS) are supplied for these reagents. For your safety, read label and accompanying MSDS before using.

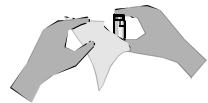
To order individual reagents or test kit components, use the specified code number.

SULFATE INTRODUCTION

The most common mineral forms of sulfur are iron sulfide, lead sulfide, zinc sulfide, calcium sulfate and magnesium sulfate. In most fresh waters, the sulfate ion is the second or third most abundant anion, being exceeded only by bicarbonate and, in some cases, silicate. Sulfur, in the form of sulfate, is considered an important nutrient element. Mineral springs are rich in sulfate and feed appreciable quantities of this compound to the watershed. Acid mine water drainage is a form of pollution which may contribute extremely large amounts of sulfate content to natural waters. Other sources of sulfate include waste material from pulp mills, steel mills, food processing operations and municipal wastes. Many bacteria obtain sulfur from sulfate for the synthesis of amino acids. In lakes and streams low in oxygen, this process of sulfate reduction causes the production of hydrogen sulfide, with its characteristic offensive odor. Calcium sulfate and magnesium sulfate contribute significantly to the hardness of water. Under natural conditions, the quantities ordinarily to be expected in lakes are between 3 and 30 parts per million.

SULFATE TEST PROCEDURE - BARIUM CHLORIDE METHOD

Read the 1200 Colorimeter Manual before proceeding. Carefully wipe tubes dry before inserting into the colorimeter chamber.



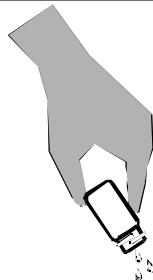
SULFATE

1.



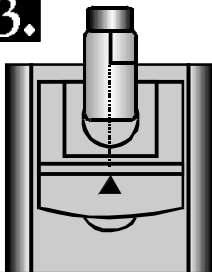
Fill the Water Sample Collecting Bottle (0688) with sample water. This will be used to dispense sample water for the tests.

2.



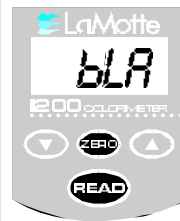
Rinse and fill a colorimeter tube (0290) to the 10 mL line with sample water. Cap and wipe dry.

3.



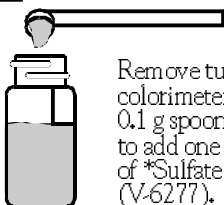
Insert the tube into the chamber, being sure to align the index line with the arrow on the meter. Close the lid. This tube is the blank or zero.

4.



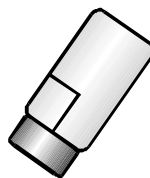
Push the **READ** button to turn the meter on. Press the **ZERO** button and hold it for 2 seconds until **bLA** is displayed. Release the button to take a zero reading (0.00 ppm).

5.



Remove tube from colorimeter. Use the 0.1 g spoon (0699) to add one measure of *Sulfate Reagent (V-6277).

6.



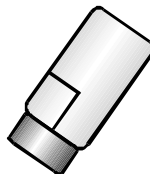
Cap and shake vigorously for 15 seconds. A white precipitate will develop if sulfates are present.

7.



Wait 5 minutes.

8.

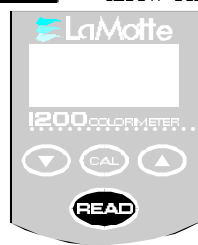


Invert the tube to mix again.

9.

Align the index line with the arrow on the meter, insert

tube into chamber. Close the lid. Push the **READ** button. Record results as ppm Sulfate.



Note:

A white film is deposited on the inside of test tubes as a result of the sulfate test. Thoroughly clean and rinse test tubes after each test.

Note:

The Sulfate test is sensitive to temperature. Best results will be obtained if the water sample is 20° - 23°C.

SULFATE TEST METHOD SPECIFICATIONS

APPLICATION

Drinking and surface; domestic and industrial wastes.

RANGE

5 to 100 ppm Sulfate

METHOD

Sulfate ion is precipitated in an acid medium with barium chloride to form a barium sulfate suspension in proportion to the amount of sulfate present.

HANDLING & PRESERVATION

Sulfate samples may be preserved by refrigeration at 4°C up to 7 days in glass or plastic containers without any change in concentration.

INTERFERENCES

Suspended matter and color interference may be removed by a filtration step. Silica in excess of 500 mg/L will interfere.

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