Palintest
Water Analysis Technologies

Photometer Method

AUTOMATIC WAVELENGTH SELECTION

0 – 200 mg/l

SULFATE

TEST FOR SULFATE IN NATURAL AND TREATED WATERS

Sulfates occur naturally in many waters. Sulfates are introduced into treated waters by the use of such chemicals as aluminium sulfate, sodium bisulfate (dry acid) and sullfauric acid. The presence of high levels of sulfate can be undesirable for a number of reasons.

In industrial waters containing sulfate localised corrosion of iron, steel and aluminium in plant and pipe work can occur through the action of sulfate-reducing bacteria. These bacteria, which generate sullfaides, cause a characteristic pitting of the metal surface.

High sulfate levels can also cause damage to concrete and cement based materials through the formation of calcium sullfaoaluminate. This causes expansion and crumbling of the cement. It can affect concrete structures and pipes in water distribution systems carrying sulfate-bearing ground waters; and can attack grouting in tiled swimming pools using sodium bisulfate for pH adjustment.

The Palintest Sulfate test provides a simple method of measuring sulfates over the range 0 - 200 mg/l SO_4. Higher levels may be determined by diluting the sample.

Method

The Palintest Sulfate test is based on a single tablet reagent containing barium chloride in a slightly acidic formulation. Barium salts react with sulfates to form insoluble barium sulfate. At the sulfate levels encountered in the test, this is observed as turbidity in the test sample. The degree of turbidity is proportional to the sulfate concentration and is measured using a Palintest Photometer.

Reagents and Equipment

Palintest Sulfate Turb Tablets
Palintest Automatic Wavelength Selection Photometer
Round Test Tubes, 10 ml glass (PT 595)

Test Procedure

1 Fill test tube with sample to the 10 ml mark.

2 Add one Sulfate Turb tablet, crush and mix to dissolve. A cloudy solution indicates the presence of sulfate.

3 Stand for one minute then mix again to ensure uniformity.

4 Select Phot 32 on Photometer.

5 Take Photometer reading in usual manner (see Photometer instructions).

6 The result is displayed as mg/l SO_4.

Caution

Palintest Sulfate (Turb) tablets each contain 20 mg Barium Chloride. These tablets are harmful if ingested. Avoid handling tablets whenever possible and wash hands after use.