

SULPHATE

TEST FOR SULPHATE IN NATURAL AND TREATED WATERS

Photometer Method

**AUTOMATIC
WAVELENGTH
SELECTION**

0 – 200 mg/l

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

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

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

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

Method

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

Reagents and Equipment

Palintest Sulphate 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 Sulphate Turb tablet, crush and mix to dissolve. A cloudy solution indicates the presence of sulphate.
- 3 Stand for five minutes 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 SO₄.

Caution

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