

# SULPHITE (SULPHITEST)

## TEST FOR SULPHITE IN BOILER WATER

### Photometer Method

### AUTOMATIC WAVELENGTH SELECTION

0 – 500 mg/l  $\text{Na}_2\text{SO}_3$

Oxygen is a major cause of corrosion in boilers and steam raising plant. Sodium sulphite and catalysed sulphite formulations are extensively used as oxygen scavengers in boiler water treatment.

The Palintest Sulphitest test provides a simple means of measuring sulphite levels for the control of such treatments in boiler plant. The test covers the range 0 - 500 mg/l  $\text{Na}_2\text{SO}_3$ .

### Method

The Palintest Sulphitest method is based on a colorimetric procedure involving the reduction of an indicator dye. Sulphites react with the indicator dye under buffered conditions to destroy the original purple coloration. With increasing sulphite concentrations a range of colours from purple to colourless is produced.

An advantage of the Sulphitest method is that it does not respond to other reducing species as do traditional iodometric methods.

The degree of colour loss observed in the test is proportional to the sulphite concentration and is measured using a Palintest Photometer.

### Reagents and Equipment

Palintest Sulphitest No 1 Tablets

Palintest Sulphitest No 2 Tablets

Palintest Automatic Wavelength Selection Photometer

Round Test Tubes, 10 ml glass (PT 595)

## Test Procedure

- 1 Filter sample if necessary to obtain a clear solution.
- 2 Fill the test tube with sample to the 10 ml mark.
- 3 Add one Sulphitest No 1 tablet, crush and mix to dissolve.
- 4 Add one Sulphitest No 2 tablet, crush and mix to dissolve. Cap tube immediately.
- 5 Stand for two minutes to allow full colour reduction to take place.
- 6 Select Phot 34 on the Photometer.
- 7 Take Photometer reading in the usual manner (see Photometer instructions).
- 8 The result is displayed as mg/l  $\text{Na}_2\text{SO}_3$ .

## Note

Equipment should be washed immediately after use, with a detergent if necessary, to prevent staining.

Sulphite concentrations may be expressed as mg/l  $\text{SO}_3$ . To convert from mg/l  $\text{Na}_2\text{SO}_3$  to mg/l  $\text{SO}_3$  multiply by 0.63.

## Interferences

- 1 This test is not affected by the presence of other reducing species such as nitrite (up to 200 mg/l) ferrous iron (up to 20 mg/l) and sulphide (up to 10 mg/l); or by the presence of polyacrylates.
  - 2 Chlorine up to 250 mg/l does not cause interference. However, since sulphite and chlorine do not normally co-exist, the test will not usually be carried out in the presence of chlorine.
  - 3 The test gives low results if used in the presence of tannic acid or tannin treated waters.
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