

SULFITE (SULFITEST)

TEST FOR SULFITE IN BOILER WATER

Photometer Method

**AUTOMATIC
WAVELENGTH
SELECTION**

0 – 500 mg/l Na₂SO₃

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

The Palintest Sulfitest test provides a simple means of measuring sulfite levels for the control of such treatments in boiler plant. The test covers the range 0 - 500 mg/l Na₂SO₃.

Method

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

An advantage of the Sulfitest 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 sulfite concentration and is measured using a Palintest Photometer.

Reagents and Equipment

Palintest Sulfitest No 1 Tablets

Palintest Sulfitest 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 Sulfitest No 1 tablet, crush and mix to dissolve.
- 4 Add one Sulfitest 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 Na_2SO_3 .

Note

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

Sulfite concentrations may be expressed as mg/l SO_3 . To convert from mg/l Na_2SO_3 to mg/l 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 sulfide (up to 10 mg/l); or by the presence of polyacrylates.
 - 2 Chlorine up to 250 mg/l does not cause interference. However, since sulfite 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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