

SULPHITE METHOD 1

Using Potassium Iodide/Iodate

INTRODUCTION

Sulphites are encountered in industrial wastes, in boiler water, and in water exposed to atmospheres containing sulphur dioxide. Solutions of sulphur dioxide are also used in certain bleaching processes, and in preserving foodstuffs.

PRINCIPLE OF THE METHOD

The test is based on the quantitative reaction between sulphites and excess iodine in acid conditions, and the standards are matched against the residual colour obtained when a constant amount of iodine is reacted with different amounts of Sulphite. All substances reacting with iodine under the conditions of the test will interfere, and hence, e.g. nitrites and sulphides must be absent. The sample must be oxygen free.

REAGENTS REQUIRED

1. **Potassium Iodide Solution 0.1M** (16.6g of KI per litre)
2. **Potassium Iodate Solution M/240** (0.892 g of KIO_3 per litre)
3. **Hydrochloric Acid (HCl) Analytical Reagent Grade (wt.per ml at 20°C 1.18 g)**

THE STANDARD LOVIBOND COMPARATOR DISC 3/123 AND NESSLERISER DISC NOB

Disc 3/123. Covers the range from 5 to 50mg./l. of Sodium Sulphite (Na_2SO_3) using a 25ml. sample. The disc is used with 40mm. cells.

Disc NOB. Covers the range from 2 to 50mg./l. Sodium Sulphite (Na_2SO_3) using a 25ml. sample. The disc is used with 50ml. Nessler Cylinders.

To obtain concentrations in terms of SO_2 divide the disc readings by 2. The range for disc 3/123 is therefore 2.5 to 25mg./l. SO_2 , based on a 25ml. sample, and for disc NOB is 1 to 25mg./l. SO_2 , again based on a 25ml. sample.

METHOD

Disc 3/123

1. Measure 1.0ml. of Potassium Iodate Solution, 1.0ml. of Potassium Iodide Solution and 0.5ml. of Hydrochloric Acid, in that order, into a 50ml. Nessler cylinder or beaker.
2. Add 25ml. of the sample and mix thoroughly then allow to stand for 5 minutes.
3. Pour the solution into a 40mm. cell and place this in the right-hand compartment of a Lovibond Comparator. A blank of deionised water is placed in the left-hand compartment.
4. Place the Comparator facing a standard source of white light, such as the Lovibond Daylight 2000 Unit, or failing this, North daylight (not fluorescent lighting), and rotate the disc until the nearest colour match is obtained.
5. The figure displayed in the bottom right hand corner of the Comparator is the concentration, in mg./l. as Na_2SO_3 , when a 25ml. sample is used.

Disc NOB

1. Measure 1.0 ml. of Potassium Iodate Solution, 1.0 ml. of potassium iodide solution and 0.5ml. of Hydrochloric acid, in that order, into a 50ml. Nessler Cylinder.
2. Add 25ml. of the sample, mix well and dilute to the 50ml. line with deionised water. Allow to stand for 15 minutes.
3. Place the cylinder in the right hand compartment of a Lovibond Nessleriser 2150 and a cylinder containing deionised water in the left hand compartment.
4. Match the colour against the disc using either the Lovibond Daylight 2000 Unit or, failing this, North daylight (not fluorescent lighting).
5. The figure displayed in the bottom right hand corner is the concentration, in mg. /l. as Na₂SO₃, when a 25ml. sample is used.

REVISION HISTORY

Date	Change Note	Issue
20/06/02	36/460	2
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