

## Methods

Sulfite is not usually present in surface waters. If sulfite is discharged in effluents or from domestic wastewaters, it readily oxidizes to form sulfate. Sodium sulfite is the most common form of sulfite and is an excellent reducing agent with applications as an oxygen scavenger. Sulfite concentrations in boiler and process waters must be monitored routinely to avoid overtreatment. Waste treatment plants that use sulfur dioxide to remove excess chlorine must monitor their effluents for sulfite.

Sulfites have been used for centuries to sanitize and preserve foods. They are used worldwide in the wine industry as antioxidant and antimicrobial agents. However, sulfites have been identified as causative agents in certain allergic reactions suffered by asthmatics. As a result, the FDA and the Bureau of Alcohol, Tobacco, and Firearms have mandated that sulfites in foods and beverages, at levels of 10 ppm or higher, be identified on the label.

### The Iodometric Method (Sulfite)

References: ASTM D 1339-84, Sulfite Ion in Water, Test Method C. APHA Standard Methods, 21<sup>st</sup> ed., Method 4500-SO<sub>3</sub><sup>2-</sup> B (2005). USEPA Methods for Chemical Analysis of Water and Wastes, Method 377.1 (1983).

CHEMetrics' sulfite test kits employ the iodometric chemistry in which sulfite is titrated with iodide-iodate titrant in an acid solution using a starch indicator. Thiosulfate will titrate as sulfite. Results are expressed as ppm (mg/L) SO<sub>3</sub>.

### The Ripper Method (Sulfite in Wine)

References: ASTM D 1339-84, Sulfite Ion in Water, Test Method C. APHA Standard Methods, 21<sup>st</sup> ed., Method 4500-SO<sub>3</sub><sup>2-</sup> B (2005). USEPA Methods for Chemical Analysis of Water and Wastes, Method 377.1 (1983).

CHEMetrics' sulfite test kit is based on the *Ripper* method, which the wine industry has used for years as a standard for rapid sulfite analysis. Sulfite is titrated with an iodide-iodate solution, using a starch end point indicator. Phosphoric acid is used to adjust the pH of the sample. Results are quantified using direct-reading titration cells. The test determines free sulfite as ppm (mg/L) SO<sub>2</sub>.

Results for this test kit are acceptable for dry white wines (although they can have an error of up to 10 ppm). ***This test kit is not recommended for use with red wines or white wines containing ascorbic acid or tannin. These wines often give false high test results.***

## Visual Kits

<b>Range: 2-20 ppm as SO<sub>3</sub></b> MDL: 2.0 ppm / Method: Iodometric	
<b>Sulfite Titrets Kit</b>	<b>Cat#</b> K-9602
Increments: 2.0, 2.2, 2.4, 2.6, 2.8, 3.0, 3.2, 3.6, 4.0, 5.0, 6.0, 7.0, 8.0, 10, 14, 20 ppm	
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, Neutralizer Solution, titrettor, 25 mL sample cup, instructions, and MSDS.	

<b>Range: 5-50 ppm as SO<sub>3</sub></b> MDL: 5.0 ppm / Method: Iodometric	
<b>Sulfite Titrets Kit</b>	<b>Cat#</b> K-9605
Increments: 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 9.0, 10.0, 12.5, 15.0, 17.5, 20.0, 25.0, 35.0, 50.0 ppm	
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, Neutralizer Solution, titrettor, 25 mL sample cup, instructions, and MSDS.	

<b>Range: 10-100 ppm as SO<sub>3</sub></b> MDL: 10 ppm / Method: Iodometric	
<b>Sulfite Titrets Kit</b>	<b>Cat#</b> K-9610
Increments: 10, 11, 12, 13, 14, 15, 16, 18, 20, 25, 30, 35, 40, 50, 70, 100 ppm	
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, Neutralizer Solution, titrettor, 25 mL sample cup, instructions, and MSDS.	

<b>Range: 50-500 ppm as SO<sub>3</sub></b> MDL: 50 ppm / Method: Iodometric	
<b>Sulfite Titrets Kit</b>	<b>Cat#</b> K-9650
Increments: 50, 55, 60, 65, 70, 75, 80, 90, 100, 125, 150, 175, 200, 250, 350, 500 ppm	
Kit comes in a cardboard box and contains everything needed to perform 30 tests: thirty ampoules with valve assemblies, Neutralizer Solution, titrettor, 25 mL sample cup, instructions, and MSDS.	

Range: 10-100 ppm as SO<sub>2</sub>  
 MDL: 10 ppm / Method: Ripper

Sulfite in Wine Titrets Kit

Cat#  
 K-9610W

Increments:  
 10, 11, 12, 13, 14, 15, 16, 18, 20, 25, 30, 35, 40, 50, 70, 100 ppm

Kit comes in a cardboard box and contains everything needed to perform 10 tests: ten ampoules, ten valve assemblies, instructions, and MSDS.

Kit Components common to Sulfite

Description	Cat#
Sample Cup Pack, 25 mL (6 ea)	A-0013
Titrettor Pack (1 ea)	A-0053

Instructions and MSDS(s) are posted on our website.

If no shelf-life is listed for a product, then the shelf-life is at least 2 years.

