Sulfite

For water, wastewater and seawater

Titration Method

Introduction

Sulfite is most commonly found in boilers and boiler feedwater, where it is used to inhibit corrosion by reducing dissolved oxygen. It may also be found in industrial wastes such as paper mill effluents. Sulfite normally is not present in natural waters because it readily oxidizes to sulfate.

Chemical reactions

The water sample is acidified by the addition of Dissolved Oxygen 3 Reagent Powder Pillow, starch indicator is then added and the solution is titrated with Potassium Iodide-Iodate Solution. The acidified solution releases free iodine, which oxidizes sulfite to form sulfate. The iodine is reduced to colorless iodide:

KIO₃ + 5KI + 6HCI Ç 6KCI + 3I₂ + 3H₂O

SO₃²⁻ + I₂ + H₂O Ç SO₄²⁻ + 2HI

When all sulfite has been converted to sulfate, excess iodine is indicated by a blue color from the starch-iodine reaction.