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## Sodium Hydrosulfite

(Sodium Dithionite),  $\text{Na}_2\text{S}_2\text{O}_4$  174.11 CAS RN®: 7775-14-6.—White or grayish-white crystalline powder. Soluble in water; slightly soluble in alcohol. Gradually oxidizes in air, more readily when in solution, to bisulfite, acquiring an acid reaction. Is affected by light.

**Assay:** Accurately weigh about 1 g, dissolve it in a mixture of 10 mL of formaldehyde TS and 10 mL of water contained in a small glass-stoppered flask, and allow to stand for 30 minutes with frequent agitation. Transfer the solution to a 250-mL volumetric flask, add 150 mL of water and 3 drops of methyl orange TS, and then add, dropwise, 1 N sulfuric acid to a slightly acid reaction. Dilute with water to 250 mL, and mix. To 50.0 mL of the dilution add 2 drops of phenolphthalein TS and just sufficient 0.1 N sodium hydroxide to produce a slight, pink color, then titrate with 0.1 N iodine, adding 3 mL of starch TS as the indicator. Then discharge the blue color of the solution with 1 drop of 0.1 N sodium thiosulfate, and titrate with 0.1 N sodium hydroxide VS to a pink color: each mL of 0.1 N sodium hydroxide is equivalent to 3.482 mg of  $\text{Na}_2\text{S}_2\text{O}_4$ . Not less than 88% is found.

**Sulfide:** Add sodium hydroxide solution (1 in 10) to lead acetate TS until the precipitate dissolves. Add 5 drops of this solution to a solution of 1 g of the sodium hydrosulfite in 10 mL of water: no immediate darkening is observed.

**Heavy Metals:** Dissolve 1 g in 10 mL of water, add 10 mL of hydrochloric acid, and evaporate on a steam bath to dryness. Dissolve the residue in 20 mL of water and 0.5 mL of diluted hydrochloric acid, filter, and add to the filtrate 10 mL of hydrogen sulfide TS: no darkening is produced. Render the solution alkaline with ammonia TS: a slight, greenish color may be produced, but not a dark or white precipitate.

**Suitability for Riboflavin Assay:** To each of 2 or more tubes add 10 mL of water and 1.0 mL of a standard riboflavin solution containing 20 µg of riboflavin in each mL, and mix. To each tube add 1.0 mL of glacial acetic acid, mix, add with mixing, 0.5 mL of potassium permanganate solution (1 in 25), and allow to stand for 2 minutes. Then to each tube add, with mixing, 0.5 mL of hydrogen peroxide TS: the permanganate color is destroyed within 10 seconds. Shake the tubes vigorously until excess oxygen is expelled. If gas bubbles remain on the sides of tubes after foaming has ceased, remove the bubbles by tipping the tubes so that the solution flows slowly from end to end. In a suitable fluorometer, measure the fluorescence of the solution. Then add, with mixing, 8.0 mg of sodium hydrosulfite: the riboflavin is completely reduced in not more than 5 seconds.

**Auxiliary Information** - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
SODIUM HYDROSULFITE	<a href="#">Margareth R.C. Marques</a> Principal Scientific Liaison	HDQ Headquarters

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