SODIUM THIOSULFATE

Prepared at the 53rd JECFA (1999) and published in FNP 52 Add 7 (1999), superseding tentative specifications prepared at the 51st JECFA (1998), published in FNP 52 Add 6 (1998). Group ADI 0-0.7 mg/kg bw as SO2 for sulfites established at the 51st JECFA in 1998.

SYNONYMS Sodium hyposulfite; INS No. 539

DEFINITION

Chemical names	Sodium thiosulfate
C.A.S. number	7772-98-7
Chemical formula	$Na_2S_2O_3 \cdot 5H_2O$
Formula weight	248.17
Assay	Not less than 99.0% on the dried basis

DESCRIPTION Colourless crystals or coarse crystalline powder; deliquesces in moist air and effloresces in dry air above 33°

FUNCTIONAL USES Antibrowning agent, antioxidant, sequestrant

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)	Very soluble in water; insoluble in ethanol
Reducing activity	To a 1 in 10 solution of the sample add a few drops of iodine TS; the colour is discharged
Test for sodium (Vol. 4)	Passes test
Test for thiosulfate (Vol. 4)	Passes test

PURITY

Loss on drying (Vol. 4)	32-37% (40-45°, 16 h, under vacuum)
Lead (Vol. 4)	Not more than 2 mg/kg Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, “Instrumental Methods.”
Iron (Vol. 4)	Not more than 10 mg/kg Proceed as directed in the Limit Test using 0.5 ml of Iron Standard Solution (5 µg Fe) in the control

Selenium — Not more than 5 mg/kg
See description under TESTS

TESTS

PURITY TESTS

Selenium

Reagents:
Hydrochloric acid, hydrazinium sulfate, standard selenium solution (100 µg Se/ml)

Procedure
Weigh 2.0 ± 0.1 g of sample and transfer to a 50-ml beaker. Add 10 ml water, 5 ml hydrochloric acid and boil to remove SO_2.
Into a second beaker, weigh 1.0 ± 0.1 g of sample, add 0.05 ml standard selenium solution and proceed as above.

To each beaker add 2 g hydrazinium sulfate and warm to dissolve. Let stand for 5 min. Dilute the contents of each beaker to 50 ml in a Nessler tube and compare the colour of the two solutions. The sample should be less pink than the sample with the added standard.

METHOD OF ASSAY

Dissolve about 0.5 g of the dried sample, accurately weighed, in 30 ml of water and titrate with 0.1 N iodine solution using starch TS as the indicator. Each ml of 0.1 N iodine is equivalent to 15.81 mg of $Na_2S_2O_3$.