SODIUM HYDROGEN SULFITE

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 INS No. 222

DEFINITION

Chemical names	Sodium hydrogen sulfite, sodium bisulfite
C.A.S. number	7631-90-5
Chemical formula	$NaHSO_3$
Formula weight	104.06
Assay	Not less than 58.5% and not more than 67.4% of SO_2

DESCRIPTION White crystals or granular powder having an odour of sulfur dioxide

FUNCTIONAL USES Antibrowning agent, antioxidant, preservative

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)	Freely soluble in water; slightly soluble in ethanol
Test for sodium (Vol. 4)	Passes test
Test for sulfite (Vol. 4)	Passes test

PURITY

Water insolubles	Dissolve 20 g of the sample in 200 ml of water. The solution should be clear with only a trace of suspended matter
pH (Vol. 4)	2.5 - 4.5 (1 in 10 soln)
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
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.”
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

Weigh 0.2 g of the sample, to the nearest mg, add 50.0 ml of 0.1 N iodine in a glass-stoppered flask, and stopper the flask. Allow to stand for 5 min, add 1 ml of hydrochloric acid, and titrate the excess iodine with 0.1 N sodium thiosulfate, adding starch TS as the indicator. Each ml of 0.1 N iodine is equivalent to 3.203 mg of SO_2.