

SODIUM METABISULFITE

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 sulfite established at the 51st JECFA in 1998.

SYNONYMS

INS No. 223

DEFINITION

Chemical names Sodium disulfite, disodium pentaoxodisulfate, disodium pyrosulfite

C.A.S. number 7681-57-4

Chemical formula Na₂S₂O₅

Formula weight 190.11

Assay Not less than 90.0%

DESCRIPTION

White crystals or crystalline powder having an odour of sulfur dioxide

FUNCTIONAL USES Antibrowning agent, antioxidant, flour treatment agent, 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) 4.0 - 4.5 (1 in 10 soln)

Thiosulfate Not more than 0.1%
A 10% solution of the sample should remain clear on acidification with sulfuric or hydrochloric acid.

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 to 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 4.753 mg of $\text{Na}_2\text{S}_2\text{O}_5$.