POTASSIUM 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. 225

DEFINITION

Chemical names: Potassium sulfite

C.A.S. number: 10117-38-1

Chemical formula: K_2SO_3

Formula weight: 158.25

Assay: Not less than 90.0%

DESCRIPTION White, odourless, granular powder

FUNCTIONAL USES Antibrowning agent, antioxidant, preservative

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Freely soluble in water; slightly soluble in ethanol

Test for potassium (Vol. 4): Passes test

Test for sulfite (Vol. 4): Passes test

PURITY

Alkalinity: Between 0.25 and 0.45% as K_2CO_3
Dissolve 1 g of the sample in 20 ml of water and add 25 ml of 3% hydrogen peroxide, previously neutralized to methyl red TS. Mix thoroughly, cool to room temperature, and titrate with 0.02 N hydrochloric acid. Perform a blank determination using 25 ml of neutralized hydrogen peroxide solution. Each ml of 0.02 N hydrochloric acid is equivalent to 1.38 mg of K_2CO_3.

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 accurately about 0.75 g of the sample and dissolve in a mixture of 100 ml of 0.1 N iodine and 5 ml of dilute hydrochloric acid TS. 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 7.912 mg of K_2SO_3.