POTASSIUM SORBATE

Prepared at the 51st JECFA (1998), published in FNP 52 Add 6 (1998) superseding specifications prepared at the 17th JECFA (1973), published in FNP 4 (1978) and republished in FNP 52 (1992). Group ADI 0-25 mg/kg bw for sorbic acid and its calcium, potassium and sodium salts, expressed as sorbic acid, established at the 17th JECFA in 1973.

SYNONYMS

INS No. 202

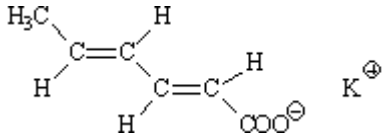
DEFINITION

Chemical names: Potassium sorbate, potassium salt of *trans, trans*-2,4-hexadienoic acid

C.A.S. number: 24634-61-5

Chemical formula: $C_6H_7KO_2$

Structural formula:



Formula weight: 150.22

Assay: Not less than 98% and not more than 102% at the dried basis

DESCRIPTION

White or yellowish-white crystals or crystalline powder or granules

FUNCTIONAL USES

Preservative

CHARACTERISTICS

IDENTIFICATION

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

Test for potassium (Vol. 4): Passes test

Melting range of sorbic acid derived from the sample: 132- 135°
Acidify a solution of the sample with dilute hydrochloric acid TS. Collect the precipitated sorbic acid on a filter paper, wash free of chloride with water and dry under vacuum over sulfuric acid.

Test for unsaturation: To 2 ml of a 1 in 10 solution of the sample, add a few drops of bromine TS. The colour of the bromine disappears.

PURITY

Loss on drying (Vol. 4): Not more than 1% (105º, 3 h)

Acidity or alkalinity: Not more than about 1% (as sorbic acid or potassium carbonate)
Dissolve 1.1 g of the sample in 20 ml of water and add 3 drops of

phenolphthalein TS. If the solution is colourless, titrate with 0.1 N sodium hydroxide to a pink colour that persists for 15 sec. Not more than 1.1 ml should be required. If the solution is pink in colour titrate with 0.1 N hydrochloric acid. Not more than 0.8 ml should be required to discharge the pink colour.

Aldehydes

Not more than 0.1% as formaldehyde
Prepare a 0.3% solution of the sample, adjust the pH to 4 with 1N HCl and filter. To 5 ml of the filtrate add 2.5 ml of Schiff's reagent TS and allow to stand for 10 - 15 min. Compare the colour with that produced by 5 ml of a control solution containing 15 µg of formaldehyde instead of the sample. The colour of the test solution should not be more intense than that of the control solution.

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.”

METHOD OF ASSAY

Weigh, to the nearest 0.1 mg, 0.25 g of the sample, previously dried at 105º for 3 h. Dissolve in 36 ml of glacial acetic acid and 4 ml acetic anhydride in a 250-ml glass-stoppered flask, warming to effect solution. Cool to room temperature, add 2 drops of crystal violet TS and titrate with 0.1 N perchloric acid in glacial acetic acid to a blue-green end point which persists for at least 30 sec. Perform a blank determination and make any necessary correction. Each ml of 0.1 N perchloric acid is equivalent to 15.02 mg of $C_6H_7KO_2$.