CALCIUM 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. 203

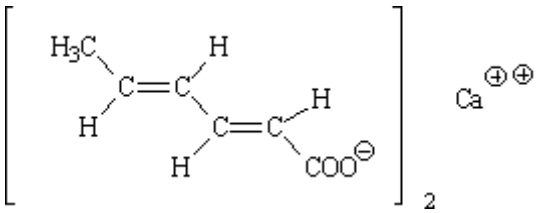
DEFINITION

Chemical names: Calcium sorbate; calcium salt of *trans, trans*-2,4-hexadienoic acid.

C.A.S. number: 7492-55-9

Chemical formula: $C_{12}H_{14}CaO_4$

Structural formula:



Formula weight: 262.32

Assay: Not less than 98% and not more than 102% after drying

DESCRIPTION Fine white crystalline powder not showing any change in colour after heating at 105° for 90 min

FUNCTIONAL USES Preservative

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Soluble in water; practically insoluble in ethanol.

Test for calcium (Vol. 4): Passes test

Melting range of sorbic acid derived from the sample (Vol. 4): 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 3% (over sulfuric acid in vacuum, 4h)

Fluoride (Vol. 4) — Not more than 10 mg/kg
Weigh 5 g of the sample to the nearest mg and proceed as directed in the Fluoride Limit Test (Method I or III)

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 mg, 0.25 g of the dried sample. Dissolve in 35 ml of glacial acetic acid and 4 ml of 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 13.12 mg of $C_{12}H_{14}CaO_4$.