POTASSIUM SACCHARIN

Prepared at the 28th JECFA (1984), published in FNP 31/2 (1984) and in FNP 52 (1992). Metals and arsenic specifications revised at the 57th JECFA (2001). An ADI of 0-5 mg/kg bw for saccharin and its Ca, K, Na salts was established at 41st JECFA (1993)

SYNONYMS INS No. 954(iii)

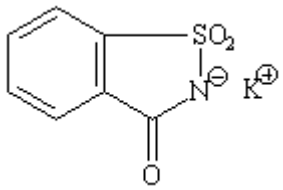
DEFINITION

Chemical names: Potassium salt of 1,2-benzisothiazole-3(2H)-one-1,1-dioxide monohydrate, 3-oxo-2,3-dihydrobenzo[d]isothiazol-1,1-dioxide monohydrate, 2,3-dihydro-3-oxobenzisо-sulfonazole monohydrate; potassium o-benzosulfimide

C.A.S. number: 10332-51-1

Chemical formula: $C_7H_4KNO_3S \cdot H_2O$

Structural formula:



Formula weight: 239.77

Assay: Not less than 99% and not more than 101% on the dried basis

DESCRIPTION White crystals or a white, crystalline powder, odourless or with a faint, aromatic odour

FUNCTIONAL USES Sweetener

CHARACTERISTICS

IDENTIFICATION

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

Melting range of saccharin derived from the sample: 226 - 230°
To 10 ml of a 1 in 10 solution add 1 ml of hydrochloric acid. A crystalline precipitate of saccharin is formed. Wash the precipitate well with cold water and dry at 105° for 2 h.

Derivation to salicylic acid: Dissolve about 0.1 g of the sample in 5 ml of 5% sodium hydroxide solution. Evaporate to dryness and gently fuse the residue over a small

flame until it no longer evolves ammonia. After the residue has cooled, dissolve it in 20 ml of water, neutralize the solution with dilute hydrochloric acid TS and filter. The addition of a drop of ferric chloride TS to the filtrate produces a violet colour.

Derivation to fluorescent substance — Mix 20 mg of the sample with 40 mg of resorcinol, add 10 drops of sulfuric acid, and heat the mixture in a liquid bath at 200º for 3 min. After cooling, add 10 ml of water and an excess of sodium hydroxide TS. A fluorescent green liquid is produced.

Test for potassium (Vol. 4) — Passes test
Test the residue obtained by igniting 2 g of the sample.

PURITY

Loss on drying (Vol. 4) — Not more than 8% (120°, 4 h)

Acidity and alkalinity — Dissolve 1 g of the sample in 10 ml of freshly boiled and cooled water. Add a drop of phenolphthalein TS. No pink colour should appear. Add a drop of 0.1 N sodium hydroxide. A pink colour should appear.

Benzoic and salicylic acid — To 10 ml of a 1 in 20 solution, previously acidified with 5 drops of acetic acid, add 3 drops of ferric chloride TS. No precipitate or violet colour appears.

Readily carbonizable substances (Vol. 4) — Dissolve 0.2 g of the sample in 5 ml of sulfuric acid TS. Keep at 48° to 50° for 10 min. The colour should not be darker than a very light brownish-yellow (Matching Fluid A).

Toluenesulfonamides (Vol. 4) — Not more than 25 mg/kg

Selenium (Vol. 4) — Not more than 30 mg/kg (0.2 g sample, Method II)

Lead (Vol. 4) — Not more than 1 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 — Dissolve about 0.3 g of the dried sample, accurately weighed, in 20 ml of glacial acetic acid. Add 2 drops of crystal violet-glacial acetic acid TS as indicator, and titrate with 0.1 N perchloric acid. End-point is where violet colour of the solution changes to green, via blue. Perform a blank determination, and make any necessary correction. Each ml of 0.1 N perchloric acid is equivalent to 22.18 mg of $C_7H_4KNO_3S$.