POTASSIUM BENZOATE

Prepared at the 46th JECFA (1996), published in FNP 52 Add 4 (1996) superseding specifications prepared at the 17th JECFA (1974), published in FNP 4 (1978). Metals and arsenic specifications revised at the 63rd JECFA (2004). A group ADI of 0-5 mg/kg bw for benzoic acid and salts was established at the 27th JECFA (1983) and maintained at the 46th JECFA (1996).

SYNONYMS INS No. 212

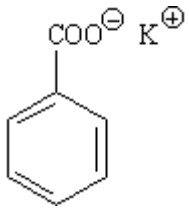
DEFINITION

Chemical names: Potassium benzoate, potassium salt of benzenecarboxylic acid, potassium salt of phenylcarboxylic acid

C.A.S. number: 582-25-2 (anhydrous)

Chemical formula: $C_7H_5KO_2 \cdot 3H_2O$

Structural formula:



Formula weight: 160.22 (anhydrous)
214.27 (trihydrate)

Assay: Not less than 99.0% on the dried basis

DESCRIPTION White crystalline powder

FUNCTIONAL USES Antimicrobial preservative

CHARACTERISTICS

IDENTIFICATION

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

Test for benzoate (Vol. 4): Passes test
Use a 10% solution of the sample

Test for potassium (Vol. 4): Passes test
Use a 10% solution of the sample

PURITY

Loss on drying (Vol. 4): Not more than 26.5% (105°, 4 h)

Acidity or alkalinity	Dissolve 2 g of the sample, weighed to the nearest mg, in 20 ml of freshly boiled water. Not more than 0.5 ml of either 0.1N sodium hydroxide or 0.1N hydrochloric acid should be required for neutralization, using phenolphthalein TS as indicator.
Readily carbonizable substances	Dissolve 0.5 g of the sample, weighed to the nearest mg, in 5 ml of sulfuric acid TS. The colour produced should not be darker than a light pink ("Matching Fluid Q")
Chlorinated organic compounds (Vol. 4)	Not more than 0.07% (as chlorine) Test 0.25 g of the sample using 0.5 ml of 0.01N hydrochloric acid in the control
Readily oxidizable substances	Add 1.5 ml of sulfuric acid to 100 ml of water, heat to boiling and add 0.1N potassium permanganate, dropwise, until the pink colour persists for 30 sec. Dissolve 1 g of the sample, weighed to the nearest mg, in the heated solution, and titrate with 0.1N potassium permanganate to a pink colour that persists for 15 sec. Not more than 0.5 ml should be required.
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, 2.5 to 3 g of the dried sample, and transfer to a 250-ml Erlenmeyer flask. Add 50 ml of water to dissolve the sample. Neutralize the solution, if necessary, with 0.1N hydrochloric acid, using phenolphthalein TS as indicator. Add 50 ml of ether and a few drops of bromophenol blue TS and titrate with 0.5N hydrochloric acid, shaking constantly the flask, until the colour of the indicator begins to change. Transfer the lower aqueous layer to another flask. Wash the ethereal layer with 10 ml of water, and add the washing and an additional 20 ml of ether to the separated aqueous layer. Complete the titration with the 0.5N hydrochloric acid, shaking constantly the flask. Each ml of 0.5N hydrochloric acid is equivalent to 80.11 mg of $C_7H_5KO_2$.