BENZOIC ACID

Prepared at the 49th JECFA (1996), published in FNP 52 Add 4 (1996) superseding specifications prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). A group ADI of 0-5 mg/kg bw for benzoic acid and its salts was established at the 27th JECFA (1983) was maintained at the 46th JECFA (1996)

SYNONYMS INS No. 210

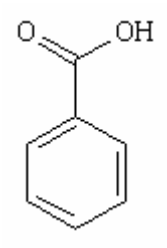
DEFINITION

Chemical names: Benzoic acid, benzenecarboxylic acid, phenylcarboxylic acid

C.A.S. number: 65-85-0

Chemical formula: $C_7H_6O_2$

Structural formula:



Formula weight: 122.12

Assay: Not less than 99.5% on the dried basis

DESCRIPTION White crystalline solid, usually in the form of scales or needles, having not more than a faint characteristic odour

FUNCTIONAL USES Antimicrobial preservative

CHARACTERISTICS

IDENTIFICATION

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

Melting range (Vol. 4): 121 - 123º

Test for benzoate (Vol. 4): Passes test
Use 0.1 g of the sample with 0.1 g of calcium carbonate and 5 ml of water

pH (Vol. 4): About 4.0 (solution in water)

PURITY

Loss on drying (Vol. 4)	Not more than 0.5% (over sulfuric acid, 3 h)
Sublimation test	Place a small amount of the sample in a dry test tube. Wrap the test tube about 4 cm from the bottom with moistened filter paper. Heat the test tube over a low flame. Benzoic acid sublimes and crystals deposit in the colder part of the test tube leaving no residue at the bottom.
Sulfated ash (Vol. 4)	Not more than 0.05%
Lead	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."
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).
Readily oxidizable substances	Add 1.5 ml of sulfuric acid to 100 ml of water, heat to boiling and add 0.1N potassium permanganate in drops, 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.
Chlorinated organic compounds	Not more than 0.07% (as Cl_2) Test 0.25 g of the sample dissolved in 10 ml of 0.1 N sodium hydroxide, using 0.5 ml of 0.01N hydrochloric acid in the control.

METHOD OF ASSAY Weigh, to the nearest mg, 2.5 g of the dried sample. Dissolve in 15 ml of warm ethanol previously neutralized using phenol red TS as indicator. Add 20 ml of water and titrate with 0.5N sodium hydroxide, using phenolphthalein TS as indicator. Each ml 0.5N sodium hydroxide is equivalent to 61.06 mg of $C_7H_6O_2$.