BENZOYL PEROXIDE

Prepared at the 63rd JECFA (2004), published in FNP 52 Add 12 (2004) superseding specifications prepared at the 55th JECFA (2000) and published in FNP 52 Add 8 (2000). Treatment of whey with benzoyl peroxide at a maximum concentration of 100 mg/kg does not pose a safety concern (63rd JECFA, 2004).

SYNONYMS Benzoyl superoxide, INS No. 928

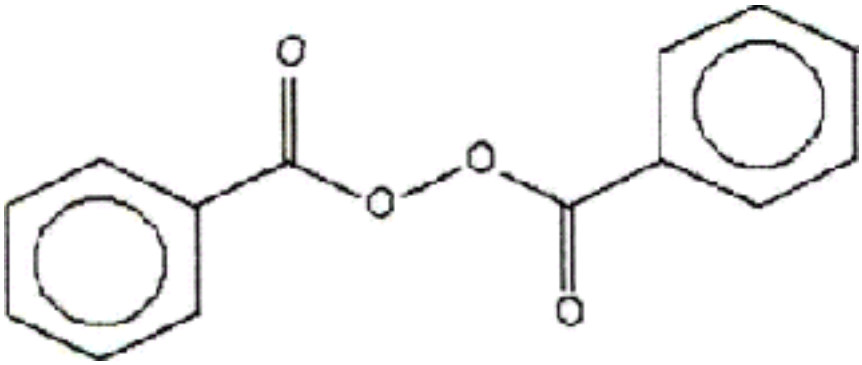
DEFINITION Benzoyl peroxide is manufactured by the reaction of benzoyl chloride, sodium hydroxide and hydrogen peroxide.

Chemical name: Dibenzoyl peroxide

C.A.S. number: 94-36-0

Chemical formula: $C_{14}H_{10}O_4$

Structural formula



Formula weight: 242.23

Assay: Not less than 96.0%

DESCRIPTION Colourless, crystalline solid having a faint odour of benzaldehyde.
Caution: Benzoyl peroxide, especially in the dry form, is a dangerous, highly reactive, oxidizing material and has been known to explode spontaneously

FUNCTIONAL USES Bleaching agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Insoluble in water, slightly soluble in ethanol and soluble in ether.

Melting range (Vol. 4): 103 - 106° with decomposition

Decomposition to benzoic acid: To 0.5 g of the sample add 50 ml of 0.5 N ethanolic potassium hydroxide, heat gradually to boiling and continue boiling for 15 min. Cool and dilute with 200 ml of water. Add sufficient 0.5 N hydrochloric acid to make strongly acidic and extract with ether. Dry the ether solution over anhydrous sodium sulfate, and then evaporate to dryness on a steam bath. The benzoic acid so obtained melts

between 121° and 123°.

PURITY

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 Dissolve about 250 mg of the sample, accurately weighed, in 15 ml of acetone in a 100-ml glass-stoppered bottle. Add 3 ml of 50% (w/v) potassium iodide solution and swirl for 1 min. Titrate immediately with 0.1 N sodium thiosulfate (without addition of starch as an indicator). Each ml of 0.1 N sodium thiosulfate is equivalent to 12.11 mg of $C_{14}H_{10}O_4$.