BENZYL ALCOHOL

Prepared at the 46th JECFA (1996), published in FNP 52 Add 4 (1996) superseding specifications prepared at the 23rd JECFA (1979), published in FNP 12 (1979). Metals and arsenic specifications revised at the 63rd JECFA (2004). An ADI of 0-5 mg/kg bw established at the 23rd JECFA (1979) was maintained at the 46th JECFA (1996).

SYNONYMS Phenylcarbinol; phenylmethyl alcohol; benzenemethanol; alpha-hydroxytoluene; INS No. 1519

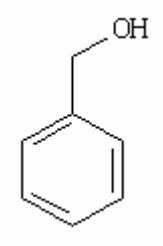
DEFINITION

Chemical names: Benzyl alcohol, phenylmethanol

C.A.S. number: 100-51-6

Chemical formula: C_7H_8O

Structural formula:



Formula weight: 108.14

Assay: Not less than 98.0%

DESCRIPTION Colourless, clear liquid, with a faint, aromatic odour

FUNCTIONAL USES Flavouring agent (see "Flavouring agents" monograph), carrier

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Soluble in water, ethanol and ether

Refractive index (Vol. 4): n (20, D): 1.538 - 1.541

Specific gravity (Vol. 4): d (25, 25): 1.042 - 1.047

Infrared absorption: The infrared spectrum of the sample corresponds with the reference infrared spectrum below

PURITY

Distillation range: Not less than 95% v/v distils between 202 and 208º

Lead (Vol. 4)	Not more than 2 mg/kg Determine using an AAS/ICP-AES technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on principles of methods described in Volume 4 (under "General Methods, Metallic Impurities").
Acid value (Vol.4)	Not more than 0.5
Aldehydes	Not more than 0.2% v/v (as benzaldehyde) See description under TESTS
Peroxides	Passes test See description under TESTS
Chlorinated organic compounds	Test 0.25 g of the sample dissolved in 10 ml of water using 0.5 ml of 0.1N silver nitrate and 0.5 ml of 0.01N hydrochloric acid in the control.

TESTS

PURITY TESTS

Aldehydes	Transfer 2 ml of the sample into a 100-ml volumetric flask and add water to volume. Shake until dissolved. To 2 ml of the above solution add 3 ml of water and 0.5 ml of a saturated solution of dinitrophenylhydrazine in dilute hydrochloric acid. Cap test tube, shake and allow to stand for 10 min. Add 5 ml of 95% ethanol and 2 ml of a 10% potassium hydroxide solution and homogenize. Any red-brown colour that develops shall not be more intense than that of a control, simultaneously prepared under the same conditions, but substituting 2 ml of the sample with 2 ml of freshly prepared 0.2% v/v solution of benzaldehyde.
Peroxides	Flush out with carbon dioxide a ground glass necked 100-ml flask fitted with a cool air condenser. Then introduce 1 ml of the sample, 2 ml of chloroform, 0.1 g of potassium iodide and 20 ml of a mixture of 1 volume chloroform and 2 volumes of glacial acetic acid. Fit the condenser to the flask and warm with small flame to initiate boiling within 30 sec. Maintain boiling for exactly 30 sec from the moment vapours appear in the condenser. Cool immediately in iced water, and add through the condenser 40 ml of carbon dioxide free water. Titrate the liberated iodine with a 0.005N solution of sodium thiosulfate and record the number of ml of solution used as n. Perform the same operation without the sample and record the number of ml of solution used as n'. The difference (n - n') must be less than 1 (equivalent to 40 mg peroxide per litre, expressed as oxygen).

METHOD OF ASSAY Weigh accurately about 1 g of the sample, proceed as directed under the method for *Hydroxyl Value* and calculate the percentage of benzyl alcohol by the formula

$$\% \text{ w/w} = \frac{(B + \frac{W \text{ x } A}{C} - S) \text{ x } N \text{ x } 10.814}{W}$$

where

A is ml of KOH solution required for the free acid determination;
B is ml of KOH solution required for the reagent blank;
C is weight of the sample used for the free acid determination;
S is ml of KOH solution required for the titration of the acetylated sample;
W is the weight of the sample used for acetylation; and
N is the normality of the ethanolic KOH solution.

Infrared spectrum — Benzyl alcohol