

ETHYL MALTOL

Prepared at the 68th JECFA (2007) and published in FAO JECFA Monographs 4 (2007), superseding tentative specifications prepared at the 65th JECFA (2005) and published in the Combined Compendium of Food Additive Specifications, FAO JECFA Monographs 1 (2005). An ADI of 0-2 mg/kg bw was established at the 18th JECFA (1974).

SYNONYMS

INS No. 637

DEFINITION

Ethyl maltol is obtained by chemical synthesis

Chemical names

2-Ethyl-3-hydroxy-4-pyrone

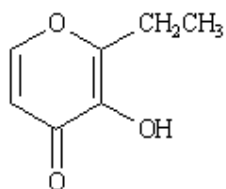
C.A.S. number

4940-11-8

Chemical formula

C₇H₈O₃

Structural formula



Formula weight

140.14

Assay

Not less than 99.0%, calculated on the anhydrous basis

DESCRIPTION

White, crystalline powder with a sweet, fruit-like aroma

FUNCTIONAL USES

Flavour enhancer, flavouring agent (see 'Flavouring agents' monograph No. 1481)

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol.4)

Sparingly soluble in water; soluble in ethanol and in propylene glycol

Melting range (Vol. 4)

89 - 93°

Ultraviolet absorption (Vol. 4)

The ultraviolet spectrum of a 10 mg/l solution of the sample in 0.1 N hydrochloric acid shows an absorption maximum at about 276 nm

PURITY

Water (Vol. 4)

Not more than 0.5% (Karl Fischer method)

Sulfated ash (Vol. 4)

Not more than 0.2% (use 5 g sample)

Lead (Vol. 4)

Not more than 1 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 the principles of the methods described in Volume 4 under "General Methods, Metallic Impurities".

METHOD OF ASSAY

Standard solution

Transfer about 50 mg of Ethyl Maltol Reference Standard (available from the United States Pharmacopoeia, 12601 Twinbrook Parkway, Rockville, MD 20852, USA), or equivalent, accurately weighed, into a 250-ml volumetric flask, dilute to volume with 0.1 N hydrochloric acid, and mix. Pipet 5 ml of this solution into a 100-ml volumetric flask, dilute to volume with 0.1 N hydrochloric acid, and mix.

Sample solution

Transfer about 50 mg of the sample, accurately weighed, into a 250-ml volumetric flask, dilute to volume with 0.1 N hydrochloric acid, and mix. Pipet 5 ml of this solution into a 100-ml volumetric flask, dilute to volume with 0.1 N hydrochloric acid, and mix.

Procedure

Determine the absorbance of each solution in a 1-cm quartz cell at the absorption maximum (about 276 nm) using 0.1 N hydrochloric acid as the blank.

Calculate the percent of Ethyl maltol in the sample by the formula:

$$\% \text{ of Ethyl maltol} = 100 \times W_S \times A_A / (A_S \times W_A)$$

where

A_A is the absorbance of the sample solution

A_S is the absorbance of the standard solution

W_A is the weight in mg of the sample in the sample solution

W_S is the weight in mg of the reference standard in the standard solution