ETHYL MALTOL


SYNONYMS
INS No. 637

DEFINITION
Ethyl maltol is obtained by chemical synthesis

Chemical names
2-Ethyl-3-hydroxy-4-pyrene

C.A.S. number
4940-11-8

Chemical formula
C₇H₈O₃

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:

\[
\% \text{ of Ethyl maltol} = 100 \times \frac{W_S \times A_A}{W_A \times A_S}
\]

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