ETHYL LACTATE

Prepared at the 26th JECFA (1982), published in FNP 25 (1982) and in FNP 52 (1992) superseding specifications prepared at the 24th JECFA (1980), published in FNP 17 (1980). An ADI 'not specified' was established at the 26th JECFA (1982)

SYNONYMS Lactic acid ethyl ester, ethyl 2-hydroxypropionate
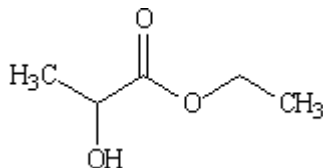
DEFINITION

Chemical names   Ethyl lactate

C.A.S. number   97-64-3

Chemical formula $C_5H_{10}O_3$

Structural formula

Formula weight   118.13

Assay   Not less than 98%

DESCRIPTION   Colourless liquid with a characteristic odour

FUNCTIONAL USES Flavouring agent, carrier solvent (See 'Flavouring agents' monograph, JECFA no. 931)

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4)   Very soluble in water, ethanol, ether and chloroform

Refractive index (Vol. 4) n (20, D): 1.410 - 1.420

Specific gravity (Vol. 4) d (20, 20): 1.031 - 1.036
d (25, 25): 1.028 - 1.033

PURITY

Non-volatile residue (Vol. 4)   Not more than 0.01%

Acid value (Vol. 4)   Not more than 1
Residual solvent   Not more than 1% ethanol and not more than 0.01% carbon tetrachloride
See description under TESTS

TESTS

PURITY TESTS

<u>Residual solvent</u>   Determined using *gas-liquid chromatography* under the following conditions:

Column
- length: 1.5 m
- diameter: 4 mm
- material: glass
- packing: 20% PEG on Chromosorb W
Temperatures
- injection: 110°
- column: 110°, isothermal
- detector: 300°
Detector: FID
Carrier gas: nitrogen
Flow rate: 3.5 L/h
Sample size: 1 μl

<u>Ethanol</u>
The sample containing 0.5% added ethanol is injected into the column. The peak produced by the ethanol is compared with the ethanol peak from the sample without added ethanol. The ethanol content of the sample is estimated from the comparison.

<u>Carbon tetrachloride</u>
The same procedure as for ethanol is used except that 0.01% carbon tetrachloride is added to the sample instead of ethanol.

METHOD OF ASSAY   Weigh accurately about 0.1 g of the sample and proceed as directed under *Ester Determination* (see Volume 4) using 59.07 as the equivalence factor (e) in the calculation.