DIETHYL TARTRATE

Prepared at the 29th JECFA (1985), published in FNP 34 (1986) and in FNP 52 (1992). Metals and arsenic specifications revised at the 63rd JECFA (2004). No ADI was allocated at the 25th JECFA (1981)

SYNONYMS Ethyl tartrate, Diethyl L(+)-tartrate

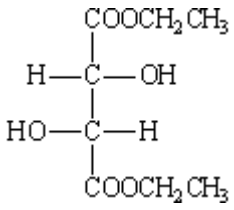
DEFINITION

Chemical names: Diethyl L(+)-tartrate, 2,3-dihydroxy-[R-(R*,R*)]-butanedioic acid diethyl ester

C.A.S. number: 87-91-2

Chemical formula: $C_8H_{14}O_6$

Structural formula:



Formula weight: 206.18

Assay: Not less than 99.0%

DESCRIPTION Colourless, thick, oily liquid, with a faint, wine-like odour

FUNCTIONAL USES Carrier solvent, flavouring agent (see "Flavouring agents" monograph, JECFA No. 622)

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Slightly soluble in water; soluble in fixed oils, ethanol, ether

Refractive index (Vol. 4): n (20, D): about 1.448

Specific gravity (Vol. 4): d (20, 4): 1.204 - 1.207

PURITY

Specific rotation (Vol. 4): [alpha] 20, D: Between + 7.5 and + 8.5°

Acid value (Vol. 4): Not more than 1

Sulfated ash (Vol. 4): Not more than 0.05%
Test 1 g of the sample (Method II)

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

Weigh accurately about 1.0 g of the sample and transfer it into a 125-ml Erlenmeyer flask containing a few boiling stones. Add to this flask, and, simultaneously, to a similar flask for a residual blank titration 25.0 ml of 0.5 N ethanolic potassium hydroxide. Connect each flask to a reflux condenser, and reflux the mixtures on a steam bath for exactly 1 h. Allow the mixtures to cool, add 10 drops of phenolphthalein TS to each flask, and titrate the excess alkali in each flask with 0.5 N hydrochloric acid. Calculate the percent of diethyl tartrate in the sample by the formula:

$$\frac{(b - S) \times 5154.5}{W}$$

where
b = the number of ml of 0.5 N hydrochloric acid consumed in the residual blank titration
S = the number of ml of 0.5 N hydrochloric acid consumed in the titration of the sample
W = the weight (mg) of the sample