ACETIC ACID, GLACIAL

Prepared at 63rd JECFA (2004) and published in FNP 52 ADD 12 (2004) superseding specifications prepared at the 19th JECFA (1975), and published in FNP 52 (1992). Metal contaminants specifications amended at the 59th JECFA (2002). A group ADI 'not limited' for acetic acid and its potassium and sodium salts was established at the 17th JECFA (1973) and maintained at the 49th JECFA (1997).

SYNONYMS INS No. 260

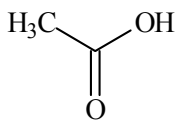
DEFINITION Acetic acid is manufactured by aerial oxidation of C5-C6 fractions of aliphatic hydrocarbons, and separation of the various acids by distillation. Also by oxidation of acetaldehyde, methanol and of butane or as the reaction product of methanol and carbon dioxide.

Chemical name: Acetic acid, ethanoic acid

C.A.S. number: 64-19-7

Chemical formula: $C_2H_4O_2$

Structural formula:



Formula weight: 60.05

Assay: Not less than 99.5%

DESCRIPTION Colourless liquid, having a pungent characteristic odour

FUNCTIONAL USES Acid, flavouring agent (see Flavouring agent specification, JECFA No. 81)

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Miscible with water, ethanol, glycerol and diethyl ether

Test for acid: 1 in 3 aqueous solution is acidic

Test for acetate (Vol. 4): Apply to a 1 in 3 solution of the sample
Passes test

PURITY

Solidification point (Vol. 4): Not lower than 15.6º

Non-volatile residue (Vol. 4): Not more than 0.01% after evaporation of 20 g of the sample and holding at 100° for 2 h.

Readily oxidizable substances: Dilute 2 ml of the sample in a glass-stoppered container with 10 ml of water and add 0.1 ml of 0.1 N potassium permanganate. The pink colour does not change to brown within 30 min.

Lead (Vol. 4): Not more than 0.5 mg/kg

Determine using an atomic absorption technique appropriate to the specified level. The selection of the 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

Measure about 2 ml of the sample into a tared, glass-stoppered flask, and weigh accurately. Add 40 ml of water, then add phenolphthalein TS and titrate with 1 N sodium hydroxide. Each ml of 1 N sodium hydroxide is equivalent to 60.05 mg of $C_2H_4O_2$.