

TRIETHYL CITRATE

Prepared at the 28th JECFA (1984), published in FNP 31/2 (1984) and in FNP 52 (1992). Metals and arsenic specifications revised at the 61st JECFA (2003). An ADI of 0-20 mg/kg bw was established at the 28th JECFA (1984)

SYNONYMS Ethyl citrate; INS No. 1519

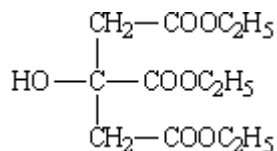
DEFINITION

Chemical names Triethyl 2-hydroxypropan-1,2,3-tricarboxylate

C.A.S. number 77-93-0

Chemical formula $C_{12}H_{20}O_7$

Structural formula



Formula weight 276.29

Assay Not less than 99% w/w

DESCRIPTION Odourless, practically colourless, oily liquid

FUNCTIONAL USES Carrier solvent, sequestrant

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Slightly soluble in water; miscible with ethanol and ether

Specific gravity (Vol. 4) $d(25, 25)$: 1.135 - 1.139

Refractive index (Vol. 4) $n(20, D)$: 1.439 - 1.441

PURITY

Water (Vol. 4) Not more than 0.25% w/w (Karl Fischer Method)

Acidity Not more than 0.02% w/w (as citric acid)
Dissolve 32 g of the sample, accurately weighted, in 30 ml of neutralized ethanol, add phenolphthalein TS, and titrate with 0.1 N sodium hydroxide. Not more than 1.0 ml is required.

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 1.5 g of the sample into a 500-ml flask equipped with a standard taper ground joint, and add 25 ml of isopropanol and 25 ml of water. Pipet 50 ml of 0.5 N sodium hydroxide into the mixture, add a few boiling chips, and attach a suitable water-cooled condenser. Reflux for 1.5 h, then cool, wash down the condenser with about 20 ml of water, add 5 drops of bromothymol blue TS, and titrate the excess alkali with 0.5 N sulfuric acid. Perform a blank determination. Each ml of 0.5 N sulfuric acid is equivalent to 46.05 mg of $C_{12}H_{20}O_7$.