CALCIUM DL-MALATE

Prepared at the 67th JECFA (2006), published in FAO JECFA Monographs 3 (2006), superseding specifications prepared at the 27th JECFA (1983) and published in FNP 52 (1992) and in the Combined Compendium of Food Additive Specifications, FAO JECFA Monographs 1 (2005). Metals and arsenic specifications were revised at the 59th JECFA (2002). A group ADI 'not specified' for malic acid and its Ca, K and Na salts was established at the 23rd JECFA (1979).

SYNONYMS DL-Monocalcium malate; INS No. 352(ii)

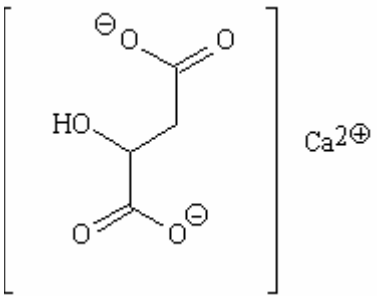
DEFINITION

Chemical names: Monocalcium DL-malate, 2-hydroxybutanedioic acid monocalcium salt

C.A.S. number: 17482-42-7

Chemical formula: $C_4H_4CaO_5$

Structural formula:



Formula weight: 172.1

Assay: Not less than 97.5% after drying

DESCRIPTION White, colourless powder

FUNCTIONAL USES Buffering agent

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Slightly soluble in water, insoluble in ethanol

Test for malate (Vol. 4): Passes test
Test 100 ml of a saturated solution of the sample

Test for calcium (Vol. 4): Passes test

PURITY

Loss on drying (Vol. 4)	Not more than 2% (110^{o}, 3 h)
Fluoride (Vol. 4)	Not more than 30 mg/kg (Method III)
Fumaric acid and maleic acid (Vol. 4)	Not more than 1.0% of fumaric acid and not more than 0.05% of maleic acid
Lead (Vol.4)	Not more than 2 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.

METHOD OF ASSAY Weigh accurately about 0.4 g of the sample, previously dried at 110^{o} for 3 h, dissolve in a mixture of 10 ml of water and 2 ml of dilute hydrochloric acid TS, and dilute to about 100 ml with water. While stirring (preferably with a magnetic stirrer) add about 30 ml of 0.05 M disodium ethylenediaminetetra-acetate from a 50-ml buret, then add 15 ml of sodium hydroxide TS and 300 mg of hydroxynaphtol blue indicator, and continue the titration to a blue end-point. Each ml of 0.05 M disodium ethylenediaminetetraacetate is equivalent to 8.607 mg of $C_4H_4CaO_5$.