SODIUM DL-MALATE

Prepared at the 67th JECFA (2006) and published in FAO JECFA Monographs 3 (2006), superseding specifications prepared at the 30th JECFA (1986) 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). An ADI 'not specified' was established at the 23rd JECFA (1979).

SYNONYMS Malic acid sodium salt; INS No. 350(ii)

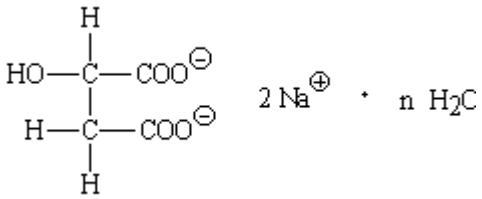
DEFINITION

Chemical names: Disodium DL-malate, hydroxybutanedioic acid disodium salt

C.A.S. number: 676-46-0

Chemical formula: Hemihydrate: $C_4H_4Na_2O_5 \cdot 1/2\ H_2O$
Trihydrate: $C_4H_4Na_2O_5 \cdot 3\ H_2O$

Structural formula:



Formula weight: Hemihydrate: 187.1
Trihydrate: 232.1

Assay: Not less than 98% and not more than 102% on the dried basis

DESCRIPTION Odourless white crystalline powder or lumps

FUNCTIONAL USES Acidity regulator

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Freely soluble in water

Test for sodium (Vol. 4): Passes test

Test for malate (Vol. 4): Passes test
Test 5 ml of a 1 in 20 solution of the sample

PURITY

Loss on drying (Vol. 4)	Hemihydrate: Not more than 7% (130°, 4 h) Trihydrate: 20.5% - 23.5% (130°, 4 h)
Alkalinity	Not more than 0.2% as Na_2CO_3 Dissolve 1 g of the sample in 20 ml of freshly boiled and cooled water, and add 2 drops of phenolphthalein TS. If a pink colour is produced, add 0.4 ml of 0.1 N sulfuric acid. The colour of the solution disappears.
Fumaric 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	Dissolve about 0.25 g of the dried sample, accurately weighed, in 50 ml of glacial acetic acid, and titrate with 0.1 N perchloric acid, determining the endpoint potentiometrically. Each ml of 0.1 N perchloric acid is equivalent to 8.903 mg of $C_4H_4Na_2O_5$.