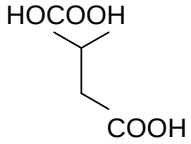
FICHA TECNICA

MALIC ACID

Synonyms
2-Hydroxybutanedioic acid; Butanedioic acid, hydroxyl (+/-); Hydroxysuccinic acid.

Formula
$C_4H_6O_5$

Structural formula



Molecular weight: 134.1

CAS number
6915-15-7

EINECS number
230-022-8

EEC number
E296

Product specification

Characteristics	Unit	Value	Method*	Reference
Appearance		White or nearly white crystal	GM037	
Odor and Taste(1)		Characteristic	GM037all01	
Assay	%	99.0 ÷ 100.5	GM005all01	
Malate Test (2)		Passes test		
Melting Range (1)	°C	128 ÷ 132	GM027	ASTM D-3417
Fumaric acid	%	1.0 max	GM001all03	
Maleic acid	%	0.05 max	GM001all03	
Residue on Ignition (Sulfated ash) (1)	%	0.1 max	GM015	ASTM D-482
Water insoluble matter (1)	%	0.1 max	GM038	

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Characteristics	Unit	Value	Method*	Reference
Heavy metals (as Pb) (1)	ppm	20 max	GM008	
Arsenic (1)	ppm	3 max	GM008	
Lead (1)	ppm	2 max	GM008	
Mercury (1)	ppm	1 max	GM008	
IR Spectrum (1)		Conform to STD	GM006	
Optical (Specific) rotation @ 25°C (2)	Degrees	- 0.10 ÷ + 0.10		
Granulometric analysis <u>Granular</u> • Through 10 mesh sieve • Through 50 mesh sieve <u>Fine granular</u> • Through 25 mesh sieve • Through 100 mesh sieve <u>Special fine granular</u> • Through 40 mesh sieve • Through 70 mesh sieve <u>Powder</u> • Through 60 mesh sieve	 % % % % % % %	 100 min 10 max 99 min 5 max 90 min 10 max 90 min	GM030	ASTM D-1921
Microbiologic data (3) • Bacteria • Moulds & yeasts • Total coliforms • Faecal coliforms • Salmonella	 CFU/g CFU/g CFU/g CFU/g /25g	 <10 <10 <10 <10 absent		

* *Internal methods available upon request.*

<u>Note</u>: (1) *This is a regular analysis*
(2) *This is a regular analysis performed by an external laboratory*
(3)

This is a regular analysis performed by an external laboratory and does not appear on the Certificate of Quality

Typical properties

Characteristics	Unit	Value
Decomposition temperature	°C	170 ÷ 180
Heat of combustion	Kcal/mol	320
Heat of solution	Kcal/mol	- 4.9
Solubility in water @ 20°C	g/100g	55.5
Viscosity (50% aqueous solution @ 20°C)	mPa.s	6.5
pH vs concentration @ 25°C 0.1% w/w 1.0% w/w 3.0% w/w 5.0% w/w 10.0% w/w 20.0% w/w 50.0% w/w	 2.8 2.4 2.0 1.9 1.8 1.6 0.9	

- The above figures are typical values and are not intended as specification limits

Main applications

Malic acid is mainly used as food additive in beverages, bakery products, confectioneries, desserts, jams and fruit jellies, as preservative in fruit and vegetables and as technological additive in animals feed.
It is also used in the Pharmaceutical and Cosmetic sectors and in a number of typically industrial uses as:

- metal treatment
- textile industry
- plating industry
- retardant for plasters and cements

Polynt malic acid complies with the current edition of **US FCC, USP-NF** and **Eu.Ph.** *

It is produced in accordance with

- **FSSC 22000** and it complies with the provision of the **Commission Regulation (EU) No 231/2012** laying down specifications for food additives listed in Annexes II and III to Regulation (EC) No 1333/2008 of the European Parliament and of the Council.

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- **FAMI-QS Code of Practice for Feed Additive and Premixture Operators** and it complies with **Regulation (EC) No 1831/2003** for additives used in animal nutrition. **Category:** Technological Additives (cat.1), **Functional Group**: Preservatives (a), Acidity regulators (j).

* available on request

Malic acid is free from proteins, fibre, starches, vitamins, fats, preservatives, colours, antioxidants or milk products and every product having an animal origin.

It is suitable for the vegetarian, vegan, diabetic, Jewish or Muslim diets.

Polynt malic acid is Kosher certified.

Polynt malic acid is certified Halal by HIA (product code : HIA-ITA-00118-001, HIA-ITA-00118-002, HIA-ITA-00118-003, HIA-ITA-00118-004).

Handling

Packaging:	25 kg or 50 lbs multi-wall paper bags with polyethylene liners; 500/1000 kg big bags; bulk (40% - 50% solution)
Storage:	it must be stored at room temperature, away from open flames or other potential ignition sources, in a dry and well-ventilated place.
Shelf life:	36 months from production date.

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