Thirumalai Chemicals Ltd.

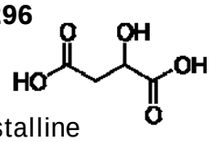
Product Data Sheet (For Indian Customers)

Data Sheet No: MAL 2311

Issue date: 24 Nov 2023

DL- MALIC ACID – FOOD GRADE

Chemical Formula : $C_4H_6O_5$
Molecular weight : **134.09**
CAS Registry Number : **6915-15-7**
E. Number : **296**
Molecular Structure :



Appearance: White Crystalline Granular / Fine Granular / Powder

Description: DL-Malic Acid is an important organic compound having a sharp, clean, tart, acidic taste. It is free flowing, stable and hygroscopic.

Reach Registration Number:
01-2119552463-40-0000
License under Food Safety and Standards Act, 2006 Number: 10012042000166
U.S.FDA Registration Number:
13392034936

Grades of Granularity:

Granular:
100% passing through USS 10 mesh
10% max. passing through USS 50 mesh

Fine Granular:
99% Min. passing through USS 25 mesh
5% Max. Passing through USS 100 mesh

Powder:
75% Min. passing through USS 50 mesh

SPECIFICATIONS (Conforms to FCC 13):

Characteristics	Unit	Guaranteed		Typical
Assay on dry basis (Titrimetry)	Wt. %	Min	99.5	99.8
Infrared Absorption	The spectrum of the sample exhibits maxima at the same wavelengths as those in the spectrum of the Reference standard.	Conforms		
Maleic acid	Wt. %	Max	0.05	0.03
Fumaric acid	Wt. %	Max	1.0	0.6
Residue on Ignition (sulfated Ash)	Wt. %	Max	0.10	0.02
Optical (Specific) Rotation	$[\alpha]_D^{25^\circ}$	Between	- 0.10 and + 0.10	- 0.10 and + 0.10
Lead (as Pb)	PPM	Max	2	<2
Water Insoluble Matter	Wt. %	Max	0.1	0.02

ADDITIONAL SPECIFICATIONS:

Characteristics	Unit	Guaranteed		Typical
Moisture (by Loss on Drying)	Wt. %	Max	0.3	0.2
Heavy metals (as Pb)	PPM	Max	5	<5
Arsenic (as As)	PPM	Max	1	<1
Mercury (as Hg)	PPM	Max	1	<1
Zinc	PPM	Max	50	<5.0
Cadmium (as Cd)	PPM	Max	1.5	<1
Copper	PPM	Max	30	<3.0
Tin	PPM	Max	250	<10

*Note1: On request. & Note2: * means Detection Limits.*

TYPICAL PACKAGING:

1. PE lined, PE laminated HDPE bag – 25 Kg
2. PP laminated 4 ply Paper Bag – 25 Kg
3. Fibre drum with PE liner – 30 Kg
4. 1 Kg pouches in 25 Kg HDPE bag

Legislation:

Thirumalai Chemicals' DL-Malic Acid (E296) meets the Specification with the current edition of Food Chemical Codex and European pharmacopoeia specifications. German Food additive purity regulation, allows DL-Malic Acid to be added to all food products, without any quantitative limit. In UK DL-Malic Acid is approved for use by the following:

1. The food standards (Preserves) order - 1953
2. The Soft drinks regulation 1964, amended 1995
3. Miscellaneous additive in Food regulation 1980 No.1834 for general use for an acidulant.

United States, Food and Drug Administration has approved the use of DL-Malic Acid as a general-purpose food additive, except in Baby Foods. It is included in the FDA list as a Generally Recognized as Safe (GRAS) substance.

In India, DL-Malic acid has been approved for use in carbonated beverages and as an acidulant in miscellaneous foods by – Food Safety and Standards Act -2006

It is produced in accordance with

 # FSSC 22000 and it complies with the provision of the Commission Regulation (EC) No 231/2012 laying down specifications for food additives listed above.

 # 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).

Uses:

- DL-Malic Acid, the natural acid constituent of apple, finds wide application in the food industry. Due to its compatibility with all types of flavour, the flavour enhancing property, the sharp, lingering acid taste and the high water solubility nature, it is ideally suited for the preparation of Juices, Soft drinks, Cider and Wines. Its' non-hygroscopic, free flowing nature, makes it the preferred acid for dry squash juice mixes.
- When used in sugar confectionery, the low melting point of DL-Malic Acid gives greater clarity to the finished product. In cheese preparation, it increases the product yield.
- DL-Malic Acid is used in paneer preparation
- In diet products, it suppresses the bitter after taste of artificial sweeteners and reduces the amount needed, without affecting the sweetness.
- In fruit and vegetable canning, DL-Malic Acid is used for pH adjustment.

- In the edible oil processing/refining it is used to remove and control traces of metal impurities and as a synergist in admixture with antioxidants, to control rancidity.
- DL-Malic Acid is also used in Pharmaceuticals, Cosmetics, Metal cleaning and Textile finishing.
- Authorized to be used in all animal species.

Storage:

- It must be stored in ambient temperature, properly covered in a dry well ventilated place. **Shelf Life**: 24 months from the date of production under recommended storage conditions.

For further details please contact

Thirumalai Chemicals Limited

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