



Thirumalai Chemicals Limited

SAFETY DATA SHEET

Product Name: DL- MALIC ACID

Revision Date: 17.09.2021

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1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers

Product name : DL MALIC ACID

EC Number : 210-514-9

CAS Number : 6915-15-7

1.2 Relevant identified uses of the substance or mixture and uses advised against

Used in protective coatings, dyestuff, adhesives, polymer & resins, pharmaceutical applications, construction fertilizers and for laboratory use, Formulation, Use as ink and specialist surface coatings, Food additive (GRASS Substance) used for processing in food industry and Acidity regulator

1.3 Details of the supplier of the safety data sheet

Name : Thirumalai Chemicals Limited
Address : No-25A Sipcot Industrial Complex,
Ranipet - 632 403.
TamilNadu, India.
Tel:+91-4172-244441/244442/244446/
Fax:+91-4172-244308
exports@thirumalaichemicals.com /
despatch@thirumalaichemicals.com

1.4 Emergency telephone number

Thirumalai Chemicals Limited:

Contact Number: +91-4172-244441/2/6/
24 Hr.Emergency Ph: + 91 - 04172 - 244449



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2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

For Physico-chemical properties : Not Classified

For health hazards :

1. Acute Toxicity oral : Not classified.

2. Skin corrosion/irritation : Not classified.

3. Serious damage/eye irritation : Category 2.

4. Respiration sensitization : Not classified.

5. Skin sensitization : Not classified.

6. Specific target organ

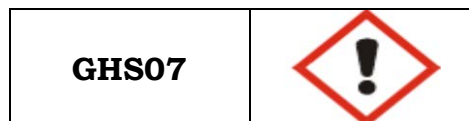
Toxicity single (SPOT) : Not classified.

For environmental hazards : Not classified.

2.2. CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

According with the version of the Globally Harmonized system of Classification and labelling adopted in the United States and Regulation 1272/2008/EC [CLP]: Eyes irritant category 2(H319)

2.3 GHS Label elements, including precautionary statements



Signal word : **Warning**

Hazard statements : H319: Causes serious eye irritation.



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Precautionary statements:

P264: Wash hands thoroughly after handling.

P280: Wear protective gloves/protective clothing/eye protection/
Face protection.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several
minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

2.4. OTHER HAZARDS

FIRE AND EXPLOSION HAZARD:

May form combustible dust concentrations in air. Possibility of dust explosion. It is recommended that all dust control equipment and material transport systems involved are engineered to prevent conditions contributing to dust explosions. Do not allow dust to accumulate on flat surfaces, on rafters or building structural components. Keep away from all ignition sources including heat, sparks and flame.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Substance name : DL-MALIC ACID

Chemical formula : C₄H₆O₅

Synonyms : Hydroxybutanedioic acid, Hydroxysuccinic acid

Concentration : More than 99.5 % (W/W)

EC Number : 210-514-9

CAS Number : 6915-15-7

4. FIRST AID MEASURES

4.1 Description of first aid measures

Description of first aid measures

Inhalation

- Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration.



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Skin

- After contact with skin, wash immediately with plenty of soap and water. Consult a physician.

Eye

- In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

- Call a physician immediately.

Ingestion

- Call a physician immediately. Clean mouth with water and drink afterwards plenty of water.

- Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

- Irritating to eyes and skin.

5. FIREFIGHTING MEASURES

5.1 Extinguishing media

Extinguishing media

Appropriate fire-fighting equipment:

- Foam, powder, water spray.

Inappropriate fire-fighting equipment

- Do not use water jets as they can disperse and spread fire.

Special hazards arising from the substance or mixture

- In combustion emits toxic fumes of carbon dioxide / carbon monoxide.

Advice for firefighters

- In the event of fire, wear self-contained breathing apparatus.

- Water mist may be used to cool closed containers.

- Use personal protective equipment to protect skin/eyes.



6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

- Move any people not authorized to contain the emergency out of the area.
- Avoid coming in contact with the substance or handling containers without adequate protection.
- Use the personal protective equipment described in section 'Exposure controls/personal protection'.
- Use a respirator in the event of emissions/spillage of large quantities.
- Eliminate all sources of ignition.
- Remove all incompatible materials as outlined in section 'Stability and reactivity'.
- Avoid dust formation

Environmental precautions

- Contain the spillage as far as possible.
- Prevent spilled materials getting into the drainage system, wells, surface water or groundwater.
- In the case of leaks into a water course, drains, or if the product has contaminated the ground or vegetation, contact the local authorities.

Methods and material for containment and cleaning up

- Do not use equipment that can generate sources of ignition when cleaning.
 - Clean the spilled material mechanically and put it in an appropriate container for disposal in accordance with section 'Disposal considerations'.
- After collection, ventilate and clean the affected area with water before granting access.
- Do not flush the water used for cleaning into watercourses or down drains.
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7. HANDLING AND STORAGE

Precautions for safe handling

Recommendations for safe use:

- Provide sufficient air exchange and/or exhaust in work rooms.
- Avoid contact with skin and eyes.
- Take precautionary measures against static discharges.
- Avoid formation of respirable particles.

Advice on general occupational hygiene:

- Do not eat, drink or smoke when using this product.
- Wash face and hands thoroughly after handling.
- Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

- Eliminate all sources of combustion.
- Keep container hermetically closed in a dry and well ventilated environment.
- Avoid the formation of dust.
- Keep away from incompatible materials (see section Stability and reactivity).

Where dust accumulations occur use non-sparking tools.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

OSHA PEL: 15 mg/ m³ Total dust

5 mg/m³ Respirable dust

ACGIH TLV: 10 mg/m³ Inhalable dust

5 mg/m³ Respirable dust

15 mg/m³ Total dust



Components with workplace control parameters

Eye / face protection:

- Goggles or protective visor.

Skin protection / of the Hand:

- The material the gloves are made of must be impermeable and stable when in contact with the substance. No specific information available on the suitability of the material and thickness of the gloves. Consult the glove manufacturer for specific information on the suitability of the gloves. Replace the gloves in the case of internal contamination, when punctured, or if external contamination cannot be removed. The actual duration of protection depends on the conditions of use.

Skin protection / of the body:

- Wear protective clothing resistant to chemical substances.

Respiratory protection:

- Mask with P3 dust filter if solid or type A filter for vapours and organic gases with a boiling point > 65°C if molten. (EN 149)

Environmental exposure controls:

- See sections 'Accidental release measures' and 'Waste treatment methods'.

8.2 Exposure controls

Appropriate engineering controls

- Use preferably in a closed loop, or provide adequate localized extraction and ventilation systems.
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9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

(a) Appearance	: White Crystalline fine granules
(b) Odour	: Odorless
(c) Odour threshold	: No data
(d) pH	: Acidic
(e) Melting/freezing point	: 129 °C at 1013 hPa
(f) Boiling point	: 150 °C
(g) Flash point	: Not Applicable – Solid
(h) Evaporation Rate	: No data
(i) Flammability	: Not Classified as flammable
(j) Upper/Lower flammability limited	: Not applicable
(k) Vapor pressure	: 0.00000293 mm Hg at 25 deg C
(l) Vapor density	: No Data
(m) Relative Density	: 1.6 g/cm ² at 20 °C
(n) Solubility in water	: 500 g/L at 25 °C
(o) Solubility in other solvents	: No Data
(p) Partition Co-efficient	: Log Kow - 0.46
(q) Auto-ignition temperature	: Not applicable
(r) Decomposition temperature boiling point	: No decomposition reported below boiling point
(s) Viscosity	: Not applicable
(t) Explosive properties	: Not classified as explosive
(u) Oxidizing properties	: Not classified as oxidizing

9.2 Other safety information None



10. STABILITY AND REACTIVITY

Reactivity

- No specific hazards known in normal conditions.

Chemical stability

- Stable under normal conditions.

Possibility of hazardous reactions

- None known in normal conditions.

Conditions to avoid

- Avoid the build-up of electrostatic charges.
- Avoid exposure to heat sources.
- Avoid the formation of dust.

Compatible materials

- Oxidizing agents, alkalis, alkali metals, amines and carbonates.
- Unsuitable container materials: iron, zinc, aluminum. Aqueous solutions of Malic Acid can release explosive hydrogen gas if in contact with these active metals.

Hazardous decomposition products

- Unknown
-

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

- | | |
|-----------------------------------|--|
| (a) Acute toxicity | : LD ₅₀ (oral, rats): 2000 mg/kg. |
| | : LC ₅₀ (inhalation, rats): > 1.306 mg/L
for 4hrs. |
| (b) Skin corrosion/irritation | : slightly irritating. |
| (c) Serious eye damage/irritation | : moderately irritating. |



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- (d) Respiratory or skin sensitisation : Not Sensitizing.
(f) Germ cell mutagenicity : Negative.
(g) Carcinogenicity : Non carcinogenic.
(h) Reproductive toxicity : Not toxic to reproduction.
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12. ECOLOGICAL INFORMATION

12.1 Toxicity

Aquatic Toxicity

Short-term toxicity to fish

Brachydanio rerio (new name: *Danio rerio*)/fresh water/semi-static LC50 (96 hrs): >100 mg/L test mat.

Short-term toxicity to aquatic invertebrates

Daphnia magna/fresh water/static EC50 (48 h): 240 mg/L test mat.

Algae and aquatic plants

Pseudokirchnerella subcapitata (algae)/freshwater/static NOEC (72 h): \geq 100 mg/L test mat.

12.2 Persistence and degradability

Abiotic degradation:

Photo degradation in air

No information is available.

Photo degradation in water

No information is available.

12.3 Bioaccumulative potential

Terrestrial bioaccumulation

No information is available



12.4 Mobility in soil

Malic acid is readily biodegradable in water and mobility is not expected to be of concern.

12.5 Results of PBT and vPvB assessment

Malic acid is soluble and is readily biodegradable. The log Kow is well below levels of concern. It is not expected to persist or bioaccumulate in the environment.

12.6 Other adverse effects

None Known

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste treatment methods

- Recycle if possible, or send to an authorized incinerator. Follow the instructions in sections 'Accidental release measures' and 'Handling and storage' when handling waste spillages, taking the steps indicated in the same sections. We recommend recycling containers instead of disposal. Observe the local and national legislation in force.

14. TRANSPORT INFORMATION

Land transport (ADR/RID)

UN number:

Not dangerous goods

Class:

Not dangerous goods

Classification code:

Not dangerous goods



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Packaging group:

Not dangerous goods

Labels:

Not dangerous goods

Inland waterway transport (ADN(R))

UN number:

Not dangerous goods

Shipping open all close all

Class:

Not dangerous goods

Classification code:

Not dangerous goods

Packaging group:

Not dangerous goods

Labels:

Not dangerous goods

Marine transport (IMDG)

UN number:

Not dangerous goods

Proper shipping name and description:

Not dangerous goods

Chemical name:

Not dangerous goods

Class:

Not dangerous goods

Packaging group:

Not dangerous goods



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EmS number:

Not dangerous goods

Labels:

Not dangerous goods

Air transport ICAO/IATA

UN number:

Not dangerous goods

Proper shipping name and description:

Not dangerous goods

Chemical name:

Not dangerous goods

Class:

Not dangerous goods

Packaging group:

Not dangerous goods

Labels:

Not dangerous goods

15. REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS

According with the version of the Globally Harmonized System of Classification and labeling adopted in the United States and Regulation 1272/2008/EC (CLP): Classified



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15.2 CHEMICAL SAFETY ASSESSMENT

US FEDERAL REGULATIONS:

Clean Air Act:

ODS: Not applicable.

SARA (EPCRA) Section 313 (40 C.F.R. § 372.65): Not applicable.

TSCA Status: On TSCA inventory.

STATE REPORTING REQUIREMENTS:

California Proposition 65: Not applicable.

16. OTHER INFORMATION

Other classifications of the substance:

TSCA STATUS: On TSCA Inventory.

FDA STATUS: Citrus acid, Anhydrous complies with FDA Regulation 21 C.F.R. § 184.1033;

CALIFORNIA PROPOSITION 65: Not applicable.

HMIS Rating

Health hazard: 2

Chronic Health Hazard:

Flammability: 0

Physical Hazard 0

NFPA Rating

Health hazard: 2

Fire Hazard: 0

Reactivity Hazard: 0

Safety Data Sheet according to US OSHA 1910.1200



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Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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