

1. Chemical Product and Company Identification

Product name: DL-Malic acid

Cat No.: M022

Synonyms:

(±)-2-Hydroxysuccinic acid, DL-Hydroxybutanedioic acid

CAS-No. : 617-48-1

Company Identification:

LEONID CHEMICALS Pvt Ltd,

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP] Acute toxicity, Oral (Category 4) Skin irritation (Category 2) Serious eye damage (Category 1) Specific target organ toxicity - single exposure (Category 3) Classification according to EU Directives 67/548/EEC or 1999/45/EC Harmful if swallowed. Irritating to respiratory system and skin. Risk of serious damage to eyes. Label elements Label ling according Regulation (EC) No 1272/2008 [CLP] Pictogram Signal word Danger



Title: MATERIAL SAFETY DATA SHEET (MSDS):DL - MALIC ACID

Hazard statement(s) H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H335 May cause respiratory irritation. Precautionary statement(s) P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. P280 Wear protective gloves/ 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. Supplemental Hazard **Statements** none According to European Directive 67/548/EEC as amended. Hazard symbol(s) R-phrase(s) R22 Harmful if swallowed. R37/38 Irritating to respiratory system and skin. R41 Risk of serious damage to eyes. S-phrase(s) S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/39 Wear suitable protective clothing and eye/face protection. Other hazards - none

3. COMPOSITION/INFORMATION ON INGREDIENTS

Formula: $C_4H_6O_5$ Molecular Weight: 134.09 g/mol CAS-No.: 617-48-1

4. FIRST AID MEASURES

Description of first aid measures

General advice Consult a physician. Show this safety data sheet to the doctor in attendance. If inhaled If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician. In case of skin contact Wash off with soap and plenty of water. Consult a physician. In case of eye contact Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.



If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting.

Indication of any immediate medical attention and special treatment needed no data available

5. FIRE-FIGHTING MEASURES

Extinguishing media Suitable extinguishing media Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide. Special hazards arising from the substance or mixture Carbon oxides Advice for firefighters Wear self contained breathing apparatus for fire fighting if necessary. Further information no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Reference to other sections For disposal see section 13.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.Normal measures for preventive fire protection.

Conditions for safe storage, including any incompatibilities

Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Specific end uses



no data available

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Components with workplace control parameters

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

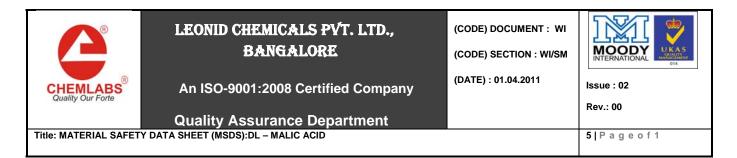
Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

- a) Appearance Form: solid
- b) Odour: no data available
- c) Odour Threshold: no data available
- d) pH: no data available
- e) Melting point/freezing point
- Melting point/range: 131 133 °C lit.
- f) Initial boiling point and boiling range: no data available



- g) Flash point: not applicable
- h) Evaporation rate: no data available
- i) Flammability (solid, gas): no data available
- j) Upper/lower flammability or explosive limits: no data available
- k) Vapour pressure: < 0.1 hPa at 20 °C
- I) Vapour density no data available
- m) Relative density: 1.6 g/cm3 at 20 °C
- n) Water solubility: no data available
- o) Partition coefficient: noctanol/water: no data available
- p) Autoignition temperature: 340 °C
- q) Decomposition temperature: no data available
- r) Viscosity: no data available
- s) Explosive properties: no data available
- t) Oxidizing properties: no data available
- Other safety information

no data available

10. STABILITY AND REACTIVITY

Reactivity no data available Chemical stability no data available Possibility of hazardous reactions no data available Conditions to avoid

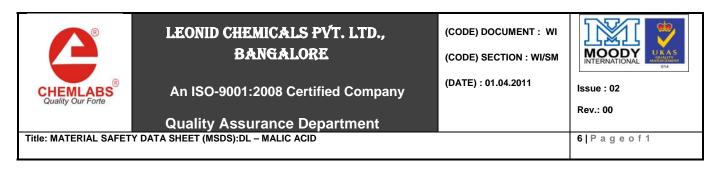
Heat.

Incompatible materials Bases, Oxidizing agents, Reducing agents, Alkali metals Hazardous decomposition products Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity LD50 Oral - rat - 1.600 mg/kg LD50 Intraperitoneal - rat - 100 mg/kg LD50 Intraperitoneal - mouse - 50 mg/kg Skin corrosion/irritation Skin - rabbit - Irritating to skin. - 24 h - Irritating to skin. Remarks: Moderate skin irritation Serious eye damage/eye irritation



Eyes - rabbit - Risk of serious damage to eyes. - 24 h - Risk of serious damage to eyes. Remarks: Severe eye irritation Respiratory or skin sensitization no data available Germ cell mutagenicity no data available Carcinogenicity IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. Reproductive toxicity no data available Specific target organ toxicity - single exposure Inhalation - May cause respiratory irritation. Specific target organ toxicity - repeated exposure no data available Aspiration hazard no data available Potential health effects Inhalation May be harmful if inhaled. Causes respiratory tract irritation. Ingestion Harmful if swallowed. Skin May be harmful if absorbed through skin. Causes skin irritation. Eyes Causes eye burns. Signs and Symptoms of Exposure Symptoms of exposure may include burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Additional Information RTECS: 0N7175000

12. ECOLOGICAL INFORMATION

Toxicity no data available Persistence and degradability no data available Bioaccumulative potential no data available Mobility in soil no data available Results of PBT and vPvB assessment no data available Other adverse effects no data available



13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION

UN number ADR/RID: - IMDG: - IATA: -UN proper shipping name ADR/RID: Not dangerous goods IMDG: Not dangerous goods IATA: Not dangerous goods Transport hazard class(es) ADR/RID: - IMDG: - IATA: -Packaging group ADR/RID: - IMDG: - IATA: -Environmental hazards ADR/RID: no IMDG Marine pollutant: no IATA: no Special precautions for user no data available

15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006. Safety, health and environmental regulations/legislation specific for the substance or mixture no data available Chemical Safety Assessment no data available

16. OTHER INFORMATION

Further information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any



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