

MATERIAL SAFETY DATA SHEET

Product Name: MALEIC ACID

Revision Date: 11.11.2009

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1. Manufacturer/Supplier Identification

Thirumalai Chemicals Limited,
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2. Composition / Information on ingredient

Chemical Name : Maleic acid
Chemical Formula : C₄H₄O₄
Molecular Weight : 116.08
CAS No. : 110-16-7
EINECS No. : 203-742-5
Synonyms : Butenedioic acid, Maleinic acid, toxilic acid

3. Hazard Identification

Warning : Irritant
Causes eye burns
Causes irritation to skin and respiratory tract
Harmful if swallowed or absorbed through skin

J.T.Baker SAF-T-DATA Ratings

Health Rating 2 - Moderate
Flammability Rating 1 - Slight
Reactivity Rating 1 - Slight
Contact Rating 2 - Moderate
Storage Colour Code: Orange

4. First Aid Measures

General advice : Special treatment by a doctor may be required as soon as possible, in case of exposure to the substance or its vapour.

Eye contact : Rinse thoroughly with plenty of water for at least 15 minutes. Get medical attention immediately.

Skin contact : Remove contaminated clothing.
Wash the skin with soap and plenty of water.

Ingestion : Clean mouth with water. Drink plenty of water.
Do not induce vomiting. Call a physician immediately.

Inhalation : Move victim to fresh air at once. If breathing is difficult, give oxygen. Consult a physician

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5. Fire Fighting Measures

- Fire hazard : As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.
- Extinguishing agents : Water spray, dry chemical, alcohol foam or Carbon dioxide
- Protective equipment : In case of fire, wear full protective chemical protection suit / clothing and NIOSH approved self contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

- Personal precautions : Remove all sources of ignition Ventilate area of leak or spill. Wear appropriate personal protective equipment.
- Environmental precautions : Do not allow material to contaminate ground water system.
- Methods for cleaning up : Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

7. Handling and Storage

- Handling : Avoid dust formation and control ignition sources. Empty only into inert or non-flammable atmosphere, to avoid flash fire or explosion due to electrostatic discharge.
- Storage : Keep in a tightly closed container, stored in a cool, dry, ventilated area, away from sources of ignition.

8. Exposure Controls / Personal Protection

National Occupational exposure limit : None established

- Engineering measures to reduce exposure : A system of local and / or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.

Personal Protective Equipment

- Respiratory : Self contained breathing apparatus
- Eye : Closely fitted Safety goggles.
- Hand : Impervious Gloves
- Skin and body : Approved work boots, protective clothing
- Hygiene measures : Wash hands before food and at the end of workday.
- Other devices : Maintain eye wash facility in work area

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9. Physical and Chemical Properties

Form : Crystals
Colour : White
Odour : 130⁰ C (266⁰ F)
Boiling point : 135⁰ C (275⁰ F) Decomposes
Vapor Density : 4.0 (Air =1)
Water Solubility : 79 g/100ml of water @ 25⁰ C (77⁰F) Freely soluble

10. Stability and Reactivity

Stability : Stable at normal conditions of use and storage
Hazardous decomposition products : Carbon monoxide and Carbon dioxide may be formed when heated to decomposition
Hazardous Polymerisation : Will not occur
Incompatibilities : Strong oxidisers
Conditions to avoid : Heat, dusting and incompatibles.

11. Toxicological Information

Acute toxicity (lethal doses)
(Literature value)

LD50/oral rat dose : 708 mg/kg
LD50/dermalrabbit : 1560 mg/kg
Investigated as a mutagen : Product is not a carcinogen

Experience with human beings

Local effect : Product dust or vapour will be irritating to eyes, skin and respiratory system.

12. Ecological information

According to appropriate OECD test, readily biodegradable.

Toxicity in Soil : When released into the soil, the material is expected to leach into groundwater and readily biodegrade.
Toxicity in Water : When released into water the material is expected to readily biodegrade. Is not expected to evaporate significantly.
Toxicity in Air : Expected to degrade by reaction with ozone and photo-chemically produce hydroxyl radicals
Environmental Toxicity : TLm / Fathead minnow / 5ppm / 96 hrs / fresh water
TLm / Mosquito fish / 240ppm / 24-48 hrs. / fresh water.

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13. Disposal Consideration

- Disposal method : Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.
- Contaminated packaging : Dispose container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Information reported for product / size: 12kgs

Proper shipping name : Maleic acid

Road transport ADR/RID Hazard Class: 8 Packing group : III
UN/NA : NA2215

Maritime transport IMDG/IMO Hazard Class: 8 Packing Group: III
UN/NA : UN3261

Air transport ICAO/IATA Hazard Class: 8 Packing Group: III
UN/NA : UN3261

15. Regulatory Information

The product is classified and labelled according to EEC directive on classification of hazardous preparations 90/492/EEC

- Hazard labels : Xn - Harmful, Corrosive
- R-phrases : R22 Harmful if swallowed
R36/37/38 Irritating to eyes, respiratory system and skin
- S-phrases : S22 Do not breathe dust.
S28 After contact with skin, wash, immediately with plenty of water
S39 Wear eye / face protection.

16. Other Information

The information provided in this Safety Data Sheet is given in good faith and is correct to the best of our knowledge and information at the date of publication. It is designed only as guidance for safe handling, storage, transportation, use and disposal. No warranty is expressed or implied.

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