

Section 1. Product and Company Identification

Product Name Maleic Acid
CAS Number 110-16-7

Parchem - fine & specialty chemicals
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EMERGENCY RESPONSE NUMBER
CHEMTEL
Toll Free US & Canada: 1 (800) 255-3924
All other Origins: 1 (813) 248-0585
Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

OSHA Hazards

Harmful by ingestion, harmful by skin absorption, skin sensitizer, Irritant

GHS Classification

Acute toxicity, Oral (Category 4)
Acute toxicity, Dermal (Category 4)
Skin irritation (Category 2)
Serious eye damage (Category 1)
Skin sensitization (Category 1)
Specific target organ toxicity - single exposure (Category 3)
Acute aquatic toxicity (Category 2)

GHS Label Elements

Pictograms:



Signal word: DANGER

Hazard and precautionary statements

Hazard statements

H302 + H312 Harmful if swallowed or in contact with skin
H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.



H401 Toxic to aquatic life.

Precautionary statements

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray

P280 Wear protective gloves/ eye protection/ face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Section 3. Composition / Information on Ingredients

Common Name Maleic Acid
Synonym(s) Toxilic acid, cis-Butenedioic acid, C-Maleic Acid HP
Formula $C_4H_4O_4$
CAS Number 110-16-7

COMPONENT	CAS NUMBER	CONCENTRATION
Maleic Acid	110-16-7	80.0 – 100.0%

Section 4. First Aid Measures

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Inhalation: If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

Skin contact: Wash off with soap and plenty of water. Consult a physician.

Eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

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

Section 5. Firefighting Measures

Conditions of flammability: Not flammable or combustible.

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous combustion products: Carbon oxides

Section 6. Accidental Release Measures

Personal precautions: Use personal protective equipment. Avoid dust formation. Avoid breathing dust. Ensure adequate ventilation.

Environmental precautions: Do not let product enter drains.

Methods for cleaning up: Pick up and arrange disposal without creating dust. Keep in suitable, closed containers for disposal.



Section 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. Dust explosion class: St2, LEL: 2.7%(V)

Conditions for safe storage: Keep container tightly closed in a dry and well-ventilated place. Keep in a dry place.

Section 8. Exposure Controls / Personal Protection

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Maleic Acid	None listed	None listed	None listed

OSHA Vacated PELs: Maleic Acid: No OSHA Vacated PELs are listed for this chemical.

Personal protective equipment

Respiratory protection: For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand 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.

Eye protection: Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and 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.

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

Section 9. Physical and Chemical Properties

Physical State: Powder

Appearance: White

Odor: No data available

Odor Threshold: No data available

pH: No data available

Vapor Pressure: Not available.

Vapor Density: Not available.

Ignition temperature: No data available

Auto ignition temperature: No data available
Lower explosion limit: 2.7 %(V)
Upper explosion limit: No data available
Flash point: Flash point 127°C
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 160°C (320°F)
Freezing/Melting Point: Melting point/range: 137 - 140°C
Decomposition Temperature: Not available.
Solubility: 788 g/l at 20°C
Specific Gravity/Density: 1.59 g/cm³ at 25°C (77°F)
Molecular Formula: C₄H₄O₄
Molecular Weight: 116.07 g/mol

Section 10. Stability and Reactivity

Chemical stability: Stable under recommended storage conditions
Possibility of hazardous conditions: Dust explosion class: St2, LEL: 2.7%(V)
Conditions to avoid: Dust
Materials to avoid: Oxidizing agents
Hazardous decomposition products: Hazardous decomposition products formed under fire - Carbon oxides

Section 11. Toxicological Information

Acute Toxicity

Oral LD50

LD50 Oral - rat: 708 mg/kg

Remarks: Behavioral: Convulsions or effect on seizure threshold. Behavioral: Muscle weakness.
Gastrointestinal: Ulceration or bleeding from stomach.

Inhalation LC50

LC50 Inhalation - rat - 1 h - > 720 mg/m³

Dermal LD50

LD50 Dermal - rabbit - 1,560 mg/kg

Remarks: Behavioral: Tremor.

Other information on acute toxicity: no data available

Skin corrosion/irritation: Skin - rabbit - Mild skin irritation - 24 h

Serious eye damage/eye irritation: Eyes - rabbit - Severe eye irritation

Respiratory or skin sensitization: May cause sensitization by skin contact

Germ cell mutagenicity: no data available



Carcinogenicity

IARC: No components of this product, present at levels greater than or equal to 0.1%, is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No components of this product, present at levels greater than or equal to 0.1%, is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No components of this product, present at levels greater than or equal to 0.1%, is identified as a known or anticipated carcinogen by NTP.

OSHA: No components of this product, present at levels greater than or equal to 0.1%, is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available

Teratogenicity: No data available

Specific target organ toxicity - single exposure (Globally Harmonized System): May cause respiratory irritation

Specific target organ toxicity - repeated exposure (Globally Harmonized System):
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: Harmful if absorbed through skin. Causes skin irritation.

Eyes: Causes eye irritation.

Signs and Symptoms of Exposure: Gastrointestinal disturbance

Synergistic effects: No data available

Additional Information: None

Section 12. Ecological Information

Toxicity

Toxicity to fish

LC50 - Pimephales promelas (fathead minnow): 5 mg/l - 96 h

LC0 - Lepomis macrochirus (Bluegill): > 300 mg/l - 96 h

Toxicity to daphnia and other aquatic invertebrates

EC100 - Daphnia magna (Water flea): 160 - 400 mg/l - 48 h

EC50 - Daphnia magna (Water flea): 160 - 400 mg/l - 48 h

EC100 - Daphnia magna (Water flea): 200 mg/l - 24 h

Toxicity to algae

EC50 - Desmodesmus subspicatus (green algae): 41 mg/l - 72 h



Persistence and degradability

Bioaccumulative potential

Bioaccumulation *Leuciscus idus melanotus* - 3 d

Bioconcentration factor (BCF): < 10

Mobility in soil: No data available

PBT and vPvB assessment: No data available

Other adverse effects: No data available

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

DOT (US)

UN number: 3261

Class: 8

Packing group: III

Proper shipping name: Corrosive Solid, Acidic, Organic, n.o.s. (Maleic Acid)

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: Yes

Poison Inhalation Hazard: No

(see Section 15, Title 49: Transportation for bulk marine shipments)

IMDG

UN number: 3261

Class: 8

Packing group: III

Proper shipping name: Corrosive Solid, Acidic, Organic, n.o.s. (Maleic Acid)

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: Yes

Poison Inhalation Hazard: No

IATA

UN number: 3261

Class: 8

Packing group: III

Proper shipping name: Corrosive Solid, Acidic, Organic, n.o.s. (Maleic Acid)

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: Yes

Poison Inhalation Hazard: No



Section 15. Regulatory Information

OSHA Hazards: Harmful by ingestion. Harmful by skin absorption. Skin sensitizer, Irritant

TSCA: CAS# 110-16-7 is listed on the TSCA inventory.

Health & Safety Reporting List: None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules: None of the chemicals in this product are under a Chemical Test Rule.

Section 12b: None of the chemicals are listed under TSCA Section 12b

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards: Acute Health Hazard

Massachusetts Right to Know Components

Maleic acid (CAS# 110-16-7)

Revision Date: 2007-03-01

Pennsylvania Right to Know Components

Maleic acid (CAS# 110-16-7)

Revision Date: 2007-03-01

New Jersey Right to Know Components

Maleic acid (CAS# 110-16-7)

Revision Date: 2007-03-01

California Prop. 65 Components

California No Significant Risk Level: None of the chemicals in this product are listed.

Title 49: Transportation Ammonium Benzoate is listed in 172.101 Appendix A (RQ 5000 pounds)

PART 171-GENERAL INFORMATION, REGULATIONS, AND DEFINITIONS

Subpart A-Applicability, General Requirements, and North American Shipments

§ 171.4 Marine pollutants.

(a) Except as provided in paragraph (c) of this section, no person may offer for transportation or transport a marine pollutant, as defined in §171.8, in intrastate or interstate commerce except in accordance with the requirements of this subchapter.

(b) The requirements of this subchapter for the transportation of marine pollutants are based on the provisions of Annex III of the 1973 International Convention for Prevention of Pollution from Ships, as modified by the Protocol of 1978 (MARPOL 73/78).



(c) Exceptions. Except when all or part of the transportation is by vessel, the requirements of this subchapter specific to marine pollutants do not apply to non-bulk packaging transported by motor vehicle, rail car, or aircraft.

[Amdt. 171-116, 57 FR 52934, Nov. 5, 1993, as amended by Amdt. 107-39, 61 FR 51337, Oct. 1, 1996; 73 FR 4712, Jan. 28, 2008]

Hazardous substance for the purposes of this subchapter, means a material, including its mixtures and solutions, that-

- (1) Is listed in the appendix A to §172.101 of this subchapter;
- (2) Is in a quantity, in one package, which equals or exceeds the reportable quantity (RQ) listed in the appendix A to §172.101 of this subchapter

Section 16. Other Information

Disclaimer: 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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