

# Safety Data Sheet

## Maleic Acid

**CAROLINA**<sup>®</sup>  
www.carolina.com

### Section 1

### Product Description

**Product Name:** Maleic Acid  
**Recommended Use:** Science education applications  
**Synonyms:** cis-Butenedioic Acid, (Z) 1,2-Ethylenedicarboxylic Acid, Toxilic Acid, Maleinic Acid  
**Distributor:** Carolina Biological Supply Company  
2700 York Road, Burlington, NC 27215  
1-800-227-1150  
**Chemical Information:** 800-227-1150 (8am-5pm (ET) M-F)  
**Chemtrec:** 800-424-9300 (Transportation Spill Response 24 hours)

### Section 2

### Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

**DANGER**



Causes skin irritation. Causes serious eye damage. Toxic to aquatic life.

**GHS Classification:**

Serious Eye Damage/Eye Irritation Category 1, Skin Corrosion/Irritation Category 2, Hazardous to the aquatic environment - Acute Category 2

### Section 3

### Composition / Information on Ingredients

<u>Chemical Name</u>	<u>CAS #</u>	<u>%</u>
Maleic Acid	110-16-7	100

### Section 4

### First Aid Measures

**Emergency and First Aid Procedures**

**Inhalation:** In case of accident by inhalation: remove casualty to fresh air and keep at rest.  
**Eyes:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
**Skin Contact:** IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.  
**Ingestion:** If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

### Section 5

### Firefighting Procedures

**Extinguishing Media:** Water spray. Carbon dioxide Dry chemical Alcohol foam  
**Fire Fighting Methods and Protection:** Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.  
**Fire and/or Explosion Hazards:** Fire or excessive heat may produce hazardous decomposition products.  
**Hazardous Combustion Products:** Maleic Anhydride, Carbon dioxide, Carbon monoxide

# Safety Data Sheet

## Section 6

## Spill or Leak Procedures

### Steps to Take in Case Material Is Released or Spilled:

Exposure to the spilled material may be irritating or harmful. Follow personal protective equipment recommendations found in Section 8 of this SDS. Additional precautions may be necessary based on special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred. Also consider the expertise of employees in the area responding to the spill. Avoid the generation of dusts during clean-up. Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation.

### Methods for Clean-up

## Section 7

## Handling and Storage

**Handling:** Wash thoroughly after handling. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

**Storage:** Keep container tightly closed in a cool, well-ventilated place.

**Storage Code:** Green - general chemical storage

## Section 8

## Protection Information

Chemical Name	ACGIH		OSHA PEL	
	(TWA)	(STEL)	(TWA)	(STEL)
Maleic Acid	N/A	N/A	N/A	N/A

### Control Parameters

#### Engineering Measures:

No exposure limits exist for the constituents of this product. Use local exhaust ventilation or other engineering controls to minimize exposures and maintain operator comfort.

#### Personal Protective Equipment (PPE):

Lab coat, apron, eye wash, safety shower.

#### Respiratory Protection:

No respiratory protection required under normal conditions of use.

#### Respirator Type(s):

None required where adequate ventilation is provided. If airborne concentrations are above the applicable exposure limits, use NIOSH/MSHA approved respiratory protection. Wear chemical splash goggles when handling this product. Have an eye wash station available.

#### Eye Protection:

#### Skin Protection:

Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

#### Gloves:

No information available

## Section 9

## Physical Data

**Formula:** C<sub>4</sub>H<sub>4</sub>O<sub>4</sub>  
**Molecular Weight:** 116.07  
**Appearance:** White Crystalline Solid  
**Odor:** Mild Sharp  
**Odor Threshold:** No data available  
**pH:** No data available  
**Melting Point:** 131 C  
**Boiling Point:** 135 C  
**Flash Point:** No data available  
**Flammable Limits in Air:** No data available

**Vapor Pressure:** 30 hPa at 20 °C  
**Evaporation Rate (BuAc=1):** No data available  
**Vapor Density (Air=1):** No data available  
**Specific Gravity:** 1.590 at 20 °C  
**Solubility in Water:** Soluble  
**Log Pow (calculated):** -0.48  
**Autoignition Temperature:** No data available  
**Decomposition Temperature:** 135 C  
**Viscosity:** No data available  
**Percent Volatile by Volume:** No data available

## Section 10

## Reactivity Data

**Reactivity:** Not generally reactive under normal conditions.  
**Chemical Stability:** Stable under normal conditions.  
**Conditions to Avoid:** None known.  
**Incompatible Materials:** Strong oxidizing agents  
**Hazardous Decomposition Products:** Carbon dioxide, Carbon monoxide, Maleic Anhydride  
**Hazardous Polymerization:** Will not occur

# Safety Data Sheet

## Section 11

## Toxicity Data

**Routes of Entry:** Inhalation, Ingestion, and Skin contact.  
**Symptoms (Acute):** Depressed Activity, urinary symptoms, Respiratory Irritation, Dermatitis  
**Delayed Effects:** No data available

### Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Maleic Acid	110-16-7	Oral LD50 Mouse 2400 mg/kg	Not determined	Not determined

### Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
Maleic Acid	110-16-7	Not listed	Not listed	Not listed

### Chronic Effects:

**Mutagenicity:** No evidence of a mutagenic effect.  
**Teratogenicity:** No evidence of a teratogenic effect (birth defect).  
**Sensitization:** No evidence of a sensitization effect.  
**Reproductive:** No evidence of negative reproductive effects.  
**Target Organ Effects:**  
**Acute:** No data available  
**Chronic:** No data available

## Section 12

## Ecological Data

**Overview:** This material is not expected to be harmful to the ecology.  
**Mobility:** This material is expected to have high mobility in soil. It absorbs weakly to most soil types.  
**Persistence:** Biodegradation, Dissolved into water  
**Bioaccumulation:** Bioconcentration is not expected to occur.  
**Degradability:** Biodegrades quickly.  
**Other Adverse Effects:** No data

Chemical Name	CAS Number	Eco Toxicity
Maleic Acid	110-16-7	96 HR LC50 PIMEPHALES PROMELAS 5 MG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 250 - 400 MG/L

## Section 13

## Disposal Information

**Disposal Methods:** Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.  
**Waste Disposal Code(s):** Not Determined

## Section 14

## Transport Information

**Ground - DOT Proper Shipping Name:** Not regulated for transport by US DOT.  
**Air - IATA Proper Shipping Name:** Not regulated for air transport by IATA.

# Safety Data Sheet

## Section 15

## Regulatory Information

**TSCA Status:**

All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
Maleic Acid	110-16-7	No	5000 lb RQ	5000 lb final RQ; 2270 kg final RQ	No	No

**California Prop 65:**

No California Proposition 65 ingredients

## Section 16

## Additional Information

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The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

**Glossary**

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health