

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - IDENTIFICATION OF THE MATERIAL AND SUPPLIER

**Material Name:** Maleic Acid.  
**Catalogue Number:** C152.  
**Other Names:** (Z)-Butenedioic Acid  
**Recommended Use:** Laboratory use only.

**Supplier Name:** ProSciTech  
**Street Address:** 1/11 Carlton Street, Kirwan, Qld. 4817 Australia  
**Telephone Number:** (07) 4773 9444 **Fax Number:** (07) 4773 2244  
**Emergency Contact:** (07) 4773 9444 8:30am – 5:00pm, Monday to Friday

### SECTION 2 - HAZARDS IDENTIFICATION

**Hazard Classification:** Hazardous according to criteria of NOHSC.  
**Hazardous and/or Dangerous Nature:** HAZARDOUS SUBSTANCE. DANGEROUS GOODS.  
**Risk Phrases:** R22 Harmful if swallowed.  
R36/37/38 Irritating to eyes, respiratory system and skin.  
**Safety Phrases:** S2 Keep out of reach of children.  
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
S28 After contact with skin, wash immediately with plenty of running water and non-abrasive soap.  
S37 Wear suitable gloves.

### SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

**SUBSTANCE:** **Chemical Identity:** Maleic Acid.  
**Common Name(s):** (Z)-Butenedioic Acid  
**CAS Number(s):** 110-16-7

#### MIXTURE:

Ingredients	Cas Number(s)	Proportion (%)
Maleic Acid	110-16-7	100

### SECTION 4 - FIRST AID MEASURES

**Swallowed:** Do not induce vomiting unless directed to do so by medical personnel. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.

**Eye:** Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Do not use an eye ointment. Seek medical attention.

**Skin:** If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands: Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices and groin. Cold water may be used. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.  
**IN CASE OF SERIOUS EXPOSURE:** Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhaled:** Allow the victim to rest in a well ventilated area. Seek immediate medical attention.  
**IN CASE OF OVEREXPOSURE:** Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation.  
**WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

**First Aid Facilities:** Eyebath/eyewash & Safety shower.  
**Medical Attention & Special Treatment:**

Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching.

ADDITIONAL INFORMATION:

## SECTION 5 - FIRE FIGHTING MEASURES

### Suitable Extinguishing Media:

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use water spray, for or foam. Do not use water jet.

### Hazards from Combustion Products:

May be combustible at high temperature. Produces carbon oxides (CO, CO<sub>2</sub>). Slightly flammable to flammable in presence of heat, of metals. Non –flammable in presence of shocks. Explosive in presence of heat. Contact with metals may evolve flammable Hydrogen gas. When heated, vapors may form Explosive mixtures with air. Containers may explode when heated.

### Precautions for Fire Fighters:

Wear appropriate protective equipment.

### Hazchem Code:

## SECTION 6 - ACCIDENTAL RELEASE MEASURES

### Emergency Procedures:

### Containment and clean up:

SMALL SPILL: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

LARGE SPILL: Corrosive solid. Poisonous Solid. Stop leak if without risk. Do not get water inside container.

Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

## SECTION 7 - HANDLING & STORAGE

### Precautions for Safe Handling:

Wear appropriate protective equipment (see Section 8), use only in well ventilated areas.

### Conditions for Safe Storage:

Keep container dry. Keep in a cool place. Ground all equipment containing material. Corrosive materials should be stored in a separate safety storage cabinet or room. Do not store above 25°C (77°F). Keep away from heat.

Keep away from sources of ignition. Empty containers pose a fire risk; evaporate the residue under a fume hood.

Ground all equipment containing material. Do not ingest. Do not breathe dust. Never add water to this product.

In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

## SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

**National Exposure Standards:** No exposure standard allocated.

**Biological Limit Values:** No biological limit allocated.

### Engineering Controls:

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

### Personal Protective Equipment:

PERSONAL PROTECTION: Splash goggle. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

PERSONAL PROTECTION IN CASE OF A LARGE SPILL: Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product

## SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES

**Appearance:** Powdered Solid.

**Odour:** Slight.

<b>pH:</b>	Not available.
<b>Vapour pressure (mm of Hg at 25°C):</b>	Not available.
<b>Vapour density:</b>	4 (Air = 1)
<b>Boiling point/range (°C):</b>	Decomposition temperature: 135°C
<b>Freezing/melting point (°C):</b>	138.5oC
<b>Solubility:</b>	Easily soluble in cold water. Soluble in acetone. Very slightly soluble in diethyl ether.
<b>Specific gravity or density:</b>	1.59 (Water=1)
<b>Flash Point:</b>	Not available.
<b>Flammable (explosive) limits:</b>	Not available.
<b>Ignition temperature:</b>	Not available.
<b>Additional Information:</b>	

## SECTION 10 - STABILITY AND REACTIVITY

<b>Chemical stability:</b>	Stable under normal conditions of use.
<b>Conditions to avoid:</b>	Excess heat (above 200°C), dust generation, Incompatible materials, moisture.
<b>Incompatible Materials:</b>	Reactive with oxidizing agents, reducing agents, metals, alkalis. Slightly reactive to reactive with moisture.
<b>Hazardous Decomposition Products:</b>	Contact with metals may evolve flammable Hydrogen gas. Maleic Acid releases acrid smoke and fumes when heated to decomposition.
<b>Hazardous Reactions:</b>	Will not occur.

## SECTION 11 - TOXICOLOGICAL INFORMATION

### Exposure and Health Effects:

**Potential Chronic Health Effects:** Very hazardous in case of eye contact (irritant), on ingestion, of inhalation. Hazardous in case of skin contact (irritant). Very hazardous in case of eye contact (irritant), of ingestion, of inhalation. Hazardous in case of skin contact (irritant). Corrosive to eyes and skin. The amount of tissue damage depends on length of contact.

### Ingestion:

Very hazardous in case of ingestion. Repeated or prolonged exposure to the substance can produce target organs damage.

### Inhalation:

The substance is toxic to lungs, mucous membranes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death.

### Skin Contact:

Repeated skin exposure can produce local skin destruction, or dermatitis. Skin contact can produce inflammation and blistering.

### Eye Contact:

Repeated exposure of the eyes to a low level of dust can produce eye irritation. Inflammation of the eye is characterized by redness, watering, and itching. Eye contact can result in corneal damage or blindness.

**Human/Animal data:** ORAL (LD50): Acute: 720 mg/kg 1 hour [Rat].  
DERMAL (LD50): Acute: 1560 mg/kg [Rabbit].  
Mutagenic for mammalian somatic cells.

**Carcinogenicity:** Not available.

## SECTION 12 – ECOLOGICAL INFORMATION

<b>Ecotoxicity:</b>	Not available.
<b>Persistence and degradability:</b>	Possibly hazardous short term degradation products are not likely However, long term degradation products may arise. The products of degradation are more toxic.
<b>Mobility:</b>	Not available.
<b>Additional Information:</b>	

## SECTION 13 - DISPOSAL CONSIDERATIONS

### Disposal Methods:

Recycle to process, if possible. Consult your local or regional authorities.

**Special Precautions:****SECTION 14 - TRANSPORT INFORMATION**

<b>UN Number:</b>	UN2215
<b>UN Proper Shipping Name:</b>	Maleic anhydride
<b>Class and Subsidiary risk:</b>	8
<b>Packing Group:</b>	PG III
<b>Special Precautions for User:</b>	Not available
<b>Hazchem Code:</b>	Not available

**SECTION 15 - REGULATORY INFORMATION**

**Poison Schedule Number:** None allocated.

**SECTION 16 - OTHER INFORMATION**

Date of preparation of MSDS: August 10

Comments:

The information published in this Material Safety Data Sheet has been compiled from data in various technical publications. It is the user's responsibility to determine the suitability of this information for adoption of necessary safety precautions. We reserve the right to revise material Safety Data Sheets as new information becomes available. Copies may be made for non-profit use.