Infosafe No™	1CH45	Issue Date : July 2017	RE-ISSUED by CHEMSUPP

Product Name : **MALEIC ACID**

Classified as hazardous

1. Identification

GHS Product Identifier	MALEIC ACID
Company Name	CHEM-SUPPLY PTY LTD (ABN 19 008 264 211)
Address	38 - 50 Bedford Street GILLMAN SA 5013 Australia
Telephone/Fax Number	Tel: (08) 8440-2000 Fax: (08) 8440-2001
Recommended use of the chemical and restrictions on use	Organic synthesis (malic, succinic, aspartic, tartaric, propionic, lactic, malonic and acrylic acids), dyeing and finishing of cotton, wool and silk, artificial resins, preservative for oils and fats and preparation of maleate salts of antihistamines and similar drugs.
Other Names	**Name** — **Product Code** cis-Butenedioic acid Maleinic acid Toxilic acid MALEIC ACID LR — ML044
Other Information	EMERGENCY CONTACT NUMBER: +61 08 8440 2000 Business hours: 8:30am to 5:00pm, Monday to Friday. Chem-Supply Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon Chem-Supply Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of Chem-Supply Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

2. Hazard Identification

GHS classification of the substance/mixture	Eye Damage/Irritation: Category 1 Acute Toxicity - Oral: Category 4 Skin Corrosion/Irritation: Category 2 Specific target organ toxicity - Single Exposure Category 3 (respiratory tract irritation) Sensitization - Skin: Category 1 Acute Toxicity - Dermal: Category 4
Signal Word (s)	DANGER
Hazard Statement (s)	H302 Harmful if swallowed. H312 Harmful in contact with skin. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H335 May cause respiratory irritation.
Pictogram (s)	Corrosion, Exclamation mark

Precautionary statement – Prevention	P261 Avoid breathing dust. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in a well-ventilated area. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Precautionary statement – Response	P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. P330 Rinse mouth. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P362 Take off contaminated clothing and wash before reuse.

	P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P312 Call a POISON CENTER or doctor/physician if you feel unwell. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor/physician.
Precautionary statement – Storage	P403+P233 Store in a well-ventilated place. Keep container tightly closed. P405 Store locked up.
Precautionary statement – Disposal	P501 Dispose of contents/container according to local, state and federal regulations.

3. Composition/information on ingredients

Chemical Characterization Solid

Ingredients

Name	CAS	Proportion	Hazard Symbol	Risk Phrase
Maleic acid	110-16-7	100 %	Xn, Xi	R22, R36/37/38

4. First-aid measures

Inhalation	If inhaled, remove from contaminated area to fresh air immediately. Apply artificial respiration if not breathing. If breathing is difficult, give oxygen. Get medical aid if cough or other symptoms appear.
Ingestion	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek medical advice if effects persist.
Skin	Remove contaminated clothing and wash affected skin with soap and water. If rapid recovery does not occur, obtain medical attention
Eye contact	Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.
First Aid Facilities	Maintain eyewash fountain and drench facilities in work area.
Advice to Doctor	Treat symptomatically based on judgement of doctor and individual reactions of the patient.
Other Information	For advice, contact a Poisons Information Centre (Phone eg Australia 13 1126; New Zealand 0800 764 766) or a doctor.

5. Fire-fighting measures

Specific Methods	Small fire: Use dry chemical, CO2, water spray or foam. Large fire: Use water spray, fog or foam. If safe to do so, move undamaged containers from the fire area. Cool containers with flooding quantities of water until well after the fire is out.
Specific hazards arising from the chemical	May burn but do not ignite readily. Runoff may pollute waterways. Fire may produce irritating, poisonous and/or corrosive fumes. Containers may explode when heated. Dust potential: This material, like most materials in powder form, is capable of creating a dust explosion.
Decomposition Temp.	At temperatures slightly higher than its melting point, it is converted partly to fumaric acid (mp 287 °C).
Precautions in connection with Fire	Wear SCBA and structural firefighter's uniform.

6. Accidental release measures

Personal Precautions	Avoid substance contact. Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.
Personal Protection	Wear protective clothing specified for normal operations (see Section 8)
Clean-up Methods - Small Spillages	Sweep up (avoid generating dust) and using clean non-sparking tools transfer to a clean, suitable, clearly labelled container for disposal in accordance with local regulations.

7. Handling and storage

Precautions for Safe Handling	Avoid substance contact and generation and inhalation of dust. Avoid generation or accumulation of dusts.
Conditions for safe storage, including any incompatabilities	Keep container tightly closed and dry, away from direct sunlight. Store at room temperature (15 - 25 °C).

8. Exposure controls/personal protection

Other Exposure Information	A time weighted average (TWA) concentration for an 8 hour day, and 5 day week has not been established by Safe Work Australia for this product. There is a blanket limit of 10 mg/m³ for dusts when limits have not otherwise been established.
Appropriate engineering controls	In industrial situations maintain the concentrations values below the TWA. This may be achieved by process modification, use of local exhaust ventilation, capturing substances at the source, or other methods.
Respiratory Protection	Where ventilation is not adequate, respiratory protection may be required. Avoid breathing dust, vapours or mists. Respiratory protection should comply with AS 1716 - Respiratory Protective Devices and be selected in accordance with AS 1715 - Selection, Use and Maintenance of Respiratory Protective Devices. Filter capacity and respirator type depends on exposure levels. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA should be used. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance and inspection.
Eye Protection	The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.
Hand Protection	Hand protection should comply with AS 2161, Occupational protective gloves - Selection, use and maintenance. Recommendation: Nitrile rubber gloves
Personal Protective Equipment	Final choice of personal protective equipment will depend on individual circumstances and/or according to risk assessments undertaken.
Footwear	Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use. Recommendation: Rubber boots.
Body Protection	Flame retardant protective clothing. Clean clothing or protective clothing should be worn, preferably with an apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.
Hygiene Measures	Always wash hands before smoking, eating or using the toilet. Wash contaminated clothing and other protective equipment before storing or re-using.

9. Physical and chemical properties

Form	Solid
Appearance	Colourless to white powder.
Odour	Faint acidulous odour.
Decomposition Temperature	At temperatures slightly higher than its melting point, it is converted partly to fumaric acid (mp 287 °C).
Melting Point	137 - 140°C
Solubility in Water	788 g/L @ 25 °C
Solubility in Organic Solvents	Freely soluble in alcohol. Soluble in glacial acetic acid and acetone. Slightly soluble in ether. Practically insoluble in benzene.
Specific Gravity	1.59
pH	1.3 (100 g/l, H2O)
Vapour Pressure	30 hPa at 20°C
Vapour Density (Air=1)	4.0
Flash Point	>100 °C
Flammability	Combustible.
Explosion Limit - Lower	2.7%
Molecular Weight	116.07
Other Information	Repulsive astringent taste.

10. Stability and reactivity

Chemical Stability	Stable under ordinary conditions of use and storage.
Incompatible Materials	Oxidizing aents, reducing agents, bases.

Hazardous Decomposition Products	Carbon dioxide, carbon monoxide.
Hazardous Polymerization	Will not occur.

11. Toxicological Information

Acute Toxicity - Oral	LD50 (rat): 1090 mg/kg.
Acute Toxicity - Dermal	LD50 (rabbit): 1560 mg/kg.
Acute Toxicity - Inhalation	LC50 (rat): >720 mg/m³/1 h.
Ingestion	Harmful if swallowed. Symptoms may include irritation of the soft mucous tissues of the mouth, coughing, dyspnoea and gastrointestinal disturbances.
Inhalation	Irritant to the upper respiratory tract and mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. Can cause lung irritation, chest pain and oedema which may be fatal.
Skin	Irritating to skin. Harmful by prolonged skin contact.
Eye	Causes serious eye damage.
Chronic Effects	Chronic exposure by skin contact or inhalation may cause irritation of the skin or mucous tissues, possible loss of appetite, nausea, vomiting, abdominal pain, rapid respiration, toxic psychosis and even death.

12. Ecological information

Ecotoxicity	Toxic for aquatic organisms.
Persistence and degradability	Biodegradation: 92%/20d. BOD 77% from TOD/5d. Readily biodegradable. Further ecologic data: COD 96% from TOD; TOD: 0.83 g/g.
Bioaccumulative Potential	Behaviour in environmental compartments: Distribution: log P(o/w): -0.48 (experimental). No bioaccumulation is to be expected (log P(o/w) <1). Bioconcentration factor: 10 - 14.
Acute Toxicity - Fish	P. promelas LC50: 5 mg/l/96 h. Leuciscus idus LC50: 106 mg/l. Lepomis macrochirus (Bluegill) LCo: 300 mg/l/96 h.
Acute Toxicity - Daphnia	Daphnia magna EC50: 316.2 mg/l/48 h.
Acute Toxicity - Algae	Algae IC10: 125 mg/l/4 h.
Acute Toxicity - Bacteria	Ps. putida EC10: 1190 mg/l/18 h.

13. Disposal considerations

Disposal Considerations	Whatever cannot be saved for recovery or recycling should be disposed of according to relevant local, state and federal government regulations.

14. Transport information

Transport Information	Not classified as a Dangerous Good according to the Australian Code for the Transport of Dangerous Goods by Road and Rail.

15. Regulatory information

Regulatory Information	Listed in the Australian Inventory of Chemical Substances (AICS).
Poisons Schedule	Not Scheduled
Hazard Category	Harmful,Irritant

16. Other Information

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Literature References	'Standard for the Uniform Scheduling of Medicines and Poisons No. 15', Commonwealth of Australia, November 2016. Lewis, Richard J. Sr. 'Hawley's Condensed Chemical Dictionary 13th. Ed.', Rev., John Wiley and Sons, Inc., NY, 1997. National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.', 2007. Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', 2011. Standards Australia, 'SAA/SNZ HB 76:2010 Dangerous Goods - Initial Emergency Response Guide', Standards Australia/Standards New Zealand, 2010. Safe Work Australia, 'Approved Criteria for Classifying Hazardous Substances [NOHSC:1008 (2004)]'. Safe Work Australia, 'Hazardous Substances Information System, 2005'. Safe Work Australia, 'National Code of Practice for the Labelling of Safe Work Hazardous Substances (2011)'. Safe Work Australia, 'National Exposure Standards for Atmospheric Contaminants in the Occupational Environment [NOHSC:1003(1995) 3rd Edition]'.
Contact Person/Point	Paul McCarthy Ph. (08) 8440 2000 DISCLAIMER STATEMENT: All information provided in this data sheet or by our technical representatives is compiled from the best knowledge available to us. However, since data, safety standards and government regulations are subject to change and the conditions of handling and use, or misuse, are beyond our control, we make no warranty either expressed or implied, with respect to the completeness or accuracy to the information contained herein. Chem-Supply accepts no responsibility whatsoever for its accuracy or for any results that may be obtained by customers from using the data and disclaims all liability for reliance on information provided in this data sheet or by our technical representatives.
Empirical Formula & Structural Formula	HOOCCH:CHCOOH

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