Safety Data Sheet MALIC ACID

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SECTION 1: Identification

GHS Product identifier

Product name	MALIC ACID

Other means of identification

DL - Malic Acid FCC	MF008
DL - Malic Acid FCC (conforms to FCC)	MF008-15KG
DL Malic Acid FCC 25-100 mesh Kosher, Halal, GMO free	MF008-25KG
DL - Malic Acid	ML008
DL Malic Acid LR	ML008-100G
DL Malic Acid LR	ML008-500G
DL - Malic Acid FCC	MP008
DL - Malic Acid FCC Kosher, Halal certified	MP008-10KG
DL - Malic Acid FCC (conforms to FCC)	MP008-15KG
DL Malic Acid FCC (25-100 mesh) Kosher, Halal, GMO free	MP008-25KG

Recommended use of the chemical and restrictions on use

Food acidulant, flavouring, wine manufacture, manufacture of various esters and salts, chelating agent and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Serious eye damage/eye irritation, Cat. 2A

GHS label elements, including precautionary statements

Pictograms

Signal word	**Warning**

Hazard statement(s)

H319	Causes serious eye irritation

Precautionary statement(s)

P264	Wash hands thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313	If eye irritation persists: Get medical advice/attention.

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight: 134.09

Components

Component	CAS no.	Concentration
MALIC ACID (EC no.: 230-022-8)	**6915-15-7**	**100 - 100 % (weight)**
CLASSIFICATIONS: Serious eye damage/eye irritation, Cat. 2A. HAZARDS: H319 - Causes serious eye irritation.		

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice	First Aid Facilities: Maintain eyewash fountain in work area.
If inhaled	Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.
In case of skin contact	Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.
In case of eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
If swallowed	Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
Treat symptomatically based on judgement of doctor and individual reactions of the patient.

For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
In case of fire, use appropriate extinguishing media most suitable for surrounding fire conditions. Suitable media may include Foam, powder, water spray.
Do not use water jets as they can disperse and spread fire

Specific hazards arising from the chemical
Combustible solid. Vapours heavier than air. Forms explosive mixtures with air on intense heating. Risk of dust explosion if enriched with fine dust in the presence of air. Incompatible with Oxidizing agents, Bases, Reducing materials, Alkali metals and sources of ignition. Development of hazardous combustion gases or vapours possible in the event of fire. These may include Carbon monoxide and carbon dioxide.

Special protective actions for fire-fighters
Fire fighters should wear full protective clothing and self-contained breathing apparatus (SCBA) operated in positive pressure mode. Fight fire from safe location.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Personnel involved in the clean up should wear full protective clothing as listed in section 8. Evacuate all unnecessary personnel. Eliminate all sources of ignition. Increase ventilation. Avoid generating dust. Damp down dust with water spray jet. Do not allow to enter sewerage system. Stop leak if safe to do so. Isolate the danger area. Remove all incompatible materials as outlined in section 10. Do NOT let product reach drains or waterways. If product does enter a waterway, advise the Environmental Protection Authority or your local Waste Management.

Methods and materials for containment and cleaning up
Small Spillages: Do not use equipment that can generate sources of ignition when cleaning. Clean the spilled material mechanically and put it in an appropriate container for disposal in accordance with
section 13. After collection, ventilate and clean the affected area with water before granting access. Do not flush the water used for cleaning into watercourses or down drains.

SECTION 7: Handling and storage

Precautions for safe handling
Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Conditions for safe storage, including any incompatibilities
Slightly hydroscopic. Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Bases. Metals. Reducing Agent.

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face 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.

Skin protection

Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Hand Protection: Ensure hand protection complies with AS 2161, Occupational protective gloves - Selection, use and maintenance.

Body protection
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.

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.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	White to almost white crystalline granular powder.
Color	No data available.
Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	DL malic acid: 127 - 133 °C (L-malic acid: 101 - 104 °C).
Boiling point or initial boiling point and boiling range	Decomposes before boiling at 140 - 150 °C.
Flammability	No data available.
Lower and upper explosion limit/flammability limit	No data available.
Flash point	203 - 220 °C
Explosive properties	No data available.
Auto-ignition temperature	349 °C
Decomposition temperature	140-150 °C
Oxidizing properties	No data available.
pH	~ 2.3 (10 g/l, H2O, 20 °C)
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Soluble in water (647 g/L @ 20 °C). Solubility in Organic Solvents: Very soluble in alcohol. Slightly soluble in ether. Insoluble in benzene and acetone.
Partition coefficient n-octanol/water (log value)	-1.26
Vapor pressure	< 0.1 mmHg @ 20 °C)
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 1.6 - 1.7 @ 20°C
Relative vapor density	4.6 g/l
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
Other Information: Taste: Strongly acidic.
Dissociation constant: DL pKa = 3.40

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Chemical stability
Indefinitely stable at room temperature in the orginal sealed, unopened container. If exposed to air will oxidise to oxaloacetic acid.

Possibility of hazardous reactions
Hazardous Polymerization: Will not occur.

Conditions to avoid
Exposure to moisture.

Avoid storing in direct sunlight and avoid extremes of temperature.

Incompatible materials
Strong oxidizing agents, reducing agents, strong bases, amines, carbonates, alkali metals, carbon monoxide, carbon dioxide. Unsuitable container materials: iron, zinc, and aluminium. Aqueous solutions of malic acid may release explosive hydrogen gas if in contact with these active metals.

Hazardous decomposition products
Carbon oxide and carbon dioxide.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Acute Toxicity - Oral: LD50 (rat): 3500 mg/kg

Ingestion: May be harmful if swallowed. Irritation of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract. Symptoms may include of nausea, vomiting and diarrhea. Moderately toxic by ingestion. May cause mild to moderate burns in the oesophagus and more severe burns in the stomach. Metabolic disturbances and systemic acidosis may occur.

Inhalation: Inhalation of dust is irritating to the upper respiratory tract (nose, throat, lungs). May be harmful if large amounts are inhaled. Symptoms may include of coughing and dyspnoea.

Skin corrosion/irritation
Moderately irritating to the skin. May be harmful if absorbed through the skin. Prolonged skin contact may give rise to irritation in certain sensitive individuals.

Serious eye damage/irritation
Causes severe eye irritation.

Respiratory or skin sensitization
No data available.

Germ cell mutagenicity
No data available.

Carcinogenicity
No data available.

Reproductive toxicity
No data available.

Summary of evaluation of the CMR properties
No data available.

Specific target organ toxicity (STOT) - single exposure
No data available.

Specific target organ toxicity (STOT) - repeated exposure
No data available.

Aspiration hazard
No data available.

Additional information
Chronic Effects: Prolonged or repeated eye contact may cause conjunctivitis. Prolonged or repeated skin contact may cause dermatitis. Increased inhalation and ingestion of this material may affect behaviour and respiration causing weakness, respiratory distress and cyanosis.

SECTION 12: Ecological information

Persistence and degradability
Aquatic environment:
Method:
OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Test type: ready biodegradability, activated sludge (adaptation not specified)
Results:
readily biodegradable
% Degradation of test substance:
73% after 14 d (O2 consumption) (BOD)
99% after 14 d (TOC removal) (TOC)
100% after 14 d (Test mat. analysis) (HPLC)
Value used for CSA: Readily biodegradable
Persistence/Degradability
Mobility In accordance with REACH Regulation 1907/2006, Annex VIII - 9.3.1 Column 2, screening tests for adsorption/desorption do not need to be conducted as the substance has a low potential for adsorption based on a log Kow of - 1.26

Bioaccumulative potential
log P(o/w) = -1.26

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Sewage disposal
log P(o/w) = -1.26

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
Not dangerous goods

IMDG
Not dangerous goods

IATA
Not dangerous goods

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: NS

Canadian Domestic Substances List (DSL)
Chemical name: Butanedioic acid, hydroxy-
CAS: 6915-15-7

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia 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 ChemSupply Australia 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 ChemSupply Australia 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.

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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)