

Fumaric Acid**SECTION 1. IDENTIFICATION**

Product Identifier	Fumaric Acid
Other Means of Identification	Allomaleic acid, Boletic acid
Product Code(s)	FU5110
Product Family	Organic solid
Recommended Use	Laboratory and industrial use.
Restrictions on Use	None known.
Supplier Identifier	Alphachem Limited, 2485 Milltower Court, Mississauga, Ontario, L5N 5Z6, (905) 821-2995
Emergency Phone No.	CANUTEC CANADA, 613-996-6666, 24 Hours
SDS No.	0810

SECTION 2. HAZARD IDENTIFICATION

Classified according to Canada's Hazardous Products Regulations (WHMIS 2015) and the US Hazard Communication Standard (HCS 2012).

Classification

Serious eye damage - Category 2

Label Elements

Signal Word:
Warning

Hazard Statement(s):
Causes serious eye irritation.

Precautionary Statement(s):

Prevention:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

Continue rinsing.

If eye irritation persists: Get medical advice or attention.

Other Hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance:

Chemical Name	CAS No.	%	Other Identifiers
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Fumaric acid	110-17-8	> 99	Allomaleic acid, Boletic acid
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SECTION 4. FIRST-AID MEASURES

First-aid Measures

Inhalation

Remove source of exposure or move to fresh air. Get medical advice or attention if you feel unwell or are concerned.

Skin Contact

Wash gently and thoroughly with lukewarm, gently flowing water and mild soap for 5 minutes. If skin irritation occurs, get medical advice or attention.

Eye Contact

Rinse the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes, while holding the eyelid(s) open. If eye irritation persists, get medical advice or attention.

Ingestion

Do not induce vomiting. If exposed or concerned, get medical advice or attention.

First-aid Comments

Some of the first-aid procedures recommended here require advanced first-aid training. If exposed or concerned, get medical advice or attention.

Most Important Symptoms and Effects, Acute and Delayed

None known.

Immediate Medical Attention and Special Treatment

Special Instructions

General advice

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

SECTION 5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, dry chemical powder, appropriate foam, water spray or fog.

Unsuitable Extinguishing Media

None known.

Specific Hazards Arising from the Product

Heating increases the release of toxic vapour. Combustible dust. May form combustible dust concentration in air. In a fire, the following hazardous materials may be generated: very toxic carbon monoxide, carbon dioxide.

Special Protective Equipment and Precautions for Fire-fighters

Evacuate area. Fight fire from a safe distance or a protected location. Approach fire from upwind to avoid hazardous vapours or gases. Dust explosion hazard. Use water spray or fog to prevent dust formation and minimize risk of explosion. For a massive fire, immediately evacuate the area and use unmanned hose holder or monitor nozzles. Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures

Emergency responders: use the personal protective equipment recommended in Section 8 of this safety data sheet. Do not touch damaged containers or spilled product unless wearing appropriate protective equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area. Remove or isolate incompatible materials as well as other hazardous materials.

Environmental Precautions

Do not allow into any sewer, on the ground or into any waterway. If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

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Methods and Materials for Containment and Cleaning Up

Stop or reduce leak if safe to do so. Small spills or leaks: avoid generating dust. Collect using shovel/scoop or approved HEPA vacuum and place in a suitable container for disposal.

Large spills or leaks: contact emergency services and manufacturer/supplier for advice.

SECTION 7. HANDLING AND STORAGE

Precautions for Safe Handling

Wear personal protective equipment to avoid direct contact with this chemical. Avoid generating dusts. Only use where there is adequate ventilation. Eliminate heat and ignition sources such as sparks, open flames, hot surfaces and static discharge. Post "No Smoking" signs. Prevent accidental contact with incompatible chemicals. Keep containers tightly closed when not in use or empty.

Conditions for Safe Storage

Store in an area that is: cool, dry, well-ventilated, out of direct sunlight and away from heat and ignition sources, separate from incompatible materials (see Section 10: Stability and Reactivity). Store in the original, labelled, shipping container.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Chemical Name	ACGIH TLV®		OSHA PEL		AIHA WEEL	
	TWA	STEL	TWA	Ceiling	8-hr TWA	TWA
Fumaric acid	Not established		Not established			

Fumaric acid:

Consult local authorities for provincial exposure limits. Consult local authorities for state exposure limits.

Appropriate Engineering Controls

Use local exhaust ventilation and enclosure, if necessary, to control amount in the air. Use a corrosion-resistant exhaust ventilation system separate from other ventilation systems. Exhaust directly to the outside, taking any necessary precautions for environmental protection.

Individual Protection Measures

Eye/Face Protection

Wear chemical safety goggles and face shield when contact is possible.

Skin Protection

Not required, if used as directed. In case of an emergency (e.g. an uncontrolled release): wear chemical protective clothing e.g. gloves, aprons, boots.

Respiratory Protection

Wear a NIOSH approved air-purifying respirator with an appropriate cartridge.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Basic Physical and Chemical Properties

Appearance	White crystalline powder.
Odour	Odourless
Odour Threshold	Not applicable
pH	Not available
Melting Point/Freezing Point	286 - 287 °C (547 - 549 °F) (melting); 286 - 287 °C (547 - 549 °F) (freezing)
Initial Boiling Point/Range	Not applicable
Flash Point	230 °C (446 °F)
Evaporation Rate	Not available
Flammability (solid, gas)	Not available

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Upper/Lower Flammability or Explosive Limit	Not available (upper); Not available (lower)
Vapour Pressure	Not available
Vapour Density (air = 1)	Not applicable
Relative Density (water = 1)	1.64 at 20 °C
Solubility	Slightly soluble in water; Moderately soluble in alcohols (e.g. ethanol).
Partition Coefficient, n-Octanol/Water (Log Kow)	0.07 - 0.76
Auto-ignition Temperature	Not applicable
Decomposition Temperature	Not available
Viscosity	Not available (kinematic); Not available (dynamic)
Other Information	
Physical State	Solid
Molecular Weight	116.07

SECTION 10. STABILITY AND REACTIVITY

Reactivity

None known.

Chemical Stability

Normally stable.

Possibility of Hazardous Reactions

None known.

Conditions to Avoid

Open flames, sparks, static discharge, heat and other ignition sources.

Incompatible Materials

Strong oxidizing agents (e.g. perchloric acid), strong bases (e.g. sodium hydroxide), amines (e.g. triethylamine), metals (e.g. aluminum), reducing agents (e.g. hydroquinone).

Hazardous Decomposition Products

None known.

SECTION 11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure

Inhalation; skin contact; eye contact; ingestion.

Acute Toxicity

Chemical Name	LC50	LD50 (oral)	LD50 (dermal)
Fumaric acid	> 1306 mg/L (rat) (4-hour exposure)	10700 mg/kg (male rat)	> 20000 mg/kg (rabbit)

Skin Corrosion/Irritation

No information was located.

Serious Eye Damage/Irritation

Animal tests show serious eye irritation.

STOT (Specific Target Organ Toxicity) - Single Exposure

Inhalation

At high concentrations may cause nose and throat irritation.

Ingestion

No information was located.

Aspiration Hazard

No information was located.

STOT (Specific Target Organ Toxicity) - Repeated Exposure

No information was located.

Respiratory and/or Skin Sensitization

No information was located.

Carcinogenicity

Chemical Name	IARC	ACGIH®	NTP	OSHA
Fumaric acid	Not evaluated	Not Listed	Not Listed	

Reproductive Toxicity**Development of Offspring**

No information was located.

Sexual Function and Fertility

No information was located.

Effects on or via Lactation

No information was located.

Germ Cell Mutagenicity

No information was located.

Interactive Effects

No information was located.

SECTION 12. ECOLOGICAL INFORMATION

This section is not required by WHMIS. This section is not required by OSHA HCS 2012.

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal Methods**

Bury in a licensed landfill or burn in an approved incinerator according to federal, provincial/state, and local regulations.

SECTION 14. TRANSPORT INFORMATION

Not regulated under Canadian TDG regulations. Not regulated under US DOT Regulations.

Special Precautions Not applicable

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15. REGULATORY INFORMATION**Safety, Health and Environmental Regulations****Canada**

Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)

Listed on the DSL.

USA

Toxic Substances Control Act (TSCA) Section 8(b)

Listed on the TSCA Inventory.

SECTION 16. OTHER INFORMATION

SDS Prepared By Alphachem Limited

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Phone No. (905)-821-2995
Date of Preparation November 28, 2016
Date of Last Revision November 28, 2016
References CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).
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