



Revision Date: August 3, 2018

SAFETY DATA SHEET

MALIC ACID GRANULAR FCC

1. PRODUCT INFORMATION AND COMPANY IDENTIFICATION

Product Name: INCI	Malic Acid Granular FCC
Name:	Malic acid
CAS Number:	6915-15-7
Recommended Use:	Acidulant; Chelating agent
Distributor:	Chemistry Connection 253 Sturgis Road Conway, AR 72034 USA Phone: 708-345-5200

Emergency: Chemtrec: 800-424-9300

2. HAZARD IDENTIFICATION

Classification of the chemical

White crystals or powder. Odorless.

This material is classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Hazard classification: Serious eye damage/eye irritation - Category 2A

Label elements

Hazard pictogram(s)



Signal Word

WARNING!

Hazard statement(s)

Causes serious eye irritation.

Precautionary statement(s) Wash thoroughly after handling.

Wear eye/face protection.
 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/attention.

Other hazards Other hazards which do not result in classification: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Burning produces obnoxious and toxic fumes. Direct eye contact may cause slight or mild, transient irritation. Inhalation of dusts may cause respiratory irritation.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance

Chemical name	CAS #	Concentration
Malic acid	6915-15-7	>99.5

4. FIRST AID MEASURES

Description of first aid measures

Ingestion Do NOT induce vomiting. Have victim rinse mouth with water, then give one to two glasses of water to drink. Never give anything by mouth to an unconscious person. Call a physician.

Inhalation If inhaled, move to fresh air. If breathing is difficult, give oxygen by qualified medical personnel only. If breathing has stopped, give artificial respiration. Obtain medical attention if symptoms develop and persist.

Skin contact Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If irritation or symptoms develop, seek medical attention.

Eye contact For eye contact, flush with running water for at least 15 minutes. If irritation persists, seek prompt medical attention.

Most important symptoms and effects, both acute and delayed

Causes serious eye irritation. Symptoms may include redness, pain, tearing and conjunctivitis. May cause mild skin irritation. Symptoms may include mild redness and swelling. Inhalation of dust may cause shortness of breath, tightness of the chest, a sore throat and cough. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

Extinguishing media

Suitable

Extinguishing media Use media suitable to the surrounding fire such as water fog or fine spray, alcohol foams, carbon dioxide and dry chemical.

Unsuitable

extinguishing media Do not use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

Burning may produce irritating, toxic and obnoxious fumes. Dust generated during use may be explosive if in sufficient concentration and exposed to an ignition source.

Flammability classification (OSHA 29 CFR 1910.106)

Not classified as flammable.

Hazardous combustion products

Carbon oxides ;Maleic anhydride

Special protective equipment and precautions for firefighters

Protective equipment for fire-fighters

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Special fire-fighting procedures

Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear suitable protective equipment. Refer to protective measures listed in sections 7 and 8. Restrict access to area until completion of clean-up.

Environmental precautions Ensure spilled product does not enter drains, sewers, waterways, or confined spaces.

Methods and material for containment and cleaning up

Ventilate area of release. Stop spill or leak at source if safely possible. Dike for water control. Avoid dust formation. Sweep up or vacuum up spillage and collect in suitable container for disposal.

Special spill response procedures

Contact appropriate local and provincial environmental authorities for assistance and/or reporting requirements.

US CERCLA Reportable quantity (RQ): None.

7. HANDLING AND STORAGE**Safe handling**

Use only in well-ventilated areas. Wear suitable protective equipment during handling. Avoid breathing dust and fume. Avoid contact with eyes, skin and clothing. Keep away from extreme heat and flame. Keep away from incompatibles. Keep containers tightly closed when not in use. Wash thoroughly after handling. Avoid dust formation.

Safe storage

Store in a cool, dry, well-ventilated area. Store away from incompatible materials. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Inspect periodically for damage or leaks. No smoking in the area.

Incompatible materials

Oxidizing agents; Bases ;Active metals, such as aluminum and magnesium.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Exposure Limits:**

<u>Chemical Name</u>	<u>ACGIH TLV</u>		<u>OSHA PEL</u>	
	<u>TWA</u>	<u>STEL</u>	<u>Pel</u>	<u>STEL</u>
Malic acid	N/Av	N/Av	N/Av	N/Av

Exposure controls**Ventilation and engineering measures**

Use in a well-ventilated area. Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits.

Respiratory protection	If airbourne concentrations are above the permissible exposure limit or are not known, use NIOSH-approved respirators. Advice should be sought from respiratory protection specialists. Respirators should be selected based on the form and concentration of contaminants in air, and in accordance with OSHA (29 CFR 1910.134) or CSA Z94.4-02.
Skin protection	Gloves impervious to the material are recommended. Advice should be sought from glove suppliers.
Eye/face protection	Chemical goggles must be worn to prevent dusts from entering the eyes.
Protective equipment	Wear sufficient clothing to prevent skin contact. Depending on conditions of use, an impervious apron should be worn. An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations

Avoid breathing dust and fume. Avoid contact with skin, eyes and clothing. Wash contaminated clothing before reuse. Do not eat, drink, smoke or use cosmetics while working with this product. Upon completion of work, wash hands before eating, drinking, smoking or use of toilet facilities. Remove soiled clothing and wash it thoroughly before reuse. Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White granules or powder.
Odour	Odorless.
Odour threshold	N/Av
pH	1.95 (5% Solution)
Melting/Freezing point	130°C (266°F)
Initial boiling point and boiling range	Not available
Flash point	Not flammable.
Flashpoint (Method)	Not applicable.
Evaporation rate (BuAe = 1)	N/Av
Flammability (solid, gas)	Not applicable.
Lower flammable limit (% by vol.)	Not applicable.
Upper flammable limit (% by vol.)	Not applicable.
Oxidizing properties	None known.
Explosive properties	Dust may form explosive mixture in air.
Vapour pressure	<0.1 mmHg
Vapour density	4.6
Relative density / Specific gravity	1.60
Solubility in water	Slightly soluble. (0.58 mg/L)

Other solubility(ies)	Not available.
Partition coefficient: n-octanol/water or Coefficient of water/oil distribution	-1.26
Auto-ignition temperature	339°C (642.2°F)
Decomposition temperature	Not available.
Viscosity	Not available.
Volatiles (% by weight)	Not available.
Volatile organic Compounds (VOC's)	N/Av
Absolute pressure of container	N/Ap
Flame projection length	N/Ap
Other physical/chemical comments	None known or reported by the manufacturer.

10. STABILITY AND REACTIVITY

Reactivity Not normally reactive.

Chemical stability Material is stable under normal conditions. Dust can form an explosive mixture in air.

Possibility of hazardous reactions
Hazardous polymerization does not occur.

Conditions to avoid Avoid excessive heat, sparks and open flame. Avoid contact with incompatible materials. Do not use in areas without adequate ventilation. Avoid dust formation.

Incompatible materials Oxidizing agents; Bases ;Active metals, such as aluminum and magnesium.

Hazardous decomposition products
See Section 5 (Fire Fighting Measures).

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Routes of entry inhalation YES

Routes of entry skin & eye YES

Routes of entry Ingestion YES

Routes of exposure skin absorption NO

Potential Health Effects:**Signs and symptoms of short-term (acute) exposure**

Inhalation	Inhalation of dust or fumes may cause irritation of the nose, throat and upper respiratory tract.
Ingestion	Ingestion may irritate digestive tract and cause nausea, vomiting and diarrhea.
Skin Contact	Direct skin contact may result in little or no irritation.
Eye Contact	Causes serious eye irritation. Symptoms may include redness, pain, tearing and conjunctivitis.

Potential Chronic Health Effects

Prolonged or repeated contact may cause drying, cracking and defatting of the skin.

Mutagenicity Not expected to be mutagenic in humans.

Carcinogenicity No components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive effects & Teratogenicity

Not expected to cause reproductive effects.

Sensitization to material Not expected to be a skin or respiratory sensitizer.

Specific target organ Target Organs: Eyes and respiratory system

This material is not classified as hazardous under U.S. OSHA regulations (29CFR 1910.1200) (Hazcom 2012) and Canadian WHMIS regulations (Hazardous Products Regulations) (WHMIS 2015).

Medical conditions aggravated by overexposure

None known.

Synergistic materials Not available.

Toxicological data See below for toxicological data on the substance.

<u>Chemical name</u>	<u>LC50(4hr)</u>	<u>LD50</u>	
	<u>inh, rat</u>	<u>(Oral, rat)</u>	<u>(Rabbit, dermal)</u>
Malic acid	N/Av	3500mg/kg	N/Av

Other important toxicological hazards

None known.

12. ECOLOGICAL INFORMATION

Ecotoxicity Not expected to be harmful to aquatic organisms. Do not allow material to contaminate ground water system. See the following tables for individual Ingredient ecotoxicity data.

Ecotoxicity data

Ingredients	CAS No	Toxicity to Fish		
		LC50 / 96h	NOEC / 21 day	M Factor
Malic acid	6915-15-7	N/Av	N/Av	None.

Ingredients	CAS No	Toxicity to Daphnia		
		EC50 / 48h	NOEC / 21 day	M Factor
Malic acid	6915-15-7	N/Av	240 mg/L (Daphnia magna)	None.

Ingredients	CAS No	Toxicity to Algae		
		EC50 / 96h or 72h	NOEC / 96h or 72h	M Factor
Malic acid	6915-15-7	N/Av	N/Av	None.

Persistence and degradability

Readily biodegradable.

Bioaccumulation potential

No data is available on the product itself.

<u>Components</u>	<u>Partition coefficient n-octanol/water (log Kow)</u>	<u>Bioconcentration factor (BCF)</u>
Malic acid (CAS 6915-15-7)	-1.26	1

Mobility in soil No data is available on the product itself.

Other Adverse Environmental effects

No data is available on the product itself.

13. DISPOSAL CONSIDERATIONS



Handling for Disposal Handle waste according to recommendations in Section 7.

Methods of Disposal Dispose in accordance with all applicable federal, state, provincial and local regulations.

RCRA

If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

14. TRANSPORT INFORMATION

Regulatory Information	UN Number	UN proper shipping name	Transport hazard class(es)	Packing Group	Label
49CFR/DOT	None.	Not regulated.	not regulated	none	
49CFR/DOT Additional information	None.				
TDG	None.	Not regulated.	Not regulated	none	
TDG Additional information	None.				

Special precautions for user None known or reported by the manufacturer.

Environmental hazards See ECOLOGICAL INFORMATION, Section 12.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not available.

15. REGULATORY INFORMATION**US Federal Information:**

Components listed below are present on the following U.S. Federal chemical lists:

Ingredients	CAS #	TSCA Inventory	CERCLA Reportable Quantity (RQ) (40 CFR 117.302):	SARA TITLE III: Sec. 302, Extremely Hazardous Substance, 40 CFR 355:	SARA TITLE III: Sec. 313, 40 CFR 372, Specific Toxic Chemical	
					Toxic Chemical	de minimus Concentration
Malic Acid	6915-15-7	Yes	N/Ap	N/Av	No	N/Ap

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes: Acute Health Hazard . Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds for the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

US State Right to Know Laws:

The following chemicals are specifically listed by individual States:

Ingredients	CAS #	California Proposition 65		State "Right to Know" Lists					
		Listed	Type of Toxicity	CA	MA	MN	NJ	PA	RI
Malic Acid	6915-15-7	No	N/Ap	No	No	No	No	No	No

Canadian Information

WHMIS information: Refer to Section 2 for a WHMIS Classification for this product.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on the Domestic Substances List (DSL).

International Information

Components listed below are present on the following International Inventory list:

Ingredients	CAS #	European EINECs	Australia AICS	Philippines PICCS	Japan ENCS	Korea KECI/KECL	China IECSC	NewZealand IOC
Malic acid	6915-15-7	230-022-8	Present	Present	(2)-1442	KE-20414	Present	HSR003278

16. OTHER INFORMATION

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