Section 1. Identification

Product Identifier

Product Identity	DL-Malic acid
Other Means of Identification	Malic acid, Malic acid DL

Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Flavoring agent, skin conditioner, agricultural.

Details of the Supplier of the Safety Data Sheet

Company Name	Silver Fern Chemical, Inc. 2226 Queen Anne Avenue North Seattle, WA 98109 USA Customer Service: 1-866-282-3384 / info@silverfernchemical.com Website - www.silverfernchemical.com
Emergency 24-hour Emergency Telephone No.	Emergency telephone number Infotrac: 1-800-535-5053; Outside USA & Canada +1-352-323-3500
Customer Service:	

Section 2. Hazard(s) Identification

Emergency Overview
WARNING! MAY FORM COMBUSTIBLE DUST CONCENTRATIONS IN AIR (DURING PROCESSING)

Classification of the Substance or Mixture Under OSHA's Hazard Communication Standard (1910.1200) Revised 2024 (GHS Revision 7)

Skin Corrosion/Irritation Category 2; H315	Causes skin irritation.
Serious Eye Damage / Eye Irritation, Category 2; H319	Causes serious eye irritation.

Combustible Dust May form combustible dust concentrations in air.

Label Elements

Warning

H315 Causes skin irritation.
H319 Causes serious eye irritation.
May form combustible dust concentrations in air.

[Prevention]
P264 Wash thoroughly after handling.
P280 Wear protective gloves, eye protection, and face protection.
[Response]
P302+352 IF ON SKIN: Wash with plenty of soap and water.
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+313 If skin irritation occurs: Get medical attention.
P337+313 If eye irritation persists: Get medical advice or attention.
P362+364 Take off contaminated clothing and wash it before reuse.
[Storage]
No GHS storage statements
[Disposal]
No GHS disposal statements

Other Hazards
This product contains no PBT/vPvB chemicals.
This product contains no endocrine disrupting chemicals.
May form combustible dust concentrations in air.

Section 3. Composition/Information on Ingredients

This product contains the following substances that present a hazard within the meaning of the OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7).

Ingredient/Chemical Designations	Weight %	GHS Classification	Notes
DL-Malic acid CAS Number: 6915-15-7 Synonyms: Malic acid	<= 100 %	Skin corrosion/irritation category 2; H315 Serious eye damage / eye irritation, category 2; H319	No data available.

The actual concentration or concentration range is withheld as a trade secret.
*PBT/vPvB - PBT-substance or vPvB-substance.
The full texts of the phrases are shown in Section 16.

Section 4. First Aid Measures

Description of First Aid Measures

General In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious, place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes Rinse with plenty of clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.

Ingestion If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

Most Important Symptoms and Effects, Both Acute and Delayed

Overview No specific symptom data available.
Treat symptomatically. See section 2 for further details.

Eyes Causes serious eye irritation.

Skin Causes skin irritation.

Section 5. Fire-Fighting Measures

Extinguishing Media

Recommended extinguishing media; alcohol resistant foam, CO_2, powder, water spray.
Unsuitable Extinguishing Media: Do not use; water jet.

Special Hazards Arising from the Substance or Mixture

Hazardous Decomposition: No hazardous decomposition data available.
Explosion: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Advice for Fire-Fighters

As with all fires, wear positive pressure, self-contained breathing apparatus, (SCBA) with a full-face piece and protective clothing. Persons without respiratory protection should leave area. Wear SCBA during clean-up immediately after fire. No smoking. Dust explosions are possible.

ERG Guide No. ----

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Put on appropriate personal protective equipment (see section 8).
Dust Deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration.

Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).

Non sparking tools should be used.

Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

Environmental Precautions

Explosion: Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.
Do not allow spills to enter drains or waterways.

Methods and Material for Containment and Cleaning Up

Sweep or vacuum to clean up spills. Do not use any procedure which causes dispersion of dust into the air if any possibility of ignition exists. Dispose of in accordance with local, state and federal regulations.

Section 7. Handling and Storage

Precautions for Safe Handling
Handle containers carefully to prevent damage and spillage.
Avoid dust generation when handling product to minimize dust explosion potential.
See section 2 for further details. - [Prevention]

Conditions for Safe Storage, Including any Incompatibilities
Keep container tightly closed.
Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres.
Incompatible materials: No available information.
See section 2 for further details. - [Storage]

Specific End Use(s)
No available information.

Section 8. Exposure Controls / Personal Protection

Control Parameters

Exposure

CAS No.	Ingredient	Source	Value
6915-15-7	DL-Malic acid	OSHA	No established limit.

CAS No.	Ingredient	Source	Value
		ACGIH	No established limit.
		NIOSH	No established limit.

The exposure limits for nuisance dust are: OSHA PEL: 15 mg/m^3(50 mppcf*) TWA, ACGIH 10 mg/m^3.

Exposure Controls

Respiratory	If workers are exposed to concentrations above the exposure limit, they must use the appropriate, certified respirators.
Eyes	Protective safety glasses recommended
Skin	Avoid skin contact. Protective gloves recommended.
Engineering Controls	It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of this product contain explosion relief vents or an explosion suppression system or an oxygen- deficient environment. Ensure that dust-handling systems (such as exhaust ducts, dust collectors, vessels, and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is no leakage from the equipment). Use only appropriately classified electrical equipment and powered industrial trucks.
Other Work Practices	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

See section 2 for further details.

Section 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical State	Solid.
Color	No available information.
Odor	No available information.
Melting Point / Freezing Point	131 - 133 °C (268 - 271 °F) - lit.
Initial Boiling Point and Boiling Range	No available information.
Flammability (Solid, Gas)	No available information.
Upper/Lower Flammability or Explosive Limits	**Lower Explosive Limit:** No available information.

	Upper Explosive Limit: No available information.
Flash Point	Not applicable.
Auto-Ignition Temperature	340 °C (644 °F)
Decomposition Temperature	No available information.
pH	No available information.
Viscosity (cSt)	No available information.
Solubility in Water	646.6 g/l at 20 °C (68 °F) - OECD Test Guideline 105 – soluble.
Partition Coefficient N-Octanol/Water (Log Kow)	**Log Pow** -1.259
Vapor Pressure (Pa)	< 0.1 hPa (< 0.1 mmHg) at 20 °C (68 °F)
Relative Density	1.6 g/cm^3 at 20 °C (68 °F)
Vapor Density	No available information.
Particle Characteristics	**---**
Evaporation Rate (Ether = 1)	No available information.
Oxidizing Properties	No available information.
Explosive Properties	No available information.

Other Information
No other relevant information.

Section 10. Stability and Reactivity

Reactivity
Hazardous Polymerization will not occur.
Chemical Stability
Stable under normal circumstances.
Possibility of Hazardous Reactions
No available information.
Conditions to Avoid
Avoid high temperatures and contact with incompatible material.
Incompatible Materials
Bases, Oxidizing agents, Reducing agents, Alkali metals.
Hazardous Decomposition Products
No hazardous decomposition data available.

Section 11. Toxicological Information

Acute Toxicity

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LC50, mg/L/4hr	Inhalation Dust/Mist LC50, mg/L/4hr	Inhalation Gas LC50, ppm
DL-Malic acid - (6915-15-7)	3,500.00, Rat - Category: 5	20,001.00, Rabbit - Category: NA	No data available.	No data available.	No data available.

Carcinogen Data

CAS No.	Ingredient	Source	Value
6915-15-7	DL-Malic acid	OSHA	Regulated Carcinogen: No;
		NTP	Known: No; Suspected: No;
		IARC	Group 1: No; Group 2a: No; Group 2b: No; Group 3: No;
		ACGIH	No established limit.

Classification	Category	Hazard Description
Acute Toxicity (Oral)	---	Not applicable.
Acute Toxicity (Dermal)	---	Not applicable.
Acute Toxicity (Inhalation)	---	Not applicable.
Skin Corrosion/Irritation	2	Causes skin irritation.
Serious Eye Damage/Irritation	2	Causes serious eye irritation.
Respiratory Sensitization	---	Not applicable.
Skin Sensitization	---	Not applicable.
Germ Cell Mutagenicity	---	Not applicable.
Carcinogenicity	---	Not applicable.
Reproductive Toxicity	---	Not applicable.
STOT-Single Exposure	---	Not applicable.
STOT-Repeated Exposure	---	Not applicable.
Aspiration Hazard	---	Not applicable.

Possible routes of entry:

Symptoms and Effects, Both Acute and Delayed:
No specific symptom data available.
Treat symptomatically.

Eyes Causes serious eye irritation.
Skin Causes skin irritation.

Section 12. Ecological Information

Toxicity
No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

Ingredient	96 hr LC50 fish, mg/L	48 hr EC50 crustacea, mg/L	ErC50 algae, mg/L
DL-Malic acid - (6915-15-7)	101.00, Danio rerio	240.00, Daphnia sp	101.00, Pseudokirchnerella subcapitata

Persistence and Degradability
There is no data available on the preparation itself.
Bioaccumulative Potential
No available information.
Mobility in Soil
No available information.
Results of PBT and vPvB Assessment
This product contains no PBT/vPvB chemicals.
Other Adverse Effects
No available information.

Section 13. Disposal Considerations

Waste Treatment Methods
Observe all federal, provincial and local regulations when disposing of this substance.

Section 14. Transport Information

	DOT (Domestic Surface Transportation)	IMO / IMDG (Ocean Transportation)	ICAO/IATA
UN Number	Not regulated.	Not regulated.	Not regulated.

UN Proper Shipping Name	Not regulated.	Not regulated.	Not regulated.
Transport Hazard Class(es)	**DOT Hazard Class:** Not applicable. **Sub Class:** Not applicable.	**IMDG:** Not applicable. **Sub Class:** Not applicable.	**Air Class:** Not applicable. **Sub Class:** Not applicable.
Packing Group	Not applicable.	Not applicable.	Not applicable.

Environmental Hazards

Marine Pollutant: No.

Special Precautions for User

No available information.

Section 15. Regulatory Information

Regulatory Overview The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Classification of the substance or mixture under OSHA's Hazard Communication Standard (1910.1200) revised 2024 (GHS revision 7)

Toxic Substance Control Act (TSCA)

CAS Number	Ingredient	Toxic Substance Control Act (TSCA)	Comments	Status
0006915-15-7	DL-Malic acid	Yes		ACTIVE

The Following Flags are Used:

•Active - indicates commercial status designation of active
•E - indicates a substance that is the subject of a Section 5(e) Consent Order under TSCA.
•F - indicates a substance that is the subject of a Section 5(f) Rule under TSCA.
•N - indicates a polymeric substance containing no free-radical initiator in its Inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
•P - indicates a commenced Premanufacture Notice (PMN) substance.
•R - indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

•S - indicates a substance that is identified in a final Significant New Uses Rule.
•SP - indicates a substance that is identified in a proposed Significant New Uses Rule.
•T - indicates a substance that is the subject of a final Section 4 test rule under TSCA.
•UVCB Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials •XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
•Y1 - indicates a polymer that has a number-average molecular weight greater than 1,000 and that was exempt under the 1984 polymer exemption rule.
•Y2 - indicates a polymer that is a polyester and that was exempt under the 1984 polymer exemption rule.

Proposition 65 - Carcinogens (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 Label Warning:

This product contains no chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

Mass RTK Substances (>1%):

New Jersey RTK Substances (>1%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Pennsylvania RTK Substances (>1%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

OSHA Process Safety Management Standard Highly Hazardous Chemicals, Toxics and Reactives:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US EPA List of Regulated Substances under the Risk Management Plan (RMP) Program:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US EPA Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) under the Minimum Risk Exemption:

Malic acid.

U.S. - DEA List II or Essential Chemicals:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

U.S. - DEA - Exempt Chemical Mixtures - List 1 and 2:
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

US DHS Chemical Facility Anti-Terrorism Standards (CFATS):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Section 16. Other Information

Revision Date **07/31/2024**

DISCLAIMER OF RESPONSIBILITY
The information on this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume damage or expense arising out of or in any way responsibility and expressly disclaim liability for loss, connected with handling, storage, use, or disposal of this product. If the

product is used as a component in another product, this SDS information may not be applicable.

Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.3

The full text of the phrases appearing in section 3 is:

H315 Causes skin irritation.

H319 Causes serious eye irritation.

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