



**SILVER FERN**  
CHEMICAL INC

# SILVER FERN CHEMICAL, INC.

## Safety Data Sheet

### Fumaric Acid

Revision date: 08/06/2015

#### SECTION 1: IDENTIFICATION

1.1 Product Name FUMARIC ACID  
 1.2 CAS Number 110-17-8  
 1.3 Relevant Uses Coatings additive  
 1.4 Details of supplier of the SDS  
 Supplier(Distributor): Silver Fern Chemical Inc  
 Address: 2226 Queen Anne Ave N., Seattle WA 98109, USA  
 Phone: (866) 282-3384  
 Email: info@silverfernchemical.com  
 1.5 Emergency contact:  
 24 Hour Emergency Contact  
 Infotrac 1-800-535-5053 (USA & Canada)  
 Outside USA & Canada 1-352-323-3500

#### SECTION 2: HAZARDS IDENTIFICATION

##### GHS classification

**Physical hazards** Not classified  
**Health hazards** Serious eye damage/eye irritation Category 2A  
**Environmental hazards** Not classified

##### GHS label elements

##### Hazard Pictograms



**Signal word** Warning  
**Hazard statement** Causes serious eye irritation.

##### Precautionary statement

**Prevention** Wash thoroughly after handling.  
 Wear eye protection/face protection.  
**Response** 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.  
**Storage** Not applicable.  
**Disposal** Not applicable.

#### SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS#	Percent
FUMARIC ACID	110-17-8	>99%

## SECTION 4: FIRST AID MEASURES

### First aid procedures

<b>Eye contact</b>	Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
<b>Skin contact</b>	Immediately wash with water and soap and rinse thoroughly.
<b>Inhalation</b>	Supply fresh air; consult doctor in case of complaints.
<b>Ingestion</b>	Call a doctor immediately.
<b>Notes to physician</b>	Treat symptoms.

## SECTION 5: FIRE FIGHTING MEASURES

<b>Flammable properties</b>	Non flammable
<b>Extinguishing media</b>	
<b>Suitable extinguishing media</b>	CO <sub>2</sub> , powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
<b>Unsuitable extinguishing media</b>	Not available.
<b>Firefighting equipment/instructions</b>	Wear self-contained respiratory protective device.
<b>Hazardous combustion products</b>	Carbon monoxide (CO). Formation of explosive dust/air-mixtures.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

<b>Personal precautions</b>	Use respiratory protective device against the effects of fumes/dust/ aerosol. For personal protection see section 8.
<b>Environmental precautions</b>	Do not allow to enter sewers/ surface or ground water.
<b>Methods for cleaning up</b>	Pick up mechanically. If formation of dust cannot be avoided use respiratory filter device. Dispose of the material collected according to regulations.

## SECTION 7: HANDLING AND STORAGE

<b>Handling</b>	Provide suction extractors if dust is formed. Keep containers tightly sealed. Empty containers must not be used for other products. Contaminated protective equipment should be cleaned before taking it off. Fill only in dedicated and assigned containers. Nitrogen blanketing required for large scale operations with this compound due to low minimum ignition energy. For precautions see section 2.2.
<b>Storage</b>	Keep receptacle tightly sealed. Store away from oxidizing agents. Unsuitable materials: Zinc.

## SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

### Control parameters:

### OCCUPATIONAL EXPOSURE LIMITS (OEL)

**INGREDIENT DATA:** Not Available

### EMERGENCY LIMITS:

Ingredient	TEEL-1	TEEL-2	TEEL-3
FUMARIC ACID	28 mg/m <sup>3</sup>	310 mg/m <sup>3</sup>	1800 mg/m <sup>3</sup>

Ingredient	Original IDLH	Revised IDLH
FUMARIC ACID	Not Available	Not Available

### Exposure controls:

**Appropriate engineering controls:** Take care of sufficient ventilation. Avoid formation of dust.

### Individual protection measures, such as personal protective equipment:

**Eye / face protection** Safety glasses.

**Skin protection** Protective gloves. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation. Use dust-proof protective suit.

<b>Respiratory protection</b>	Short term filter device: In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
<b>General hygiene considerations</b>	Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

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### Appearance

<b>Physical state</b>	Solid
<b>Form</b>	Granules or crystalline powder
<b>Color</b>	White
<b>Odor</b>	Odourless
<b>Odor threshold</b>	Not available
<b>pH</b>	2.24 for a 0.5% w/v solution at 25°C.
<b>Vapor pressure</b>	0.000154 mm Hg (25 °C)
<b>Vapor density</b>	Not available
<b>Boiling point</b>	200 °C
<b>Melting point/Freezing point</b>	287 °C
<b>Solubility (water)</b>	Soluble(7 g/L, 25 °C)
<b>Partition coefficient</b>	log Pow=ca. 4.02 ( 20°C)
<b>Specific gravity</b>	1.635
<b>Bulk density:</b>	Not available
<b>Relative Density</b>	1.64 ( 20 °C)
<b>Flash point</b>	Not available
<b>Decomposition Temperature</b>	Not available
<b>Flammability limits in air, upper, %by volume</b>	Not available
<b>Flammability limits in air, lower, % by volume</b>	0.130G/L
<b>Auto-ignition temperature</b>	ca. 399 °C
<b>VOC</b>	Not available
<b>Flammability (solid, gas)</b>	Non flammable
<b>Explosiveness</b>	Non explosive
<b>Oxidizing properties</b>	Not available
<b>Molecular formula</b>	C <sub>4</sub> H <sub>4</sub> O <sub>4</sub>
<b>Molecular weight</b>	116.07
<b>Other data</b>	
<b>Viscosity</b>	Not available
<b>Dissociation constant</b>	K1 = 9.3 x 10 <sup>-4</sup> at 25°C K2 = 2.9 x 10 <sup>-5</sup>

## SECTION 10: STABILITY AND REACTIVITY

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<b>Chemical stability</b>	Material is stable under normal conditions.
<b>Conditions to avoid</b>	Incompatible materials. Sensitive to: Air. Temperatures over 190 °C and moisture.
<b>Incompatible materials</b>	Strong oxidizing agents. Strong bases, alkali metals, amines, and carbonates.

**Hazardous decomposition products** Carbon monoxide.  
**Possibility of hazardous reactions** Formation of explosive dust/air mixtures is possible.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Toxicokinetics, metabolism and distribution:

**Non-human toxicological data:** Not available

### Information on toxicological effects:

#### Acute toxicity:

**LD50(Oral, Rat):** 10700 mg/kg male 9300 mg/kg female

**LD50(Dermal, Rat):** 20000 mg/kg bw

**LC50(Inhalation, Rat):** > 1.306 mg/L air (analytical) 4h

**Skin corrosion/Irritation:** IRRITATION TO SKIN

**Serious eye damage/irritation:** Causes serious eye irritation.

**Respiratory or skin sensitization:** Not classified

**Germ cell mutagenicity:** Not classified

**Carcinogenicity:** Not classified

**Reproductive toxicity:** Not classified.

**STOT- single exposure:** Not classified

**STOT-repeated exposure:** Not classified

**Aspiration hazard:** Not classified

## SECTION 12: ECOLOGICAL INFORMATION

### Toxicity:

Acute toxicity		Time	Species	Method	Evaluation	Remarks
LC50	> 100 mg/L	96h	Fish	OECD 203	N/A	N/A
EC50	212 mg/L	48h	Daphnia	OECD 202	N/A	N/A
EC50	> 100 mg/L	72h	Algae	OECD 201	N/A	N/A

**Persistence and degradability:** Readily biodegradable.

**Bioaccumulative potential:** Not available.

**Mobility in soil:** The product is soluble in water.

**Results of PBT&vPvB assessment:** The substance is not PBT / vPvB.

**Other adverse effects:** No known significant effects or critical hazards.

## SECTION 13: DISPOSAL CONSIDERATIONS

**Disposal instructions** Dispose of contents/container in accordance with local/regional/national/international regulations.

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied.

## SECTION 14: TRANSPORT INFORMATION

### DOT

#### Basic shipping requirements:

**UN number** Not regulated

**Proper shipping name** Not regulated

**Hazard class** Not regulated

**Packing group** Not regulated

**Environmental hazards** No

**IATA**

**UN number** Not regulated

**UN proper shipping name** Not regulated

**Transport hazard class(es)** Not regulated

**Packing group** Not regulated

**Environmental hazards** No

**IMDG**

**UN number** Not regulated

**UN proper shipping name** Not regulated

**Transport hazard class(es)** Not regulated

**Packing group** Not regulated

**Environmental hazards** No

**SECTION 15: REGULATORY INFORMATION**

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**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

<b>FUMARIC ACID(110-17-8) is found on the following regulatory lists</b>	US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory
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**SECTION 16: OTHER INFORMATION**

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**HMIS® ratings** Health: 1  
Flammability: 1  
Physical hazard: 0

**NFPA ratings** Health: 1  
Flammability: 1  
Instability: 0

**Issue date** 08-06-2015

**DISCLAIMER OF RESPONSIBILITY**

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