Safety Data Sheet

For Compliance with OSHA 29 CFR 1910.1200 and ANSI Z400.1-1998

Section 1: Identification

Product Name Malic acid (DL) FCC
Commercial Name Not available.
Product Use Not available
Restrictions On Use Not available

Product Code 30-1991

Company
PCCA
9901 South Wilcrest
Houston, TX 77099
Phone: 1-800-331-2498
Fax: 1-800-874-5760

In case of emergency contact:
CHEMTREC (24hr) 1-800-424-9300

Section 2: Hazard(s) Identification

OSHA Haz Com: CFR 1910.1200 Not classified

Signal Word WARNING

Hazard Statement(s) Causes serious eye irritation.

Pictogram(s) or Symbol(s)

Precautionary Statement(s):

Prevention Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Wear eye protection/face protection.

Response IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. 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 Store away from incompatible materials.

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

Section 3: Composition/Information on Ingredients

Substance/Mixture Substance
Components {DL-} Malic acid
% By Weight 100
CAS# 617-48-1; Other Rela
Molecular Weight Not available.
Chemical Formula Not available.
Synonym(s) DL-Hydroxybutanedioic acid (±)-2-Hydroxysuccinic acid

Mixtures

Name	CAS#	% by Weight	TLV/PEL	LC50/LD50
{DL-}Malic acid	617-48-1	100	Not available.	ORAL (LD50): Acute: 1600 mg/kg [Rat].

Section 4: First-Aid Measures

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. For breathing difficulties, oxygen may be necessary. Call a physician if symptoms develop or persist.

Skin Contact Take off immediately all contaminated clothing. Get medical attention if irritation develops and persists. Wash skin thoroughly with soap and water for several minutes.

Eye Contact Remove contact lenses, if present and easy to do. Get medical attention if irritation develops and persists. Promptly wash eyes with plenty of water while lifting the eye lids.

Ingestion Call a physician or poison control center immediately. If swallowed, rinse mouth with water (only if the person is conscious). Do not induce vomiting. If vomiting occurs, the head should be kept low so that stomach vomit doesn't enter the lungs.

Symptoms/Effects

Acute Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes.

Delayed Not available

Immediate Medical Attention

Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Section 5: Fire-Fighting Measures

Suitable Extinguishing Media

Water spray, fog, CO_2, dry chemical, or alcohol resistant foam.

Unsuitable Extinguishing Media

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

Products of Combustion

Explosion hazard: 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. Fire may produce irritating, corrosive and/or toxic gases.

Firefighters Special Equipment and Precautions

Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Structural firefighters protective clothing will only provide limited protection. Wear self-contained breathing apparatus with a full facepiece operated in the positive pressure demand mode when fighting fires In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Water runoff can cause environmental damage. Ventilate closed spaces before entering them. Keep run-off water out of sewers and water sources. Dike for water control.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Eliminate all sources of ignition. Avoid contact with skin or inhalation of spillage, dust or vapor. Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Methods and materials for containment and cleaning up: Sweep up and place in a clearly labeled container for chemical waste. Wash contaminated area with water. Collect and dispose of spillage as indicated in section 13 of the SDS. This material and its container must be disposed of as hazardous waste. Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Use only non-sparking tools. Avoid the generation of dusts during clean-up. Never return spills in original containers for re-use. Environmental precautions: Retain and dispose of contaminated wash water. Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Section 7: Handling and Storage

Take precautionary measures against static discharges when there is a risk of dust explosion. Minimize dust generation and accumulation. Routine usekeeping 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. Do not handle or store near an open flame, heat or other sources of ignition. Assume that this material is capable of producing a dust explosion if ignited as a dust cloud. Take precautionary measures against static discharges. Avoid breathing vapor. Avoid breathing dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wash thoroughly after handling. Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area.

Section 8: Exposure Controls/Personal Protection

Exposure Limits
This substance has no PEL, TLV, or other recommended exposure limit.

Engineering Controls
Use explosion-proof ventilation equipment to stay below exposure limits. 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.

Personal Protection
Eye /face protection: Wear safety glasses with side shields (or goggles). Skin protection/Hand protection: Chemical resistant gloves. Respiratory protection: Dust mask. Thermal hazards: Wear appropriate thermal protective clothing, when necessary. General hygiene considerations: When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Section 9: Physical and Chemical Properties

Appearance	Powder/Crystal
Odor	Characteristic
Odor Threshold	Not available

Melting Point	266 °F (130 °C)	**pH**	Not available
Freezing Point	266 °F (130 °C)	**Vapor Pressure**	< 0.0000001 kPa (77 °F (25 °C))
Boiling Point/Range	582.8 °F (306 °C)	**Vapor Density**	Not available.
Decomposition temperature	Not available.	**Viscosity**	Not available.
Partition Coefficient: n-octanol/water	Not available	**Evaporation Rate**	Not available.
Flash Point	> 200.0 °F (> 93.3 °C) Close	**Autoignition temperature**	349°C (660.
Flammability	Not available	**Flammability or Explosive Limits:**	
		Lower	Not available.
		Upper	Not available

Solubility(ies)	Soluble
Other	Explosive properties: Not explosive Molecular formula C4H6O5 Molecular weight 134.09 g/mol, 134.09 g/mol Not oxidizing

Section 10: Stability and Reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport
Chemical Stability	Material is stable under normal conditions.
Hazardous Polymerization	No dangerous reaction known under conditions of normal use.
Conditions to Avoid	Keep away from heat, sparks and open flame. Avoid temperatures exceeding the flash point. Contact with incompatible materials. Minimize dust generation and accumulation
Incompatible Materials	Strong oxidizing agents.
Hazardous Decomposition Products	No hazardous decomposition products if stored and handled as indicated

Section 11: Toxicological Information

RTECS Not available.

Acute Toxicity
Harmful if swallowed. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes

Skin Corrosion/Irritation
Due to partial or complete lack of data the classification is not possible.

Serious Eye Damage/Irritation
Causes serious eye irritation.

Respiratory or Skin Sensitization
Respiratory sensitization Due to partial or complete lack of data the classification is not possible. Skin sensitization: Due to partial or complete lack of data the classification is not possible.

Germ Cell Mutagenicity
Due to partial or complete lack of data the classification is not possible.

Carcinogenicity
Due to partial or complete lack of data the classification is not possible.

Reproductive Toxicity
Due to partial or complete lack of data the classification is not possible.

Routes of Entry
Inhalation. Ingestion.

Symptoms Related to Exposure
Not available

Potential Health Effects
Not available

Target Organ(s) Knowledge about health hazard is incomplete.

Section 12: Ecological Information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistance and Degradability
No data is available on the degradability of this substance.

Bioaccumulative Potential
Not available

Mobility in Soil
Not available

Other Adverse Effects
No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Section 13: Disposal Considerations

Waste Disposal
Do not discharge into drains, water courses or onto the ground. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Disposal of Container
Dispose in accordance with all applicable regulations.

Other Considerations
Waste from residues / unused: Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions). Contaminated packaging: Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal

Section 14: Transport Information

DOT Classification
Not a DOT controlled material (United States). This material is not classified dangerous good according to international transportation regulations (ADR/RID-IMDG-ICAO/IATA).

Section 15: Regulatory Information

Regulations
Toxic Substances Control Act (TSCA) TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) Not regulated. CERCLA Hazardous Substance List (40 CFR 302.4) Not listed. SARA 304 Emergency release notification Not regulated. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053) Not listed. SARA 302 Extremely hazardous substance Superfund Amendments and Reauthorization Act of 1986 (SARA) Not listed. YesSARA 311/312 Hazardous chemical Classified hazard categories SARA 313 (TRI reporting) Not regulated

Other
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List Not regulated. Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130) Not regulated. Not regulated.Safe Drinking Water Act (SDWA) Total food additive Direct food additive GRAS food additive

Section 16: Other Information

Not available.