

## SAFETY DATA SHEET

Creation Date 14-Mar-2013

Revision Date 09-Apr-2019

Revision Number 5

### 1. Identification

**Product Name** DL-Malic acid

**Cat No. :** AC125250000; AC125250010; AC125250050; AC125252500;  
AC125255000

**CAS-No** 6915-15-7  
**Synonyms** DL-Hydroxysuccinic acid

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

Acros Organics  
One Reagent Lane  
Fair Lawn, NJ 07410

##### **Emergency Telephone Number**

For information **US** call: 001-800-ACROS-01 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No.**US**:001-800-424-9300 / **Europe**:001-703-527-3887

### 2. Hazard(s) identification

#### **Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Serious Eye Damage/Eye Irritation

Category 2

#### **Label Elements**

##### **Signal Word**

Warning

##### **Hazard Statements**

Causes serious eye irritation

**Precautionary Statements****Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
Wear eye/face protection

**Eyes**

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

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

| Component  | CAS-No    | Weight % |
|------------|-----------|----------|
| Malic acid | 6915-15-7 | <=100    |

### 4. First-aid measures

|  |   |
|--|---|
| <b>General Advice</b>                      | If symptoms persist, call a physician.  |
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.   |
| <b>Skin Contact</b>                        | Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician. |
| <b>Inhalation</b>                          | Move to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.        |
| <b>Ingestion</b>                           | Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.             |
| <b>Most important symptoms and effects</b> | None reasonably foreseeable.  |
| <b>Notes to Physician</b>                  | Treat symptomatically   |

### 5. Fire-fighting measures

|                                       |  |
|---------------------------------------|--|
| <b>Suitable Extinguishing Media</b>   | Water spray. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Chemical foam. |
| <b>Unsuitable Extinguishing Media</b> | No information available   |
| <b>Flash Point</b>                    | 203 °C / 397.4 °F  |
| <b>Method -</b>                       | No information available   |
| <b>Autoignition Temperature</b>       | 340 °C / 644 °F  |
| <b>Explosion Limits</b>               |  |
| <b>Upper</b>                          | No data available  |

|   |                          |
|---|--------------------------|
| <b>Lower</b>                            | No data available        |
| <b>Sensitivity to Mechanical Impact</b> | No information available |
| <b>Sensitivity to Static Discharge</b>  | No information available |

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>)

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

**NFPA**

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 2             | 1                   | 0                  | N/A                     |

**6. Accidental release measures**

|                                  |   |
|----------------------------------|---|
| <b>Personal Precautions</b>      | Use personal protective equipment. Ensure adequate ventilation. Avoid dust formation. |
| <b>Environmental Precautions</b> | Should not be released into the environment.  |

|   |  |
|---|--|
| <b>Methods for Containment and Clean Up</b> | Sweep up or vacuum up spillage and collect in suitable container for disposal. Keep in suitable, closed containers for disposal. |
|---|--|

**7. Handling and storage**

|                 |   |
|-----------------|---|
| <b>Handling</b> | Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation. |
|-----------------|---|

|                |   |
|----------------|---|
| <b>Storage</b> | Keep in a dry, cool and well-ventilated place. Keep container tightly closed. |
|----------------|---|

**8. Exposure controls / personal protection**

|                            |   |
|----------------------------|---|
| <b>Exposure Guidelines</b> | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies. |
|----------------------------|---|

|                             |   |
|-----------------------------|---|
| <b>Engineering Measures</b> | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. |
|-----------------------------|---|

**Personal Protective Equipment**

|                                 |   |
|---------------------------------|---|
| <b>Eye/face Protection</b>      | Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.   |
| <b>Skin and body protection</b> | Long sleeved clothing.  |
| <b>Respiratory Protection</b>   | Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. |
| <b>Hygiene Measures</b>         | Handle in accordance with good industrial hygiene and safety practice.  |

**9. Physical and chemical properties**

|                       |           |
|-----------------------|-----------|
| <b>Physical State</b> | Solid     |
| <b>Appearance</b>     | Off-white |
| <b>Odor</b>           | Odorless  |

|  |                                 |
|--|---------------------------------|
| Odor Threshold                         | No information available        |
| pH                                     | ~ 2 1% aq. solution             |
| Melting Point/Range                    | 128 - 132 °C / 262.4 - 269.6 °F |
| Boiling Point/Range                    | 321.5 °C / 610.7 °F             |
| Flash Point                            | 203 °C / 397.4 °F               |
| Evaporation Rate                       | Not applicable                  |
| Flammability (solid,gas)               | No information available        |
| Flammability or explosive limits       |                                 |
| Upper                                  | No data available               |
| Lower                                  | No data available               |
| Vapor Pressure                         | 0.00039 Pa @ 25 °C              |
| Vapor Density                          | Not applicable                  |
| Specific Gravity                       | 1.615 g/cm <sup>3</sup> @20°C   |
| Bulk Density                           | &1615 kg/m <sup>3</sup> @ 20°C  |
| Solubility                             | soluble                         |
| Partition coefficient; n-octanol/water | No data available               |
| Autoignition Temperature               | 340 °C / 644 °F                 |
| Decomposition Temperature              | > 225°C - < 235°C               |
| Viscosity                              | Not applicable                  |
| Molecular Formula                      | C4 H6 O5                        |
| Molecular Weight                       | 134.09                          |

## 10. Stability and reactivity

|                                  |   |
|----------------------------------|---|
| Reactive Hazard                  | None known, based on information available              |
| Stability                        | Stable under normal conditions.                         |
| Conditions to Avoid              | Excess heat. Incompatible products.                     |
| Incompatible Materials           | Bases, Metals, Reducing agents                          |
| Hazardous Decomposition Products | Carbon monoxide (CO), Carbon dioxide (CO <sub>2</sub> ) |
| Hazardous Polymerization         | Hazardous polymerization does not occur.                |
| Hazardous Reactions              | None under normal processing.                           |

## 11. Toxicological information

### Acute Toxicity

#### Product Information

#### Component Information

| Component  | LD50 Oral           | LD50 Dermal              | LC50 Inhalation                       |
|------------|---------------------|--------------------------|---------------------------------------|
| Malic acid | 3500 mg/kg bw (Rat) | >20000 mg/kg bw (Rabbit) | >1.306 mg/L air (analytical) 4h (Rat) |

**Toxicologically Synergistic Products** No information available

#### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                 |  |
|-----------------|--|
| Irritation      | Severe eye irritant  |
| Sensitization   | No information available   |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component  | CAS-No    | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|------------|-----------|------------|------------|------------|------------|------------|
| Malic acid | 6915-15-7 | Not listed | Not listed | Not listed | Not listed | Not listed |

**Mutagenic Effects** No information available

**Reproductive Effects** No information available.

|   |  |
|---|--|
| <b>Developmental Effects</b>                      | No information available.                                      |
| <b>Teratogenicity</b>                             | No information available.                                      |
| <b>STOT - single exposure</b>                     | None known   |
| <b>STOT - repeated exposure</b>                   | None known   |
| <b>Aspiration hazard</b>                          | No information available                                       |
| <b>Symptoms / effects, both acute and delayed</b> | No information available                                       |
| <b>Endocrine Disruptor Information</b>            | No information available                                       |
| <b>Other Adverse Effects</b>                      | The toxicological properties have not been fully investigated. |

## 12. Ecological information

### Ecotoxicity

Do not empty into drains.

| Component  | Freshwater Algae                  | Freshwater Fish                    | Microtox                        | Water Flea                        |
|------------|-----------------------------------|------------------------------------|---------------------------------|-----------------------------------|
| Malic acid | EC50 > 100 mg/L 72h<br>(OECD 201) | LC50: > 100 mg/L 96h<br>(OECD 203) | EC50 > 300mg/L 3h (OECD<br>209) | LC50 = 240 mg/L 48h<br>(OECD 202) |

**Persistence and Degradability** Persistence is unlikely

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

| Component  | log Pow |
|------------|---------|
| Malic acid | -1.26   |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

|                 |               |
|-----------------|---------------|
| <b>DOT</b>      | Not regulated |
| <b>TDG</b>      | Not regulated |
| <b>IATA</b>     | Not regulated |
| <b>IMDG/IMO</b> | Not regulated |

## 15. Regulatory information

**All of the components in the product are on the following Inventory lists:** China X = listed Australia U.S.A. (TSCA) Canada (DSL/NDL) Europe (EINECS/ELINCS/NLP) Australia (AICS) Korea (ECL) China (IECSC) Japan (ENCS) Philippines (PICCS)

### International Inventories

| Component  | TSCA | DSL | NDL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL         |
|------------|------|-----|-----|-----------|--------|-----|-------|------|------|-------|--------------|
| Malic acid | X    | X   | -   | 230-022-8 | -      |     | X     | X    | X    | X     | KE-2041<br>4 |

#### Legend:

X - Listed

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 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 proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

### U.S. Federal Regulations

|   |  |
|---|--|
| <b>TSCA 12(b)</b>   | Not applicable   |
| <b>SARA 313</b>   | Not applicable   |
| <b>SARA 311/312 Hazard Categories</b>                     | See section 2 for more information                         |
| <b>CWA (Clean Water Act)</b>                              | Not applicable   |
| <b>Clean Air Act</b>                                      | Not applicable   |
| <b>OSHA Occupational Safety and Health Administration</b> | Not applicable   |
| <b>CERCLA</b>   | Not applicable   |
| <b>California Proposition 65</b>                          | This product does not contain any Proposition 65 chemicals |
| <b>U.S. State Right-to-Know Regulations</b>               | Not applicable   |

### **U.S. Department of Transportation**

|                             |   |
|-----------------------------|---|
| Reportable Quantity (RQ):   | N |
| DOT Marine Pollutant        | N |
| DOT Severe Marine Pollutant | N |

### **U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

### Other International Regulations

|                       |                          |
|-----------------------|--------------------------|
| <b>Mexico - Grade</b> | No information available |
|-----------------------|--------------------------|

## 16. Other information

|                         |   |
|-------------------------|---|
| <b>Prepared By</b>      | Regulatory Affairs<br>Thermo Fisher Scientific<br>Email: EMSDS.RA@thermofisher.com  |
| <b>Creation Date</b>    | 14-Mar-2013   |
| <b>Revision Date</b>    | 09-Apr-2019   |
| <b>Print Date</b>       | 09-Apr-2019   |
| <b>Revision Summary</b> | This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). |

### **Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information

relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**