

DL-MALIC ACID

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

a. Product name	DL-MALIC ACID
b. Recommend use of the chemical	Food Additive
c. Restriction on use	For applicable
d. Manufacture Information	
Factory	Yongsan Chemicals, Inc. 32, Sapyeong-ro, Nam-gu, Ulsan, Korea 82-52 - 226 - 8800 Safety Environment Team
HEAD OFFICE	82-2-3274-9100

2. HAZARD IDENTIFICATION

a. Hazard-Risk Classification Serious eye damage/irritatin-Category 2

b. Label elements including precautionary statements

Symbol



Signal word Warning

Hazard statement

H319 Cause serious eye irritation.

Precaution statement

Precaution

P264 Wash hands thoroughly after handling

P280 Wear protective gloves/protective clothing/eye protection/face protection

Response

P305+P351+P338 If in eyes : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P337+P313 If eye irritation persists: Get medical advice/attention.

c. Othe Hazard-Risk which are not included in the classification criteria (NFPA)

Heath	1
Fire	1
Reactivity	0



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3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	Other name	CAS Number	EN Number	Content (%)
DL-Malic acid	2-Hydroxybutanedioic acid	617-48-1(6915-15-7)	210-514-9	100

4. FIRST AID MEASURE

- a. Inhalation Move from exposure immediately if adverse effect.
If breathing has stopped, apply artificial respiration.
- b. Skin contact Remove contaminated clothings and shoes.
Immediately wash with soap and water for at least 15 minutes.
- c. Ingestion Get medical attention if ingested much.
- d. Eye contact Irrigate exposed eye with coupious amounts of room temperature water 15 minutes.

5. FIRE-FIGHTING METHOD

- a. Extinguish media Dry chemical, Carbon dioxide, Water, Foam
- b. Specific hazards arising from the chemical
 - Pyrosis product Oxides of carbon
 - Fire and explosion hazards Slight fire hazard
- c. Specific protective equipment and precaution for fire-fighter
 - Move container from fire area if it can be done without risk
 - Do not scatter spilled material with high-pressure.
 - Dike for later disposal
 - Use extinguish agents appropriate for surrounding fire.
 - Avoid inhalation of material or combustion by-products.
 - Stay upwind and keep out of low areas.

6. Accidental release measure

- a. Personal precaution, protective equipment and emergency procedures
 - Keep unnecessary people away, isolate hazard area
 - Wear appropriate personel protective equipment.



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Ventillate spills

Wear protective equipment with self contained breathing apparatus.

Stop leak if possible without personal risk.

b. Environment precaution and protective procedure

Air	Use adequate ventilation.
Soil	Dike for later disposal
Water	Collect spilled material in appropriate container for later disposal.

c. Methods and material for containment and cleaning up

Small spills	Keep unnecessary people away, isolate hazard area Collect spilled material in appropriate container for later disposal. Keep separated from water and sewer.
large spills	Collect spilled material in appropriate container for disposal. Keep away from ignition source.

7. HANDLING AND STORAGE

Storage	Store in cool/dry place. Store in a well-ventillated place. Store and handle in accordance with all current regulations and standards.
Handling	Remove contaminated clothing and wash clothing before reuse.

8. Exposure controls and personal protection.

a. Control parameter

National regulation	No occupational exposure limits established
ACGIH regulation	No applicable data

b. Ventillation

Provide local exhaust ventilation system. Maintaing an appropriate wind speed.
Ventillationequipment should be explosion-resistant if explosive concentrations of material are present.

c. Personal protective equipment

Respiratory protection	Wear certified(KOSHA) respirator protection.
Eye protection	Wear splash resisitant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.
Body protection	Wear appropriate chemical resistance clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

a. Appearance	Solid
b. Color	White
c. Odor	No
d. Odor threshold	No data available
e. pH	No data available
f. Melting point/freezing point	127~132°C(Decomposition)
g. Initial boiling point	No data available
h. Flash point	No data available



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i. Evaporation rate	No data available
j. Flammability(solid, gas)	No data available
k. Vapor pressure	No data available
l. Vapor density(air=1)	No data available
m. Relative density(water=1)	No data available
n. Solubility	61%(30℃ Water)
o. Auto ignition temperature	No data available
p. Upper/lowew flammability or explosive limits	No data available
q. Viscosity	No data available
r. Partition coefficient	No data available

10. STABILITY AND REACTIVITY

a. Chemical stability	Stable at normal temperature and pressure.
b. Condition to avoid	Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible material.
c. Incompatible material	No data available
d. Hazardous decomposition	No data available

11. TOXICOLOGICAL INFORMATION

a. Information on the likely routes of exposure; Not applicable data.	
b. Health Hazard	
Acute oral toxic	1,600 ~ 3200 mg/Kg - Rat - LD50
Acute dermal toxic	No data available
Acute inhalation toxic	No data available
Skin corrosive/irritant	Irritating
Serious eye damage/eye irritation	Irritating eye, Rabbit. 750ug/24hr
Specific target organ toxicity (single exposure)	No data available
Specific target organ toxicity (repeat exposure)	No data available
Genetic toxicity	No data available
Toxicity to reproduction	No data available
Carcinogenicity	
IARC	Not applicable
ACGIH	Not applicable
NTP, OSHA, WISHA	Not applicable

12. ECOLOGICAL INFORMATION

a. Aquatic and terrestrial ecotoxicity	
Fish	No data available
Crustacea	LC50 586000mg/l 48hr(ECOSAR Class:Neutral Organic-acd)
Aquatic plant	EC50 - 56282.71 mg/l 96 hr (ECOSAR Class:Neutral Organic-acd)
b. Persistence and degradability	



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Persistence	log Kow -1.26
degradability	Not applicable data
c. Bioaccumulative potential	
Bioaccumulative	BCF 3.162
Biodegradation	(Cut-off value = 0.8354 : Rapidly degradation(BIOWIN 5))
d. Mobility in soil	Koc 0.1115
e. Other adverse effect	No data available

13. DISPOSAL CONSIDERATION

a. Disposal method	Disposal in accordance with all applicable regulation.
b. Disposal precaution	Consideration to precaution all applicable regulation.

14. TRANSPORT INFORMATION

a. UN Number	No data available
b. UN proper shipping name	No data available
c. Transport hazard class	No data available
d. Packing group(if applicable)	No data available
e. Marine pollution	No data available
f. Special precaution	No data available
g. IATA - Transport information	Not Restricted IATA

15. Regulatory information

a. Korea regulations	
Industrial Safety and Health Act	Not applicable
Chemical control Act	Not applicable
Dangerous Material Safety Control Act	Not applicable
Wastes Management Act	Not applicable
b. U.S regulation	
	TSCA 12(b) : Not listed
	CERCLA 103 (40 CFR 302.4) : No
	SARA 313 (40 CFR372.65) : No
	SARA 302 (40 CFR 355.30) : No
	SARA 304 (40 CFR 355.40) : No
	OSHA (29 CFR 1910.119) : No
TSCA	Listed
c. EU regulation	No data available
d. EU 1907/2006	Registration (Certification No. R2018020310002)

16. Other information

a. Information source and reference

Korea Occupational Safety Health Agency MSDS information service [Http://www.kosha.net](http://www.kosha.net)

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b. Issuing date

28.. June. 1996.

c. Revision number/date

Revision 10 / 23. April. 2024.

d. Others

The information in this Safety Data Sheet is based on data and information currently available.

Use the information contained in the safety data sheet only as a reference for the safe handling of the material.

Our company does not guarantee the contents described in the safety data sheet.