

Creation date: 2005/04/01

Revision date: 2025/01/20

**SAFETY DATA SHEET (SDS)****1. PRODUCT AND COMPANY IDENTIFICATION**

Product name	L-Lactic Acid 88%
Supplier	Musashino Chemical Laboratory, Ltd.
Address	Tekko Bldg., 8-2, Marunouchi 1-Chome, Chiyoda-Ku, Tokyo 100-0005
Responsible department	Quality Assurance Section
Telephone	+81-3-6810-0241
Fax	+81-3-6810-0146
Emergency telephone number	+81-3-6810-0242
Reference number	L01-12
Recommended use	Food additives, Quasi-drug ingredients, Brewing ingredients, etc.
Restrictions on use	Consult a specialist if you wish to use it for purposes other than those recommended.

**2. HAZARDS IDENTIFICATION**

GHS classification		
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1

GHS label elements  
Hazard Symbols (Pictograms)



Signal word: Danger

Hazard statements: Causes severe skin burns and eye damage  
Causes serious eye damage

Precautionary statements

Prevention	Do not breathe mist, vapors, spray. Wash the part which touched the product thoroughly after handling. Wear protective gloves, protective clothing, eye protection, face protection.
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. Wash contaminated clothing before reuse.
Storage	Store locked up.
Disposal	Dispose of contents/container must be entrusted to a specialized waste disposal company authorized by the prefectural governor.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Single substance or mixture	Substance
Chemical name	L-Lactic Acid
Common name or synonyms	(S)-2-hydroxypropanoic acid
Molecular formula (Molecular weight)	C <sub>3</sub> H <sub>6</sub> O <sub>3</sub> (90.08)
Chemical properties (condensed formula)	CH <sub>3</sub> CH(OH)COOH
CAS RN	50-21-5 (L-Lactic acid : 79-33-4)
Ingredients and concentration	Lactic acid 88%
MITI No. (ENCS)	(2)-1369

## 4. FIRST AID MEASURES

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a doctor.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water or shower. Immediately call a doctor.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.
Ingestion	Rinse mouth. Do NOT induce vomiting. Immediately call a doctor.

## 5. FIRE FIGHTING MEASURES

Suitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical product	In case of fire, etc., thermal decomposition can lead to release of irritating and toxic gases and vapors.
Special extinguishing method	Cut off the source of combustion to the source of the fire and use a fire extinguishing agent to extinguish the fire. Cool nearby tanks, buildings, etc. with water spray to prevent the fire from spreading. Firefighting activities should be carried out from upwind. Restrict access to the area around the fire by non-related persons. Move containers from fire area if it is not dangerous.
Special protective actions for fire-fighters	When fighting fires, wear suitable self-contained respiratory protective equipment, protective clothing for eyes and skin (heat resistant).

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Wear impervious chemical safety glasses, rubber boots, protective gloves, protective clothing, and respiratory protection.
Environmental precautions	Avoid release to the environment. Absorb spill with inert material (e.g., dry sand or earth) and place in a chemical waste container.
Methods and materials for containment and methods and materials for cleaning up	Stop leaks if not dangerous.
Secondary disaster prevention measures	Prevent entry into drains, sewers, basements or enclosed areas.

## 7. HANDLING AND STORAGE

Handling	
Technical measures	Take the facility measures described in 『8. EXPOSURE CONTROLS /PERSONAL PROTECTION』 and wear protective equipment.
Safety handling precautions	Use outdoors or in a well-ventilated area. Do not breathe mist, vapors, spray. Avoid contact with skin. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.
Incompatible substances	Since it is acid, avoid contact with bases.
Storage	
Safe storage conditions	Store in a light-proof airtight container at room temperature.
Safe container and packaging materials	Polyethylene. Stainless-steel.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Administrative control level (Working Environment Evaluation Standards, Ministry of Health, Labour and Welfare of Japan)	Not set
Occupational exposure Limit	
Japan Society for Occupational Health (JSOH)(2022)	Not set
ACGIH(2016)	Not set

Engineering control	Install safety shower facilities, hand washing and eye washing facilities near handling areas. Install general ventilation and local exhaust ventilation systems in the workplace.
Personal protective equipment	
Respiratory protection	If necessary, wear protective masks and/or respiratory protection.
Hand protection	If there is a risk of contact with hands, wear impervious protective gloves.
Eye and face protection	If there is a risk of contact with eyes or face, wear impervious protective glasses, goggles, or face mask.
Skin and body protection	If necessary, wear impervious protective clothing, protective aprons, etc.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Color	Colorless and transparent
Odor	Odorless or slightly characteristic odor
Melting point /Freezing point	53°C(100%)
Boiling point, initial boiling point and boiling range	122°C(1.9~2.0kPa, 100%)
Flammability	Not available
Upper/lower flammability or explosive limits	Not available
Flash point	Not flammable
Auto-ignition temperature	Not available
Decomposition temperature	Not available
pH	≤ 1
Kinematic viscosity	Not available
Solubility	Miscible with water and alcohol
n-Octanol/water partition coefficient:(log Pow)	log POW = -0.6
Vapor pressure	Not available
Density and/or relative density	Relative density 1.200~1.210 (d20/20)
Relative vapor density	Not available
Particle characteristics	Not available

## 10. STABILITY AND REACTIVITY

Reactivity	Reacts with base and generates heat.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Not available
Conditions to avoid	Open flames, overheating, sunlight.
Incompatible materials	Strong bases, oxidizing agents, reducing agents, metals, etc. .
Hazardous decomposition products	Carbon monoxide (CO)

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity (Oral)	LD50 : 3543~4936mg/kg (rats) (SIAP(2011)) (GHS Classification: Not classified)
Acute toxicity (Dermal)	LD50 > 2000mg/kg (rabbit) (SIAP(2011))
Acute toxicity (Inhalation: Gases)	Liquid (GHS definition) (GHS Classification: Not classified(Not applicable))
Acute toxicity (Inhalation: Vapors)	Not available
Acute toxicity (Inhalation: Dusts and mists)	LC50 > 7.9mg/L/4H (SIAP(2011)) (GHS Classification: Not classified(Not applicable))
Skin corrosion/irritation	In a skin irritation test using rabbits (OECD TG404), this substance showed severe irritation and skin corrosion (SIAP (2011)). (GHS Classification: Category 1)
Serious eye damage/eye irritation	In a rabbit eye irritation study using lactic acid, which has not been identified for this substance, corrosivity, permanent scarring, loss of corneal surface layer, and adhesions between the cornea and iris were observed (HSDB ( Accessed September 2016))). It was also classified as Category 1 because skin corrosion/irritation is classified as Category 1. (GHS Classification: Category 1)

Respiratory sensitization	Not available
Skin sensitization	Not available
Germ cell mutagenicity	Not available
Carcinogenicity	Not available
Reproductive toxicity	Not available
Specific target organ toxicity - Single exposure	Not available
Specific target organ toxicity - Repeated exposure	In a 13-week repeated-dose toxicity study using mixed feed or drinking water in rats, mild suppression of weight gain and fluctuations in some blood and biochemical test values were observed, but the NOAEL was lower than the highest dose of 500 mg. /kg/day set to. (SIAP (2011)), in a 2-year repeated dose toxicity study using drinking water in rats, only suppression of body weight gain was observed at 5% of the highest dose (SIAP (2011), HSDB (Access on 2016) September), JECFA FAS 48(2002)). (GHS classification: Not applicable to category)
Aspiration hazard	Not available

## 1 2 . ECOLOGICAL INFORMATION

Ecotoxicity	
Short-term (acute) hazardous to the aquatic environment source information	Fish (Lepomis macrochirus) LC50=130mg/L/96H (SIDS,2011) (GHS Classification: Not classified)
Long-term (chronic) hazardous to the aquatic environment source information	Not available
Persistence and degradability	Readily biodegradable
Bioaccumulative potential	Not available
Mobility in soil	Not available
Hazard to the ozone layer	This substance is not listed in the Annexes to the Montreal Protocol.

## 1 3 . DISPOSAL CONSIDERATIONS

Waste from residues	When disposing of substance, it will be rendered harmless, stabilized, neutralized, etc. to reduce its hazards and harmfulness. Disposal of contents/container must be entrusted to a waste disposal company approved by the prefectural governor.
Contaminated container and contaminated packaging	Clean and recycle containers or dispose of them safely in accordance with local government regulations. Remove all contents when disposing empty containers.

## 1 4 . TRANSPORT INFORMATION

International Regulations	
UN number	Not applicable
UN proper shipping name	Not applicable
UN transport hazard class	Not applicable
Packing group	Not applicable
Marine pollutant	Not applicable
Regulations in Japan	
Regulatory information by sea	Not applicable
Regulatory information by air	Not applicable
Regulatory information by land	Not applicable
Special safety precautions for transport	During transportation, avoid direct sunlight, and load containers carefully to prevent damage, corrosion, and leakage, and take steps to prevent the cargo from collapsing. Do not stack heavy objects.

## 1 5. REGULATORY INFORMATION

## &lt;Japanese regulations&gt;

Food Sanitation Act	Food additives
Act on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical Devices	Quasi-drug Ingredients
Industrial Safety and Health Act	Dangerous or Harmful Substances Whose Names, etc. Should be Indicated (Law Art. 57, Order for Enforcement Art.18) (2025/04/01~) Dangerous or Harmful Substances Whose Names, etc. Should be Notified (Law Art. 57-2, Order for Enforcement Art. 18-2) (2025/04/01~) Chemical Substances Hazardous to Skin, etc.(Regulations Art. 594-2 Paragraph 1)
Fire Service Act	Not applicable
Ship Safety Act	Not applicable
Civil Aeronautics Law	Not applicable
Act on Prevention of Marine Pollution and Maritime Disaster	Noxious Liquid Substances - Category Z (Enforcement Order, Art.1-2, Attached Table 1)
Poisonous and Deleterious Substances Control Act	Not applicable
Pollutant Release and Transfer Register Law (PRTR)	Not applicable

## 1 6. OTHER INFORMATION

References and sources for data etc.	NITE-CHRIP : National Institute of Technology and Evaluation (NITE) Workplace Safety Site: the website of the Ministry of Health, Labour and Welfare (MHLW) "Dictionary of Organic Compounds" , SSOCJ, Kodansha Scientific Ltd. "Encyclopedia Chimica (KAGAKU DAIJITEN)" , Kyoritsu Shuppan Co., Ltd. "LACTIC ACID"; C. H. Holten, Verlag Chemie 1971
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