L(+)-lactic acid

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US / EN			

SECTION 1. IDENTIFICATION

Product name	:	L(+)-lactic acid
Substance name	:	L(+)-lactic acid aqueous solution
Molecular formula	:	C3-H6-O3
Chemical identity	:	S(+)-2-Hydroxypropanoic acid
CAS-No.	:	79-33-4
Chemical nature	:	Mixture

Manufacturer or supplier's details

Details of the supplier of the safety data sheet

Company	:	Jungbunzlauer Inc. 7 Wells Avenue Newton Centre, Massachusetts 02459 USA www.jungbunzlauer.com
Telephone	:	+1 617 969-0900
Telefax	:	+1 617 964-2921
E-mail address Responsible/issuing person	:	msds@jungbunzlauer.com

Emergency telephone number

Emergency telephone number	:	National Chemical Emergency Centre (NCEC) +1 202 464 2554

Recommended use of the chemical and restrictions on use

Recommended use	:	Food/ feedstuff additives Personal care Pharmaceutical substance Cleaning agent Biocidal product Industrial use
Restrictions on use	:	None known.

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Skin irritation	:	Category 2
Serious eye damage	:	Category 1

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H315 Causes skin irritation.
H318 Causes serious eye damage.

Precautionary statements :

Prevention:

P264 Wash skin thoroughly after handling.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P321 Specific treatment (see supplemental first aid instructions on this label).
P332 + P313 If skin irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before reuse.

Hazards Not Otherwise Classified

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Substance name : L(+)-lactic acid aqueous solution

CAS-No. : 79-33-4

Chemical nature : Mixture

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
L(+)-lactic acid	79-33-4	>= 50
Non-hazardous ingredients		
H2O	7732-18-5	<= 50

SECTION 4. FIRST AID MEASURES

General advice : Avoid inhalation, ingestion and contact with skin and eyes.
Consult a physician.

If inhaled : If breathed in, move person into fresh air.

If symptoms persist, call a physician.
If not breathing, give artificial respiration.
If breathing is difficult, give oxygen.

In case of skin contact	:	Take off contaminated clothing and shoes immediately. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	If easy to do, remove contact lens, if worn. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.
If swallowed	:	Drink plenty of water. If swallowed, DO NOT induce vomiting.
Most important symptoms and effects, both acute and delayed	:	Severe eye irritation Erythema Skin disorders Causes skin irritation. Causes serious eye damage.
Notes to physician	:	Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Water spray Dry powder Foam Carbon dioxide (CO2)
Unsuitable extinguishing media	:	High volume water jet
Specific hazards during fire-fighting	:	Do not use a solid water stream as it may scatter and spread fire. Cool closed containers exposed to fire with water spray. Hazardous decomposition products formed under fire conditions.
Hazardous combustion products	:	Carbon dioxide (CO2) Carbon monoxide
Specific extinguishing methods	:	Standard procedure for chemical fires.
Further information	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. In the event of fire and/or explosion do not breathe fumes.
Special protective equipment for firefighters	:	In the event of fire, wear self-contained breathing apparatus. Wear fire resistant or flame retardant clothing.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8. Use personal protective equipment. Ensure adequate ventilation. Avoid inhalation of vapour or mist. Evacuate personnel to safe areas. Material can create slippery conditions.
Environmental precautions	:	Local authorities should be advised if significant spillages cannot be contained. Prevent further leakage or spillage if safe to do so.
Methods and materials for containment and cleaning up	:	Use mechanical handling equipment. Keep in suitable, closed containers for disposal. Clean contaminated floors and objects thoroughly while observing environmental regulations. Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion	:	Normal measures for preventive fire protection.
Advice on safe handling	:	Avoid contact with skin and eyes. Do not breathe vapours or spray mist. Wear personal protective equipment.
Conditions for safe storage	:	Store in original container. Keep container tightly closed in a dry and well-ventilated place. Keep in an area equipped with acid resistant flooring.
Materials to avoid	:	Incompatible with bases.
Recommended storage temperature	:	> 41 °F

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures : Provide adequate ventilation.

Personal protective equipment

Respiratory protection	:	In the case of vapour formation use a respirator with an approved filter. Use NIOSH approved respiratory protection.
Hand protection		
Remarks	:	Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work.

For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Eye protection	:	Safety glasses Ensure that eyewash stations and safety showers are close to the workstation location.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place.
Protective measures	:	Wear suitable protective equipment. When using do not eat, drink or smoke.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Avoid breathing vapours, mist or gas. Wash hands before breaks and immediately after handling the product. Remove contaminated clothing and protective equipment before entering eating areas.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Aqueous solution
Colour	:	colourless, light yellow
Odour	:	characteristic
Odour Threshold	:	Not relevant
pH	:	< 2 (77 °F)
Melting point/range	:	Not applicable
Boiling point/boiling range	:	248 - 266 °F
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	does not ignite
Upper explosion limit	:	Not applicable
Lower explosion limit	:	Not applicable
Vapour pressure	:	No data available
Relative vapour density	:	No data available

Relative density	:	No data available
Density	:	1.1 - 1.25 g/cm3
Solubility(ies)		
Water solubility	:	completely miscible
Ignition temperature	:	752 °F
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	5 - 60 mPa.s (77 °F)
Viscosity, kinematic	:	No data available
Explosive properties	:	Not applicable
Oxidizing properties	:	No data available
Molecular weight	:	90.08 g/mol
Dust explosion class	:	Not applicable

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No decomposition if stored and applied as directed.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use. Hazardous decomposition products formed under fire conditions.
Conditions to avoid	:	Temperature > 392 °F
Incompatible materials	:	Bases Oxidizing agents
Hazardous decomposition products	:	Build-up of dangerous/toxic fumes possible in cases of fire/high temperature. Carbon dioxide (CO2) Carbon monoxide

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

L(+)-lactic acid:

Acute oral toxicity	:	LD50 Oral (Rat): 3,730 mg/kg

LD50 Oral (Mouse): 4,875 mg/kg

Acute dermal toxicity : LD50 Dermal (Rabbit): > 2,000 mg/kg

Skin corrosion/irritation

Components:

L(+)-lactic acid:
Species: Guinea pig
Result: Mild skin irritation

Species: Rabbit
Result: Severe skin irritation

Serious eye damage/eye irritation

Components:

L(+)-lactic acid:
Species: Rabbit
Result: irritating

Germ cell mutagenicity

Components:

L(+)-lactic acid:
Germ cell mutagenicity - Assessment : Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Carcinogenicity

Components:

L(+)-lactic acid:
Carcinogenicity - Assessment : Animal testing did not show any carcinogenic effects.

Experience with human exposure

Product:

Inhalation : Target Organs: Respiratory system
Symptoms: No information available.

Skin contact : Target Organs: Skin
Symptoms: May cause skin irritation in susceptible persons.

Eye contact : Target Organs: Eyes
Symptoms: Redness, Itching

Ingestion : Target Organs: Digestive organs
Symptoms: No information available.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

L(+)-lactic acid:

Toxicity to fish	:	LC50: 320 mg/l Exposure time: 48 h
Toxicity to daphnia and other aquatic invertebrates	:	(Daphnia pulex (Water flea)): 240 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (Scenedesmus capricornutum (fresh water algae)): 3,500 mg/l

Persistence and degradability

Components:

L(+)-lactic acid:

Biodegradability	:	Testing period: 28 d Kinetic: 28 d: 64 % Method: OECD Test Guideline 301D Readily biodegradable.
Biochemical Oxygen Demand (BOD)	:	0.45 mg/mg Incubation time: 5 d 0.6 mg/mg Incubation time: 20 d
Chemical Oxygen Demand (COD)	:	0.9 mg/mg

Bioaccumulative potential

Components:

L(+)-lactic acid:

Bioaccumulation	:	The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.
Partition coefficient: n-octanol/water	:	log Pow: -0.62

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : No data available

Components:

L(+)-lactic acid:

Results of PBT and vPvB assessment : This substance is not considered to be persistent, bioaccumulating and toxic (PBT).

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of wastes in an approved waste disposal facility.
In accordance with local and national regulations.
Do not dispose of with domestic refuse.
Do not dispose of waste into sewer.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Dispose of as unused product.

SECTION 14. TRANSPORT INFORMATION

International Regulations

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

National Regulations

DOT
Not regulated as a hazardous material

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

SARA 311/312 Hazards : Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Water Act

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

California Prop. 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

EINECS	:	On the inventory, or in compliance with the inventory
TSCA	:	On TSCA Inventory
TSCA_12b	:	Not applicable
DSL	:	All components of this product are on the Canadian DSL
REACH	:	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Full text of other abbreviations

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ -

Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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