Document Number: Ingredient Supplier | SDS | Lactic Acid
Revision Date: 2023-08-28

Section 1. Product and Company Information

Product Form:	Mixture
Name:	L-lactic acid
Trade Name:	PURAC® 50-100 PURAC® 80 FG PURAC® 88-LT, 88-T PURAC® FCC 50, FCC 80, FCC 85, FCC 88 PURAC® FIT Plus 90 PURAC® HiPure 51, HiPure 90 PURAC® HS 50, HS 80, HS 88, HS 90, HS 93, HS 95, HS 100 PURAC® PF 90 PURAC® PH 91 PURAC® UltraPure 50, UltraPure 90 PURAC® Vin PURAC® DEX 185 PURAC® HS Pure 90 PURAC® HS Pure 50
Company:	Ingredient Supplier 13320 Emmett Rd. Houston, TX 77041 USA Phone: (832) 795-6898
Product Use:	Food additive, Speciality chemical
Restrictions on Use:	No additional information available
Emergency Contact Number	Call CHEMTREC: +1 703-741-5970 / 1-800-424-9300 CCN 18135

Section 2. Hazard Identification

Classification of the substance or mixture

GHS US classification

Skin corrosion/irritation Category 1C Causes severe skin burns and eye damage

Serious eye damage/eye irritation Category 1	Causes serious eye damage

GHS Label elements, including precautionary statements

Hazard pictograms (GHS US)	
Signal word (GHS US)	Danger
Hazard statements (GHS US)	Causes severe skin burns and eye damage Causes serious eye damage
Precautionary statements (GHS US)	Do not breathe vapors, mist. Wear protective gloves, protective clothing, eye protection, face protection. If swallowed: rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Wash contaminated clothing before reuse.

Other hazards which do not result in classification

Other hazards which do not result in classification	No additional information.
Unknown acute toxicity (GHS US)	Not applicable

Section 3. Composition / Information on Ingredients

Substances	Not applicable
Mixtures	
Name:	L-(+)-lactic acid
Product identifier:	CAS-No.: 79-33-4
Conc. (% w/w)	≥ 50
GHS US classification	Skin Corr. 1C, H314 Eye Dam. 1, H318

Section 4. First Aid Measures

Description of first aid measures

General:	Call a physician immediately.
Inhalation:	Remove person to fresh air and keep comfortable for breathing.
Skin Contact:	Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

Eye Contact:	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
Ingestion:	Rinse mouth. Do not induce vomiting. Drink some glasses of water. Call a physician immediately.

Most important symptoms and effects, both acute and delayed:

Potential Adverse human health effects and symptoms	Redness, pain. Burns. Causes serious eye damage.
Symptoms/effects after skin contact	Burns. Rednesses. Pain.
Symptoms/effects after eye contact	Burning sensation. Redness, pain. Tears.
Symptoms/effects after ingestion	Burns to the gastric/intestinal mucosa.

Immediate medical attention and special treatment, if necessary

Treat symptomatically. If breathing is difficult, give oxygen. Keep victim under observation. Symptoms may be delayed.

Section 5. Fire Fighting Measures

Suitable (and unsuitable) extinguishing media

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

Fire hazard	No fire hazard.
Explosion hazard	No direct explosion hazard.
Hazardous decomposition products in case of fire	Under fire conditions, hazardous fumes will be present: Carbon monoxide, Carbon dioxide.

Special protective equipment and precautions for fire-fighters

Firefighting instructions	Evacuate personnel to a safe area. Use water spray or fog for cooling exposed containers. Prevent fire- fighting water from entering environment.
Protection during firefighting	Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Section 6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Protective equipment	Wear recommended personal protective equipment.
Emergency procedures	Evacuate unnecessary personnel. Ventilate spillage area. Do not touch or walk on the spilled product. Avoid breathing mist, vapors. Avoid contact with skin and eyes.

For emergency responders

Protective equipment	Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Environmental precautions	Avoid release to the environment.

Methods and material for containment and cleaning up

For containment	Stop leak if safe to do so. Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up	Large amounts: Cover spill with non combustible material, e.g.: sand, earth, vermiculite. Shovel or sweep up and put in a closed container for disposal. Notify authorities if product enters sewers or public waters. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. After cleaning, flush traces away with water. Flush contaminated areas with plenty of water. Never return spills in original containers for possible later re-use.
Other information	Dispose of materials or solid residues at an authorized site.

Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

Section 7. Handling and Storage

Precautions for safe handling

Precautions for safe handling	Ensure good ventilation of the work station. Avoid contact with skin and eyes. Wear personal protective equipment. Do not breathe vapors, mist. Handle in accordance with good industrial hygiene and safety procedures.
Handling temperature	< 392 °F
Hygiene measures	Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Conditions for safe storage, including any incompatibilities

Storage conditions	Keep container tightly closed in a cool, well-ventilated place. Store locked up.
Incompatible materials	Oxidizing agent. Bases. Acids. Metals.
Storage temperature	< 392 °F
Storage area	Store according to local legislation.

Section 8. Exposure Controls / Personal Protection

Control Parameters:

L-lactic acid	No additional information available
L-(+)-lactic acid (79-33-4)	No additional information available

Appropriate engineering controls

Appropriate engineering controls	Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Do not expose to temperatures above 200 °C / 392 °F. Ensure good ventilation of the work station.
Environmental exposure controls	Avoid release to the environment.

Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand Protection:

Protective Gloves

Type	Material	Permeation	Thickness (mm)
Protective gloves	butyl rubber, Chloroprene rubber (CR), Polyvinylchloride (PVC)	6 (> 480 minutes)	0.5
Protective gloves	Nitrile rubber (NBR)	6 (> 480 minutes)	0.35
Protective gloves	Fluoroelastomer (FKM)	6 (> 480 minutes)	0.4

Eye protection:

Safety goggles. If there is a risk of liquid being splashed: Face shield

Type	Field of Application
Safety Goggles	Droplet, Aerosols
Face Shield	Droplet, Aerosols

Skin and body protection:

Wear suitable protective clothing

Type

Long sleeved protective clothing

Safety boots (above ankles)

Large amounts, If there is a risk of liquid being splashed: Apron

Respiratory protection:

During spraying wear suitable respiratory equipment. (open systems)

Device	Filter type	Condition
Full face mask	Type A - High-boiling (>65 °C) organic compounds	Aerosols, Droplet

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Avoid contact with skin, eyes and clothing. Workers must be trained in the proper use and handling of this product as required under applicable regulations. Regular cleaning of equipment, work area and clothing.

Section 9. Physical and Chemical Properties

Physical State:	Liquid
Appearance:	Clear
Color:	Colorless Yellowish
Odor:	Chracteristic
Odor Threshold:	No data available
pH	< 1.2 (77°F)
Melting Point/Freezing Point:	Not applicable/No data available
Boiling Point:	249-266°F
Flash Point:	No data available
Relative Evaporation Rate (butyl acetate=1):	No data available
Flammability (Solid/Gas):	Not applicable
Vapor Pressure:	No data available
Relative Vapor Density at 20°C:	No data available
Density:	1.2 g/cm^3
Solubility:	Miscible with water
Partition Coefficient n-octanol/Water:	-0.62
Autoignition Temperature:	>752 °F 93% w/w
Decomposition Temperature:	>392 °F

Viscosity, kinematic:	No data available
Viscosity, dynamic:	5 – 60 mPa·s (77°F)
Explosive Limits:	No data available
Explosive Properties:	No data available
Oxidizing Properties:	No data available
Other Information	
Additional Information	Surface tension : 44 - 50 mN/m @50 - 90%

Section 10. Stability and Reactivity

Reactivity:	The product is non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	Stable under normal conditions.
Possibility of Hazardous Reactions:	No dangerous reactions known under normal conditions of use.
Conditions to Avoid:	Do not expose to temperatures above 200 °C / 392 °F.
Incompatible Materials:	Oxidizing agent. Bases. Acids. Metals.
Hazardous Decomposition Products:	Under fire conditions, hazardous fumes will be present: Carbon dioxide, Carbon monoxide.

Section 11. Toxicological Information

Acute Toxicity: (Oral) Not classified
(Dermal) Not classified
(Inhalation) Not classified

L-(+)-lactic acid (79-33-4)

LD50 oral rat	3543 mg/kg body weight (EPA OPP 81-1 method)
LD50 dermal rabbit	> 2000 mg/kg body weight (EPA OPP 81-2 method)
ATE US (oral)	3543 mg/kg body weight

Skin Corrosion/Irritation:	Causes severe skin burns. pH: < 1.2 (77°F)
Serious Eye Damage/Eye Irritation:	Causes serious eye damage. pH: < 1.2 (77°F)
Respiratory or Skin Sensitization:	Not classified
Germ Cell Mutagenicity:	Not classified
Carcinogenicity:	Not classified
Reproductive Toxicity:	Not classified

Specific Target Organ Toxicity - Single Exposure:	Not classified
Specific Target Organ Toxicity - Repeated Exposure:	Not classified
Aspiration Hazard:	Not classified
Viscosity, kinematic:	No data available
Likely routes of exposure	Inhalation. Dermal.
Potential Adverse human health effects and symptoms	Redness, pain. Burns. Causes serious eye damage.
Symptoms/effects after skin contact	Burns. Rednesses. Pain.
Symptoms/effects after eye contact	Burning sensation. Redness, pain. Tears.
Symptoms/effects after ingestion	Burns to the gastric/intestinal mucosa.

Section 12. Ecological Information

Toxicity

Ecology - general	Before neutralisation, the product may represent a danger to aquatic organisms.
L-(+)-lactic acid (79-33-4)	
LC50 - Fish [1]	130 – 320 mg/l
EC50 - Crustacea [1]	130 – 750 mg/l
ErC50 algae	3500 mg/l
NOEC chronic algae	1900 mg/l

Persistence and Degradability:

L-lactic acid	
Persistence and degradability	Readily biodegradable.
L-(+)-lactic acid (79-33-4)	
Persistence and degradability	Readily biodegradable.

Bioaccumulative potential

L-lactic acid	
Partition coefficient n-octanol/water (Log Pow)	-0.62
L-(+)-lactic acid (79-33-4)	
Partition coefficient n-octanol/water (Log Pow)	-0.54 (OECD 107 method)
Mobility in Soil:	No additional information available
Other Adverse Effects:	No additional information available

Section 13. Disposal Consideration

Disposal Methods

Regional legislation (waste)	Dispose in a safe manner in accordance with local/national regulations.
Waste treatment methods	Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	Disposal must be done according to official regulations
Product/Packaging disposal recommendations	Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

Section 14. Transportation Information

In accordance with DOT / TDG / IMDG / IATA

UN Number:

DOT NA No:	UN3265
UN-No. (TDG):	UN3265
UN-No. (IMDG):	3265
UN-No. (IATA):	3265

UN Proper Shipping Name:

Proper Shipping Name (DOT)	Corrosive liquid, acidic, organic, n.o.s. (Lactic acid)
Proper Shipping Name (TDG)	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Lactic acid)
Proper Shipping Name (IMDG)	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (Lactic acid)
Proper Shipping Name (IATA)	Corrosive liquid, acidic, organic, n.o.s. (Lactic acid)

Transport Hazard Class(es):

DOT

Transport hazard class(es) (DOT)	8
Hazard labels (DOT)	8

TDG

Transport hazard class(es)	8
(TDG) Hazard labels (TDG)	8

IMDG

Transport hazard class(es) (IMDG)	8
Hazard labels (IMDG)	8

IATA

Transport hazard class(es) (IATA)	8
Hazard labels (IATA)	8

Packaging Group:

Packing group (DOT)	III
Packing group (TDG)	III
Packing group (IMDG)	III
Packing group (IATA)	III

Environmental Hazards:

Other Information: No supplementary information available.

Special Precautions for User:

DOT

UN-No.(DOT)	UN3265
DOT Special Provisions (49 CFR 172.102)	386 - Notwithstanding the provisions of §177.834(l) of this subchapter, cargo heaters may be used when weather conditions are such that the freezing of a wetted explosive material is likely. Shipments must be made by private, leased or contract carrier vehicles under exclusive use of the offeror. Cargo heaters must be reverse refrigeration (heat pump) units. Shipments made in accordance with this Special provision are excepted from the requirements of §173.60(b)(4) of this subchapter. IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672).

	T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = 97 / 1 + a (tr - tf) Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	203
DOT Packaging Bulk (49 CFR 173.xxx)	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	60 L
DOT Vessel Stowage Location	A - The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	40 - Stow ‘‘clear of living quarters’’
TDG	
UN-No. (TDG)	UN3265
TDG Special Provisions	16 - (1) The technical name of at least one of the most dangerous substances that predominantly contributes to the hazard or hazards posed by the dangerous goods must be shown, in parentheses, on the shipping document following the shipping name in accordance with clause 3.5(1)(c)(ii)(A) of Part 3 (Documentation). The technical name must also be shown, in parentheses, on a small means of containment or on a tag following the shipping name in accordance with subsections 4.11(2) and (3) of Part 4 (Dangerous Goods Safety Marks). (2) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a shipping document or on a small means of containment when Canadian law for domestic transport or an international convention for international transport

	prohibits the disclosure of the technical name: (a) UN1544, ALKALOID SALTS, SOLID, N.O.S. or ALKALOIDS, SOLID, N.O.S; (b) UN1851, MEDICINE, LIQUID, TOXIC, N.O.S; (c) UN3140, ALKALOID SALTS, LIQUID, N.O.S. or ALKALOIDS, LIQUID, N.O.S; (d) UN3248, MEDICINE, LIQUID, FLAMMABLE, TOXIC, N.O.S; or (e) UN3249, MEDICINE, SOLID, TOXIC, N.O.S. (3) Despite subsection (1), the technical name for the following dangerous goods is not required to be shown on a small means of containment: (a) UN2814, INFECTIOUS SUBSTANCE, AFFECTING HUMANS; or (b) UN2900, INFECTIOUS SUBSTANCE, AFFECTING ANIMALS.
Explosive Limit and Limited Quantity Index	5 L
Excepted quantities (TDG)	E 1
Passenger Carrying Road Vehicle or Passenger Carrying Railway Vehicle Index	5 L
Emergency Response Guide (ERG) Number	153
IMDG	
Special provision (IMDG)	223, 274
Limited quantities (IMDG)	5 L
Excepted quantities (IMDG)	E 1
Packing instructions (IMDG)	P001, LP01
IBC packing instructions (IMDG)	IBC03
Tank instructions (IMDG)	T7
Tank special provisions (IMDG)	TP1, TP28
EmS-No. (Fire)	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES
Stowage category (IMDG)	A
Properties and observations (IMDG)	Causes burns to skin, eyes and mucous membranes.
IATA	
PCA Excepted quantities (IATA)	E1

PCA Limited quantities (IATA)	Y841
PCA limited quantity max net quantity (IATA)	1L
PCA packing instructions (IATA)	852
PCA max net quantity (IATA)	5L
CAO packing instructions (IATA)	856
CAO max net quantity (IATA)	60L
Special provision (IATA)	A3, A803
ERG code (IATA)	8L

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not Applicable

Section 15. Regulatory Information

US Federal Regulation

All components of this product are listed as Active, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

L-(+)-lactic acid CAS-No. 79-33-4 ≥ 50%

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

International Regulations

Canada

L-(+)-lactic acid (79-33-4)	Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

L-(+)-lactic acid (79-33-4)	Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

National regulations

L-lactic acid	Not listed on the United States TSCA (Toxic Substances Control Act) inventory
L-(+)-lactic acid (79-33-4)	Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Listed introduction on Australian Industrial Chemicals Introduction Scheme (AICIS Inventory) Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances) Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on KECL/KECI (Korean Existing Chemicals Inventory)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China) Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on the Japanese ISHL (Industrial Safety and Health Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on the TCSI (Taiwan Chemical Substance Inventory)
Listed on the NCI (Vietnam - National Chemicals Inventory)

US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Section 16. Other Information

Further Information: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. INGREDIENT SUPPLIER LLC and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product.

Date of Issue: 08/28/2023

Reason of Issue: Revision

Prepared by: Ingredient Supplier
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This 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 other process. Such information is to the best of the company's knowledge and believed accurate and reliable as of the date indicated. However, no representation, warranty or guarantee of any kind, express or implied, is made as to its accuracy, reliability or completeness and we assume no responsibility for any loss, damage or expense, direct or consequential, arising out of use. It is the user's responsibility to satisfy himself as to the suitableness and completeness of such information for his own particular use.

For INGREDIENT SUPPLIER

Chris Hill

(AUTHORIZED SIGNATORY)