

SECTION 1: Identification

1.1. Identification

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

1.2. Recommended use and restrictions on use

Recommended use	: Food additive, Speciality chemical
Restrictions on use	: No additional information available

1.3. Supplier

Supplier

Purac Biochem bv
46 Arkelsedijk
Gorinchem, 4206 AC
T +31 183 695695 - F +31 183 695604
sds@corbion.com

Supplier

Purac America, Inc.
8250 Flint Street
Lenexa, KS 66214 - USA
T +1 800 669 4092 - F +1 913 888 4970
sds@corbion.com

1.4. Emergency telephone number

Emergency number	: Call CHEMTREC: +1 703-741-5970 / 1-800-424-9300 CCN 18135
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SECTION 2: Hazard(s) identification

2.1. 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

2.2. GHS Label elements, including precautionary statements

GHS US labeling

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.

2.3. Other hazards which do not result in classification

Other hazards which do not result in classification : No additional information.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	Conc. (% w/w)	GHS US classification
L-(+)-lactic acid	CAS-No.: 79-33-4	≥ 50	Skin Corr. 1C, H314 Eye Dam. 1, H318

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general : Call a physician immediately.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Do not induce vomiting. Drink some glasses of water. Call a physician immediately.

4.2. Most important symptoms and effects (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.

4.3. 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

5.1. Suitable (and unsuitable) extinguishing media

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| 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. |

5.2. Specific hazards arising from the chemical

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| 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. |

5.3. Special protective equipment and precautions for fire-fighters

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| 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

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

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| 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. |

6.1.2. For emergency responders

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

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

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| 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. |

6.4. 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

7.1. 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.

7.2. 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

8.1. Control parameters

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

8.2. 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.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Hand protection:				
Protective gloves				
Type	Material	Permeation	Thickness (mm)	Penetration
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	Characteristics
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

Personal protective equipment symbol(s):



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

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Color	: Colorless Yellowish
Odor	: Characteristic
Odor threshold	: No data available
pH	: < 1.2 (77°F)
Melting point	: Not applicable
Freezing point	: 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
Relative density	: No data available

Density	: 1.2 g/cm ³
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Pow)	: -0.62
Auto-ignition temperature	: > 752 °F 93% w/w
Decomposition temperature	: > 392 °F
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 5 – 60 mPa·s (77°F)
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

Additional information	: Surface tension : 44 - 50 mN/m @50 - 90%
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SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Do not expose to temperatures above 200 °C / 392 °F.

10.5. Incompatible materials

Oxidizing agent. Bases. Acids. Metals.

10.6. Hazardous decomposition products

Under fire conditions, hazardous fumes will be present: Carbon dioxide, Carbon monoxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (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/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
STOT-single exposure	: Not classified
STOT-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

12.1. 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

12.2. Persistence and degradability

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

12.3. 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)

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. 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: Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN number

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

14.2. 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)

14.3. Transport hazard class(es)

DOT

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



TDG

Transport hazard class(es) (TDG)	: 8
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



14.4. Packing group

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

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. 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)	: E1
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)	: E1
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

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

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%
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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.

15.2. 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)

15.3. 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

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date : 09/22/2021

Training advice : Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure.

Abbreviations and acronyms	
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DOT	Department of Transportation (DOT)
EC50	Median effective concentration
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
EPA	EPA (Environmental Protection Agency)
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
N.O.S.	Not Otherwise Specified

Indication of changes:
Classification. Label elements. First aid measures. Exposure controls/personal protection. Toxicological information. Ecological information. Transport information.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.