



SAFETY DATA SHEET

L(+)-Lactic Acid

REVISION DATE 24/04/07
REF. SD0010/2007-01

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY / UNDERTAKING

# Product name	PURAC® PURAC® Sanilac	
# Use of the Substance	Food additive, Specialty chemical	
Supplier	PURAC biochem Arkelsedijk 46 NL-4206 AC Gorinchem The Netherlands	PURAC bioquimica Gran Vial 19 -25 08160 Montmelo-Barcelona Spain
Telephone	++31 183 695695	++34 93 568 6300
Fax	++31 183 695604	++34 93 568 3955
Emergency telephone	++31 183 695695	++34 93 568 6300 (Ext 222)
Supplier	PBR sínteses Rua Augusta, nr. 1939 - sala 122 / 123 São Paulo SP- Brazil	
Telephone	+55 11 3062 1535	
Fax	+55 11 3062 4011	
Emergency Telephone	+55 11 3062 1535	

2. COMPOSITION / INFORMATION ON INGREDIENTS

# Chemical name of the substance	L(+) Lactic Acid aqueous solution	
# Synonyms	Lactic Acid aqueous solution: S(+)-2-hydroxy propionic acid.	
CAS-No.	79-33-4	EC-No. 201-196-2

3. HAZARDS IDENTIFICATION

Most important hazards	Irritating to eyes and skin. Risk of serious damage to eyes. May cause irritation of respiratory tract. May cause irritation of the mucous membranes.	
Specific hazards		
Inhalation	(short and long term)	irritation, breathing difficulties, headache, dizziness
Skin contact	(short and long term)	irritation of digestive system
Eye contact	(short and long term)	irritation
Ingestion	(short and long term)	severe irritation, blurred vision burns, vomiting, gastrointestinal disturbance

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4. FIRST AID MEASURES

General advice	Show this safety data sheet to the doctor in attendance.
Inhalation	Move to fresh air. If symptoms persist, call a physician.
Skin contact	Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Obtain medical attention.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Obtain medical attention.
Ingestion	Consult a physician. If conscious, drink plenty of water. Never give anything by mouth to an unconscious person.
Protection of first-aiders	Wear impervious gloves and tightly fitting safety goggles. Avoid contact with skin and eyes.
Notes to physician	Oxygen, if needed. Avoid gastric lavage.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Water, carbon dioxide (CO ₂), foam, dry chemical.
Extinguishing media which must not be used for safety reasons	None.
Specific hazards	Thermal decomposition can lead to release of irritating gases and vapors.
Special protective equipment for firefighters	In the event of fire, wear self contained breathing apparatus.
Specific methods	Standard procedure for chemical fires. Cool containers / tanks with water spray. Flash point > 234°F, (> 112°C)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Avoid contact with skin and eyes. Wear impervious gloves and tightly fitting safety goggles.
Environmental precautions	Do not flush into surface water or sanitary sewer system.
Methods for cleaning up	Dam up. Neutralize with limestone powder, lime, soda ash. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Take up mechanically and collect in suitable container for disposal.

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7. HANDLING AND STORAGE

Technical measures/Precautions
Safe handling advice

Avoid temperatures above 392°F (200°C).
Avoid contact with skin and eyes. Wear impervious gloves and tightly fitting safety goggles.
Do not breathe spray mist.

Technical measures/
Storage conditions
Packaging material

Store according to all current regulations. Keep container tightly closed. Keep in a dry, cool place.
Plastic or stainless steel 316 L containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures
to reduce exposure
Exposure limit(s)

Insure adequate ventilation, especially in confined areas.
None.

Personal protection equipment
Respiratory protection

Not required; except in case of aerosol formation.
Breathing apparatus needed only when aerosol or mist is formed.

Hand protection
Eye protection
Skin and body protection
Hygiene measures

Rubber gloves.
Face-shield, tightly fitting safety goggles.
Long sleeved clothing, chemical resistant apron boots.
Avoid contact with skin When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form
Color
Odor
Molecular Weight
pH
Boiling point/range

aqueous solution
colorless/yellow/ light brown
characteristic
90.08
2 @ 77°F (25°C)
230°F (110°C) (40% solution)
257°F (125°C) (90% solution)

Decomposition temperature
Autoignition temperature

> 392 °F (> 200°C)
none

Flash point
Explosion limits
Density
Surface tension
Solubility

> 234°F (> 112°C)
not applicable
1190 - 1250 kg/m³
50 - 44 mN/m (50 - 90% solution)
Water solubility: completely soluble
Partition coefficient (n-octanol/water) log Pow = - 0.62
5 - 60 mPa.s @ 77°F (25°C) (50 - 90% solution)

Viscosity

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10. STABILITY AND REACTIVITY

Stability
Conditions to avoid
Materials to avoid
Hazardous decomposition products

Stable at normal conditions.
Avoid temperatures above 392°F (200°C).
Oxidizing agents, metals, acids and bases.
Carbon oxides. Thermal decomposition can lead to release of irritating gases and vapors.

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50/oral/rat=3730 mg/kg
LD50/oral/mouse=4875 mg/kg
LD50/dermal/rabbit>2000mg/kg

Irritation

Eyes-rabbit: severe. Skin guinea pig: slight - none.
Skin rabbit: severe.
Tests on animals have shown that the effect of lactic acid on skin is species dependent. Human experience and results on guinea pigs have shown that it is irritant and not corrosive.

Local effects

Irritating to eyes and skin. Risk of serious damage to eyes. Inhalation of mist causes irritation of respiratory system.

Carcinogen Status
Mutagenic Data

None.
Tests on bacterial or mammalian cell cultures did not show mutagenic effects.

Major effects of exposure
Inhalation

Inhalation of vapors is irritating to the respiratory system, may cause throat pain and cough. Inhalation of vapors in high concentration may cause shortness of breath (lung oedema). Chronic exposure may cause dermatitis, gastrointestinal disturbance, coughing.

Skin contact

May cause skin irritation. Prolonged skin contact may produce dermatitis.

Eye contact

Severe eye irritation. Risk of serious damage to eyes. Liquid causes severe inflammation of conjunctiva and may cause severe damage of the cornea.

Ingestion

Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause stomach perforation

Further information

As an important metabolite in man, animals and plants, it is naturally formed and metabolised.

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12. ECOLOGICAL INFORMATION

**Mobility
Persistence / degradability**

Completely soluble.
Readily biodegradable, according to appropriate OECD test.
Biochemical oxygen demand (BOD)₅ = 0.45 mg O₂ /mg .
Biochemical oxygen demand (BOD)₂₀ = 0.60 mg O₂/mg.
Chemical oxygen demand (COD) = 0.90 mg O₂ /mg.

**Bioaccumulation
Ecotoxicity**

None.
EC50/48h/Daphnia = 240mg/l
LC50/48h/Fish = 320 mg/l
EC50/Algae = 3500 mg/l (neutral)
Natural product.

Further information

13. DISPOSAL CONSIDERATIONS

**Waste from residues /
unused products
Contaminated packaging**

Subject to disposal regulations US EPA 40 CFR 2 62.

Clean container with water. Empty containers should be taken for local recycling, recovery or waste disposal.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

15. REGULATORY INFORMATION

US Regulations

USA TSCA Inventory Status Y
SARA III N
California Proposition 65 N
Carcinogen status OSHA:N, NTP:N, IARC: N
FDA GRAS

**EU Classification
Symbols
R- Phrases**

Xi - Irritant
R41 - Risk of serious damage to eyes.
R38 - Irritating to skin.
S24 - Avoid contact with skin.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 - Wear suitable gloves and eye/face protection.

S-Phrases

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16. OTHER INFORMATION

NFPA Ratings (Scale 0-4) 1(health)-0(flammability)-0(reactivity)
HMIS Rating 2(health)-0(flammability)-0(reactivity) B(protective equipment)

CAS-No. 50-21-5 (general) EC-No. 200-018-0 (general)

EEC Food additive: E 270

Further information on the safety assessment of lactic acid and its salts can be obtained in a CFTA Report of June 6th 1997.

Additional data on the calculated ecotoxicity of lactic acid and its salts and esters can be obtained in a report entitled 'The ecotoxicity and biodegradability of lactic acid, alkyl lactate esters and lactic acid salts' by Bowmer et al.
(Reference: Chemosphere 37: 1317-1333 (1998))

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indicates updated section.

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