

L(+)-Lactic Acid

REVISION DATE 30/06/08
REF. SD0010/2008-031. 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 Telephone ++31 183 695695 Fax ++31 183 695604 Emergency telephone ++31 183 695695	PURAC bioquimica Gran Vial 19 -25 08160 Montmelo-Barcelona Spain ++34 93 568 6300 ++34 93 568 3955 ++34 93 568 6300 (Ext 222)
# Supplier	PBR sínteses Av. Rui Barbosa, 521 Campos dos Goytacazes-RJ CEP 28013-000 Brazil Telephone +55 22 2737 7200 Fax +55 22 2737 7210 Emergency Telephone +55 22 2737 7200	PURAC America, Inc. 111 Barclay Blvd., Lincolnshire, IL 60069 USA +1 847 634 6330 +1 847 634 1992 +1 847 634 1992
Supplier	PURAC Thailand 3 Moo 2 – Ásia Industrial Estate T. Banchang, A. Banchang Rayong 21130 Thailand Telephone +66 (38) 698 800 Fax +66 (38) 698 801 Emergency telephone +66 (38) 698 800	

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

Copyright © PURAC. All rights reserved. No part of this publication may be copied, downloaded, reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopied, recorded or otherwise, without permission of the publisher. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition or application. None of the data, information or opinions contained herein may be relied upon for any purpose or reason. PURAC disclaims any liability, damages, losses or other consequences suffered or incurred in connection with the use of the data, information or opinions contained herein. In addition, nothing contained herein shall be construed as a recommendation to use any products in conflict with existing patents covering any material or its use.

For further information:

<http://www.purac.com/>

L(+)-Lactic Acid

REVISION DATE 30/06/08
REF. SD0010/2008-03

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

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.

Copyright © PURAC. All rights reserved. No part of this publication may be copied, downloaded, reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopied, recorded or otherwise, without permission of the publisher. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition or application. None of the data, information or opinions contained herein may be relied upon for any purpose or reason. PURAC disclaims any liability, damages, losses or other consequences suffered or incurred in connection with the use of the data, information or opinions contained herein. In addition, nothing contained herein shall be construed as a recommendation to use any products in conflict with existing patents covering any material or its use.

For further information:

<http://www.purac.com/>

L(+)-Lactic Acid

REVISION DATE 30/06/08
REF. SD0010/2008-03

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

Rubber gloves.

Eye protection

Face-shield, tightly fitting safety goggles.

Skin and body protection

Long sleeved clothing, chemical resistant apron boots.

Hygiene measures

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

aqueous solution

Color

colorless/yellow/ light brown

Odor

characteristic

Molecular Weight

90.08

pH

2 @ 77°F (25°C)

Boiling point/range

230°F (110°C) (40% solution)

257°F (125°C) (90% solution)

Decomposition temperature

> 392 °F (> 200°C)

Autoignition temperature

none

Flash point

> 234°F (> 112°C)

Explosion limits

not applicable

Density

1190 - 1250 kg/m³

Surface tension

50 - 44 mN/m (50 - 90% solution)

Solubility

Water solubility: completely soluble

Partition coefficient (n-octanol/water) log Pow = - 0.62

Viscosity

5 - 60 mPa.s @ 77°F (25°C) (50 - 90% solution)

10. STABILITY AND REACTIVITY

Stability

Stable at normal conditions.

Conditions to avoid

Avoid temperatures above 392°F (200°C).

Materials to avoid

Oxidizing agents, metals, acids and bases.

**Hazardous decomposition
products**

Carbon oxides. Thermal decomposition can lead to release of irritating gases and vapors.

Copyright © PURAC. All rights reserved. No part of this publication may be copied, downloaded, reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopied, recorded or otherwise, without permission of the publisher. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition or application. None of the data, information or opinions contained herein may be relied upon for any purpose or reason. PURAC disclaims any liability, damages, losses or other consequences suffered or incurred in connection with the use of the data, information or opinions contained herein. In addition, nothing contained herein shall be construed as a recommendation to use any products in conflict with existing patents covering any material or its use.

For further information:

<http://www.purac.com/>

L(+)-Lactic Acid

REVISION DATE 30/06/08
REF. SD0010/2008-03

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.

12. ECOLOGICAL INFORMATION

Mobility Persistence / degradability	Completely soluble. Readily biodegradable, according to appropriate OECD test.
Bioaccumulation Ecotoxicity	Biochemical oxygen demand (BOD) ₅ = 0.45 mg O ₂ /mg . Biochemical oxygen demand (BOD) ₂₀ = 0.60 mg O ₂ /mg. Chemical oxygen demand (COD) = 0.90 mg O ₂ /mg. None. EC50/48h/Daphnia = 240mg/l LC50/48h/Fish = 320 mg/l EC50/Algae = 3500 mg/l (neutral)
Further information	Natural product.

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.
---	--

Copyright © PURAC. All rights reserved. No part of this publication may be copied, downloaded, reproduced, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopied, recorded or otherwise, without permission of the publisher. No representation or warranty is made as to the truth or accuracy of any data, information or opinions contained herein or as to their suitability for any purpose, condition or application. None of the data, information or opinions contained herein may be relied upon for any purpose or reason. PURAC disclaims any liability, damages, losses or other consequences suffered or incurred in connection with the use of the data, information or opinions contained herein. In addition, nothing contained herein shall be construed as a recommendation to use any products in conflict with existing patents covering any material or its use.

For further information:

<http://www.purac.com/>

L(+)-Lactic AcidREVISION DATE 30/06/08
REF. SD0010/2008-03**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**

Xi - Irritant

R- PhrasesR41 - Risk of serious damage to eyes.
R38 - Irritating to skin.**S-Phrases**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.**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))This information only concerns the above-mentioned product and is not valid if used with other
product(s) or in any process. The information is to our best present knowledge correct and
complete and is given in good faith but without warranty. It remains the user's own responsibility to
make sure that the information is appropriate and complete for his special use of this product.

indicates updated section.