



003.002.x – 003.006.4 Lactic acid (Lactol)

1. MATERIAL AND COMPANY DESIGNATION**1.1 Product identifier:**

PRODUCT NAME: L-(+) – lactic acid
CAS-number: 79-33-4 (50-21-5 general CAS nr)
EC number: 201-196-2 (200-018-0 general EC nr.)
Reach reg no 01-2119474164-39-003

1.2 Relevant identified uses of the substance:

Identified uses: Acidulant, pH modifier, preservative in food, beverage.

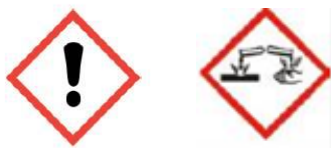
1.3 Details of the supplier of the safety data sheet:

Supplier : Brouwland, Korpelsesteenweg 86, 3581 Beverlo, Belgium
Telephone nr: +3211401408
E-mail: contact@brouwland.com
Emergency telephone number: +32070245245

2 HAZARDS IDENTIFICATION**2.1. Classification and label elements of substances according to EC 1272/2008**

Skin irritation category 2; H315. Signal word: WARNING

Eye Damage category 1; H318; Signal word: DANGER

**2.2. Hazard statements:**

Skin irritation category 2; H315 causes skin irritation
Eye Damage category 1 ; H318 causes serious eye damage

2.3. Precautionary statements Prevention:

Skin P264, wash thoroughly after handling
Skin/Eye P280: wear protective gloves, protective clothing/ eye protection/face protection
P362; take off contaminated clothing and wash before reuse

Precautionary statements Response:

Skin P302 + P352+P321 : if on skin; wash with plenty of soap and Water
P332+p313; if skin irritation occurs; get medical advice/attention

Eye 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; immediate contact of poison center or doctor/physician

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

CAS No	L-(+)- lactic acid	Composition	EC No	Reach registration no
79-33-4	(S)-lactic acid (S)- 2- hydroxypropionic Acid	Lactic acid – Min 80% Water – Max 20%	201-196-2	01-2119474164-39- 003

Composition comments: the data shown is in accordance with the last EC directives

4. FIRST AID MEASURES**4.1 Description of first aid measures**

In case of inhalation: immediate medical attention is not required, move to fresh air
In case of skin contact: wash with soap and plenty of water, remove all contaminated clothes
In case of eye contact: rinse with plenty of water, also under the eyelids, for at least 15 min.
In case of ingestion: immediate medical attention is required, drink plenty of water
Do not induce vomiting. Call a physician immediately

4.2 important symptoms and effects:

Potential acute health effects ingestion: burns, vomiting, gastrointestinal disturbance
Inhalation; severe irritation of respiratory tract as coughing,
Choking or shortness of breath, headache and dizziness
Inflammation of the eye; redness watering and itching
Skin inflammation; itching scaling, reddening, blistering

Potential chronic health effects Chronic eye irritation severe skin irritation and respiratory tract
Irritation leading to frequent attacks of bronchial infection

4.3. important symptoms and effects:

No specific recommendations. If in doubt, get medical attention promptly

5. MEASURES FOR EXTINGUISHING FIRES**5.1 extinguishing media:**

Extinguisher type: dry chemical powder at small fire; water spray, fog or foam at large fire
Unsuitable extinguishing media: Do not use water jet

5.2. Special hazards arising from the product:

Specific Hazards: thermal decomposition can lead to release of irritating gases and vapors

5.3. advice for fire – fighters

Specific protection Equipment required: self-contained breathing apparatus in pressure demand and full

Additional information: standard procedure for chemical fire. Cool containers/tanks with water spray Flash point > 112°C

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6. MEASURES IN CASE OF ACCIDENTAL LEAKAGE**6.1. Personal precautions, protective equipment and emergency procedures:**

Safety measures for personnel: use protective equipment, avoid breathing vapors, mist or gas

6.2. Environmental precautions: avoid dispersal of spilled material and contact with soil, waterways, drains and sewers**6.3. Methods and materials for containment and cleaning up:**

Cleaning/removal procedure: neutralize with soda or sodium carbonate. Soak up with inert absorbent material and dispose as hazardous waste.

Keep in suitable, closed containers of disposal. After cleaning, flush away traces with plenty of water.

6.4. Reference to other sections:Reference to other sections section 7 for safe handling
Section 8 for personal protection equipment
Section 13 for information on disposal**7 HANDLING AND STORAGE****7.1. Precautions for safe handling:**Precautions for safe handling: normal measures for preventive fire protection. Keep dry
And away from heat and sources of ignition.
Empty containers pose a risk fire; evaporate the residue
under a Fume hood. Avoid contact with skin and eyes**7.2. conditions for safe storage, including any incompatibilities:**Conditions for safe storage keep container tightly closed. Keep in proper labelled
containers keep in cool sunless and ventilate place
packaging material: plastics or stainless steel 316L
containersstorage class: storage class 12 (VCL storage system) acid resistant
floors**7.3. specific end use (s)**

Specific use(s): not available

8. MAXIMUM ALLOWABLE EXPOSURE/PRECTION EQUIPMENT**8.1 control parameters**

Control parameters no occupational exposure limits, biological limit established

8.2 Exposure controls:Exposure control equipped with eyewash facility and safety shower, adequate
Ventilation to keep airborne concentrations low
Personal protection Safety glasses, face shield
Hand protection rubber gloves. Break through time 8 h.
Natural rubber/latex-NR (0.5); Polychloroprene-CR (0.5mm)
Nitrile rubber/Latex NBR (0.35mm) Butyl rubber- butyl (0.5mm)
Fluoro carbon rubber FKM (0.4mm)
Body protection; long sleeved clothing, chemical resistant boots
Environmental exposure controls; prevent from entering sewers, basements and workshops.

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9. PHYSICAL AND CHEMICAL DESCRIPTION**9.1. information on basic physical and Chemical properties**

Form/color/smell:	liquid yellowish or colorless, mild acid odor
pH-value at 20C:	1:10 dilution in water <2
Melting point	53°C
Boiling point (12 mbar):	122°C
Decomposition temperature	>200°C
Flash point:	not applicable
Danger of Explosion:	not applicable
Vapor pressure (25°C):	<0.0813 hPa at 25°C
Vapor density	3.11
Density (25°C)	~1.19-1.21g/cm3
Solubility:	in water and many organic solvents
Division coefficient (log pow):	ca 0.62 at 20°C
Viscosity:	no data known
Oxidising properties:	no data known

9.2. other information:

Other information: no data available

10 STABILITY AND REACTIVITY**10.1 Reactivity:**

Reactivity decomposed when heated. Incompatible with iodides, hydrofluoric acid and nitric acid oxidizing agents, Albumin. Mixtures of lactic acid hydrofluoric acid and nitric acid are not Stable and should not be stored
Lactic acid and nitric acid react autocatalytically after a quiescent period, attaining a temperature of 90C with vigorous gas evolution after 12 h

10.2 chemical stability:

Stability: stable under recommended storage conditions

10.3 Possibility of hazardous reactions:

Possibility of hazardous reactions: no dangerous reactions known. Hazardous polymerizations oes not occur.

10.4 conditions to avoid:

Conditions to avoid: heating, avoid temperatures >200°C

10.5 incompatible materials:

Material to avoid: oxidizing agents, alkali material

10.6.Hazardous decomposition products:Hazardous residues: irritating gases and vapors, at under fire carbon dioxide
Hazardous polymers: none

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11. TOXICOLOGICAL INFORMATION

11.1. information on toxicological effects:

Acute toxicity	oral LD50=3730 mg/kg (rat) (IUCLID OECD guideline 401)
Skin corrosion/ irritation	Dermal LD50 >2000mg/kg (rabbit) (IUCLID OECD guideline 402) Draize test rabbit skin : 500 mg/24h severe Draize test rabbit skin: 100 mg/ 24h moderate
Eye damage/ irritation:	Draize test rabbit eye : 750 ug severe
CMR effects	>0.1% not identified as carcinogen (IARC,ACGIH,NTP,OSHA) No mutagenic effects known No data on toxicity for reproduction available
STOT-single exposure	no data available
Symptoms related to the characteristics	ingestion: gastrointestinal irritation nausea vomiting and diarrhea may cause stomach perforation Skin contact: skin irritation prolonged skin contact may produce Dermatitis Inhalation: irritating to the respiratory system may cause throat Pain and cough inhalation of vapors in high concentration may Cause shortness in breath Chronic exposure may cause Dermalitis gastrointestinal disturbance coughing
Additional information	RTECS# : OD2800000

12 ECOLOGICAL INFORMATION

12.1. Toxicity

Acute fish toxicity	LC 50 = 320 mg/l/96h (IUCLD OECD guideline 203)
Acute daphnia toxicity	EC 50= 240 mg/l/48h (IUCLD OECD guideline 202)
Acute algae toxicity	EC 50= 3500 mg/l/70h (IUCLD OECD guideline 201)

12.2. Persistence and degradability

Persistence and degradability	degradation; 80% LA 50% after 5 days and 67% after 20 days Biochemical oxygen demand (BOD) ₅ =0.45mg O ₂ /mg Biochemical oxygen demand (COD)= 0.90mg O ₂ /mg
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12.3 bio-accumulative potential

Bio-accumulative potential	Log POW = ca - 0,62 at 20C (OECD guideline 117)
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12.4 mobility in soil

Mobility in soil	no data known
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12.5. PBT and vPvB assessment

PBT and vPvB assessment	no data known
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12.6. other adverse effects:

Other adverse effects:	no data known
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13 DISPOSAL CONSIDERATIONS:

13.1 waste treatment methods

Can be disposed as waste water, landfilled or incinerated, when in compliance with local regulations.

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

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**14 DIRECTIONS FOR TRANSPORT****14.1 land transport (ADR/RID/GGVSF)**

This product is not regulated as a hazardous material or dangerous goods for transportation.

14.2. sea transport (IMDG-Code/GGVSee)

This product is not regulated as a hazardous material or dangerous goods for transportation.

14.3. air transport (ICAO-TI/IATA-DGR)

This product is not regulated as a hazardous material or dangerous goods for transportation

14.4 additional information

No data available

15 Regulations**15.1 safety, health and environmental regulations/legislation specific for the substance or mixture:**

EU regulation:

Authorizations:	no information available
Restrictions on use:	no information available
EINECS	listed on the inventory
DSD (67/548/EEC)	not mentioned in annex I

Other chemical regulation:	listed on the inventory
USA-TSCA	listed on the inventory
Canada-DSL	listed on the inventory
Australia-AICS	listed on the inventory
Korea-ECL	listed on the inventory
Japan-ENCS	listed on the inventory
China-IECSC	listed on the inventory

15.2. chemical safety assessment:

Chemical safety assessment no chemical safety assessment has been carried out for this substance.

16 any other directions**16.1 revision information:**

Date of the previous revision: 16-10-2019

Date of this revision: 22-11-2019

Revision summary: update according to regulation (EC) No 1907/2006

16.2. Abbreviations and acronyms:

GHS Globally Harmonized System of Classification and Labelling of Chemicals.

CAS: Chemical Abstracts Service (division of the American chemical society)

EINECS: European inventory of Existing Commercial Chemical Substances.

IARC: international agency for research on cancer.

ACGIH: American Conference of industrial Hygienists.

NTP: American National Training Professional.

OSHA: The Occupational Safety and Health Administration.

RID: European Rail Transport.

IMDG: International Maritime Code for Dangerous Goods.

IATA :International Air Transport Association.

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OSHA : The United States Occupational Safety and Health Administration.
TSCA: Toxic Substances control act, The American chemical inventory.
DSD: Dangerous Substance Directive (67/548/EEC).
IECSC : inventory of existing chemical substances in China.
DSL: Domestic Substances List, the Korean Chemical inventory
AICS: The Australian Inventory of Chemicals List, the Korean chemical inventory.
MITI: Japanese Existing and New Chemical Substances.

16.3.Key literature references and sources of data:

Literature suggestions	ESISI IUCLID Dataset (European chemical Substances Information system) EPA-HPV dataset : ICSC (international Chemical Safety Cards Dataset): GESTIS (Substance database)
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16.4.Relevant R-phrases and H-statements

R-phrases (code and full text):

R41	Risk of serious damage on eyes
R38	irritating to skin

H-statements (Code and full text):

H315	causes skin irritation
H318	causes serious eye damage

16.5 training advice:

Training advice	no data available
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Version 8, 22-11-19	update according to Regulation (EC) No 1907/2006
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According to EU rules 93/112; with commission Regulation (EU)2015/830 and Regulation (EC) No 1907/2006

The above mentioned information is accurate to our present level of knowledge. We cannot, however, accept liability or responsibility for situations arising from applying the information supplied