



SAFETY DATA SHEET LACTIC ACID SOLUTIONS

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	LACTIC ACID SOLUTIONS
Product number	10337
Synonyms; trade names	L(+)-LACTIC ACID 50% SOL, L(+)-LACTIC ACID 80% SOL, L(+)-LACTIC ACID 88% SOL, L(+)-LACTIC ACID 90% SOL, LACTIC ACID E270 80% SOL, LACTIC ACID 80% HS BQ, L(+)-LACTIC ACID 80% FG JBL, LACTIC ACID 90% PERSONAL CARE, LACTIC ACID E270 80% SOL

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses	Food / Feed additive Pharmaceuticals Personal Care Cleaning agent. Biocide Industrial application For further information, see attached Exposure Scenario.
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1.3. Details of the supplier of the safety data sheet

Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com
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1.4. Emergency telephone number

Emergency telephone	SGS - +32 (0)3 575 55 55 (24h)
Sds No.	10337

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Not Classified
Health hazards	Skin Corr. 1C - H314 Eye Dam. 1 - H318
Environmental hazards	Not Classified

2.2. Label elements

Hazard pictograms



Signal word	Danger
Hazard statements	H314 Causes severe skin burns and eye damage.

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Precautionary statements	P260 Do not breathe vapour/ spray. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P501 Dispose of contents/ container in accordance with national regulations.
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Contains	(L) LACTIC ACID
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2.3. Other hazards

This product does not contain any substances classified as PBT or vPvB.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

(L) LACTIC ACID			>= 50%
CAS number: 79-33-4	EC number: 201-196-2	REACH registration number: 01-2119474164-39-XXXX	
Classification Skin Corr. 1C - H314 Eye Dam. 1 - H318			

The full text for all hazard statements is displayed in Section 16.

Composition comments	The data shown are in accordance with the latest EC Directives.
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SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse nose and mouth with water. Get medical attention if any discomfort continues.
Ingestion	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Do not induce vomiting. Give plenty of water to drink. Get medical attention.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention promptly if symptoms occur after washing.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

4.2. Most important symptoms and effects, both acute and delayed

Ingestion	May cause chemical burns in mouth, oesophagus and stomach.
Skin contact	Causes severe burns.
Eye contact	Causes severe burns. May cause chemical eye burns.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor	No specific recommendations. Treat symptomatically.
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SECTION 5: Firefighting measures

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5.1. Extinguishing media

Suitable extinguishing media Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture

Specific hazards When heated, vapours/gases hazardous to health may be formed.

Hazardous combustion products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

5.3. Advice for firefighters

Protective actions during firefighting Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk. Control run-off water by containing and keeping it out of sewers and watercourses. Contain and collect extinguishing water.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Follow precautions for safe handling described in this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Keep unnecessary and unprotected personnel away from the spillage. Provide adequate ventilation.

6.2. Environmental precautions

Environmental precautions Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body. Avoid the spillage or runoff entering drains, sewers or watercourses.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Absorb spillage with inert, damp, non-combustible material. Flush contaminated area with plenty of water. Collect and place in suitable waste disposal containers and seal securely. Avoid the spillage or runoff entering drains, sewers or watercourses.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. Collect and dispose of spillage as indicated in Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Wear protective clothing as described in Section 8 of this safety data sheet. Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment.

Advice on general occupational hygiene Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Provide eyewash station and safety shower.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly-closed, original container in a dry, cool and well-ventilated place. Avoid exposure to high temperatures or direct sunlight. Store at temperatures above 5°C. Store at temperatures not exceeding 200°C. Store away from the following materials: Strong oxidising agents. Alkalis. Suitable container materials: Polyethylene. (HDPE) Stainless steel.

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7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

No exposure limits known for ingredient(s).

(L) LACTIC ACID (CAS: 79-33-4)

Ingredient comments	WEL = Workplace Exposure Limits
DNEL	Industry - Inhalation; Short term : 592 mg/m ³ Consumer - Oral; : 35.4 mg/kg/day Consumer - Inhalation; : 296
PNEC	- Fresh water; 1.3 mg/l

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours and contact with skin and eyes.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. Chemical splash goggles or face shield. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection

The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Chemical-resistant, impervious gloves complying with an approved standard should be worn if a risk assessment indicates skin contact is possible. To protect hands from chemicals, gloves should comply with European Standard EN374.

Other skin and body protection

Wear suitable protective clothing as protection against splashing or contamination.

Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. Wash hands and any other contaminated areas of the body with soap and water before leaving the work site. Care should be taken to avoid contact with contaminants when removing contaminated clothing. Wash contaminated clothing before reuse.

Respiratory protection

Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Combination filter, type A2/P2. EN 136/140/141/145/143/149

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Colourless. Light (or pale). Yellow.
Odour	Characteristic.

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Odour threshold	No information available.
pH	pH (concentrated solution): <2
Melting point	< -80°C
Pour Point	No information available.
Freezing Point	No information available.
Initial boiling point and range	110 - 130°C
Flash point	Not applicable.
Evaporation rate	No information available.
Evaporation factor	No information available.
Flammability (solid, gas)	No information available.
Upper/lower flammability or explosive limits	No information available.
Other flammability	No information available.
Vapour pressure	~ 0.004 hPa @ 20°C
Vapour density	No information available.
Relative density	1.00 - 1.25
Bulk density	No information available.
Solubility(ies)	Miscible with water.
Partition coefficient	log Pow: -0.62
Auto-ignition temperature	400°C
Decomposition Temperature	>200°C
Viscosity	5 - 60 mPa s @ 25°C
Explosive properties	Not considered to be explosive.
Explosive under the influence of a flame	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

Refractive index	No information available.
Particle size	No information available.
Molecular weight	90.08
Volatility	No information available.
Saturation concentration	No information available.
Critical temperature	No information available.
Volatile organic compound	No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

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Reactivity No test data specifically related to reactivity available for this product or its ingredients.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Under normal conditions of storage and use, no hazardous reactions will occur.

10.4. Conditions to avoid

Conditions to avoid Avoid exposure to high temperatures or direct sunlight. Keep at temperature not exceeding 200°C.

10.5. Incompatible materials

Materials to avoid Avoid contact with the following materials: Oxidising agents. Alkalis.

10.6. Hazardous decomposition products

Hazardous decomposition products Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapours.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

Notes (oral LD₅₀) No information available.

Acute toxicity - dermal

Notes (dermal LD₅₀) No information available.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Skin corrosion/irritation Causes severe burns.

Serious eye damage/irritation

Serious eye damage/irritation Causes severe burns.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

Skin sensitisation No information available.

Germ cell mutagenicity

Genotoxicity - in vitro No information available.

Carcinogenicity

Carcinogenicity No information available.

Reproductive toxicity

Reproductive toxicity - fertility No information available.

Reproductive toxicity - development No information available.

Specific target organ toxicity - single exposure

STOT - single exposure No information available.

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Specific target organ toxicity - repeated exposure

STOT - repeated exposure No information available.

Aspiration hazard

Aspiration hazard No information available.

Inhalation Gas or vapour in high concentrations may irritate the respiratory system.

Ingestion May cause chemical burns in mouth, oesophagus and stomach.

Skin contact Causes burns.

Eye contact Causes severe burns. May cause chemical eye burns.

Toxicological information on ingredients.

(L) LACTIC ACID

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 3,543.0

Species Rat

ATE oral (mg/kg) 3,543.0

Acute toxicity - dermal

Notes (dermal LD₅₀) LD₅₀ > 2000 mg/kg, Dermal, Rabbit

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 7.94

Species Rat

Notes (inhalation LC₅₀) OECD 403

ATE inhalation (vapours mg/l) 7.94

Skin corrosion/irritation

Skin corrosion/irritation Causes severe burns.

Serious eye damage/irritation

Serious eye damage/irritation Causes severe burns.

Respiratory sensitisation

Respiratory sensitisation Not classified.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro This substance has no evidence of mutagenic properties.

Genotoxicity - in vivo This substance has no evidence of mutagenic properties.

Carcinogenicity

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Carcinogenicity No evidence of carcinogenicity in animal studies. Read-across data.

Reproductive toxicity

Reproductive toxicity - fertility Based on available data the classification criteria are not met.

Specific target organ toxicity - single exposure

STOT - single exposure Based on available data the classification criteria are not met.
LOAEL 13wk 5d/wk: 886 mg/kg, Dermal, Rat Slightly irritating.
NOAEL 13wk 1/d: 5000 mg/kg, Oral, Rat, Male, Female Read-across data.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure Based on available data the classification criteria are not met.

Aspiration hazard

Aspiration hazard Based on available data the classification criteria are not met.

Inhalation Corrosive to the respiratory tract.

Ingestion May cause discomfort if swallowed. Symptoms following overexposure may include the following: Stomach pain. Nausea, vomiting.

Skin contact Causes severe burns.

Eye contact Causes severe burns. May cause chemical eye burns. May cause permanent damage if eye is not immediately irrigated.

SECTION 12: Ecological information

Ecotoxicity The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Ecological information on ingredients.

(L) LACTIC ACID

Ecotoxicity The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Toxicity Not considered toxic to fish.

Ecological information on ingredients.

(L) LACTIC ACID

Toxicity Not considered toxic to fish.

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hour: 130 mg/l, *Lepomis macrochirus* (Bluegill)
LC₅₀, 96 hour: 130 mg/l, *Oncorhynchus mykiss* (Rainbow trout)
LOEC, Chronic, 90 day: 2.18 mg/l, Fish
Oreochromis mossambica

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 130 mg/l, *Daphnia magna*

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Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: > 2800 mg/l, <i>Pseudokirchneriella subcapitata</i> EC ₅₀ , 72 hour: 3500 mg/l, <i>Selenastrum capricornutum</i> NOEC, 70 hour: 1900 mg/l, <i>Pseudokirchneriella subcapitata</i>
Acute toxicity - microorganisms	EC ₅₀ , 3 hour: > 100 mg/l, Activated sludge
Acute toxicity - terrestrial	LC ₅₀ , 14 day: > 2250 mg/kg, <i>Colinus Virginianus</i> (Bobwhite Quail)

12.2. Persistence and degradability

Persistence and degradability The product is readily biodegradable.

Ecological information on ingredients.

(L) LACTIC ACID

Persistence and degradability	Readily biodegradable but failing the 10-day window.
Biodegradation	- Degradation 64%: 28 days OECD 301D
Biological oxygen demand	5d: 450 mg/g 20d: 600 mg/g
Chemical oxygen demand	0.9 g O ₂ /g substance

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating.

Partition coefficient log Pow: -0.62

Ecological information on ingredients.

(L) LACTIC ACID

Bioaccumulative potential	The product is not bioaccumulating.
Partition coefficient	log Pow: -0.54

12.4. Mobility in soil

Mobility The product is soluble in water.

Ecological information on ingredients.

(L) LACTIC ACID

Mobility	The product is soluble in water.
Surface tension	70.7 mN/m @ °C

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

Ecological information on ingredients.

(L) LACTIC ACID

Results of PBT and vPvB assessment This substance is not classified as PBT or vPvB according to current EU criteria.

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12.6. Other adverse effects

Other adverse effects Not determined.

Ecological information on ingredients.

(L) LACTIC ACID

Other adverse effects No information available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Waste is classified as hazardous waste. Do not puncture or incinerate, even when empty. Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities.

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

SECTION 14: Transport information

General Wear protective clothing as described in Section 8 of this safety data sheet.

14.1. UN number

UN No. (ADR/RID) 3265

UN No. (IMDG) 3265

UN No. (ICAO) 3265

UN No. (ADN) 3265

14.2. UN proper shipping name

Proper shipping name (ADR/RID) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS (L) LACTIC ACID)

Proper shipping name (IMDG) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS (L) LACTIC ACID)

Proper shipping name (ICAO) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS (L) LACTIC ACID)

Proper shipping name (ADN) CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (CONTAINS (L) LACTIC ACID)

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID classification code C3

ADR/RID label 8

IMDG class 8

ICAO class/division 8

ADN class 8

Transport labels



14.4. Packing group

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ADR/RID packing group	III
IMDG packing group	III
ICAO packing group	III
ADN packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

IMDG Code segregation group 1. Acids

EmS F-A, S-B

ADR transport category 3

Emergency Action Code 2X

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

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

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

Annex II of MARPOL 73/78 and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation	Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). Commission Regulation (EU) No 2015/830 of 28 May 2015. Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.
Restrictions (Annex XVII Regulation 1907/2006)	This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 3

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

All the ingredients are listed or exempt.

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Canada - DSL/NDSL

All the ingredients are listed or exempt.
DSL

US - TSCA

All the ingredients are listed or exempt.

Australia - AICS

All the ingredients are listed or exempt.

Japan - ENCS

All the ingredients are listed or exempt.
ENCS

Korea - KECI

All the ingredients are listed or exempt.

China - IECSC

All the ingredients are listed or exempt.

Philippines – PICCS

All the ingredients are listed or exempt.

New Zealand - NZIOC

All the ingredients are listed or exempt.

SECTION 16: Other information

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Abbreviations and acronyms used in the safety data sheet

ATE: Acute Toxicity Estimate.
 ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road.
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
 CAS: Chemical Abstracts Service.
 DNEL: Derived No Effect Level.
 IATA: International Air Transport Association.
 IMDG: International Maritime Dangerous Goods.
 Kow: Octanol-water partition coefficient.
 LC₅₀: Lethal Concentration to 50 % of a test population.
 LD₅₀: Lethal Dose to 50% of a test population (Median Lethal Dose).
 PBT: Persistent, Bioaccumulative and Toxic substance.
 PNEC: Predicted No Effect Concentration.
 REACH: Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006.
 RID: European Agreement concerning the International Carriage of Dangerous Goods by Rail.
 vPvB: Very Persistent and Very Bioaccumulative.
 IARC: International Agency for Research on Cancer.
 MARPOL 73/78: International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978.
 cATpE: Converted Acute Toxicity Point Estimate.
 BCF: Bioconcentration Factor.
 BOD: Biochemical Oxygen Demand.
 EC₅₀: 50% of maximal Effective Concentration.
 LOAEC: Lowest Observed Adverse Effect Concentration.
 LOAEL: Lowest Observed Adverse Effect Level.
 NOAEC: No Observed Adverse Effect Concentration.
 NOAEL: No Observed Adverse Effect Level.
 NOEC: No Observed Effect Concentration.
 LOEC: Lowest Observed Effect Concentration.
 DMEL: Derived Minimal Effect Level.
 EL50: Exposure Limit 50
 hPa: Hectopascal
 LL50: Lethal Loading fifty
 OECD: Organisation for Economic Co-operation and Development
 POW: Octanol-water partition coefficient
 SCBA: self-contained breathing apparatus
 STP: Sewage Treatment Plant
 VOC: Volatile Organic Compounds

Classification abbreviations and acronyms

Acute Tox. = Acute toxicity
 Aquatic Acute = Hazardous to the aquatic environment (acute)
 Aquatic Chronic = Hazardous to the aquatic environment (chronic)

Key literature references and sources for data

Supplier's information.

Classification procedures according to Regulation (EC) 1272/2008

Skin Corr. 1C - H314: Calculation method. Eye Dam. 1 - H318: Calculation method.

Revision comments

NOTE: Lines within the margin indicate significant changes from the previous revision.

Revision date

04/03/2022

LACTIC ACID SOLUTIONS

Version number	5.000
Supersedes date	13/07/2020
SDS number	10337
SDS status	Approved.
Hazard statements in full	H314 Causes severe skin burns and eye damage. H318 Causes serious eye damage.
Signature	Jitendra Panchal

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 process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



Exposure scenario
Production, transport and downstream use of lactic acid

Identification

Product name	Lactic Acid
REACH registration number	01-2119474164-39-XXXX
CAS number	79-33-4
EC number	201-196-2
Supplier	Univar Solutions UK Ltd Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 +44 1274 267306 SDS.EMEA@univarsolutions.com

1. Title of exposure scenario

Main title	Production, transport and downstream use of lactic acid
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Production, transport and downstream use of lactic acid

Product category	PC0 Other products. PC1 Adhesives, sealants. PC2 Adsorbents. PC3 Air care products. PC4 Anti-freeze and de-icing products. PC8 Biocidal products PC9a Coatings and paints, thinners, paint removers. PC9b Fillers, putties, plasters, modelling clay. PC9c Finger paints. PC12 Lawn and garden preparations (- fertilizers). PC13 Fuels. PC14 Metal surface treatment products PC15 Non-metal-surface treatment products. PC17 Hydraulic fluids. PC19 Intermediate. PC20 Processing aids such as pH-regulators, flocculants, precipitants, neutralization agents PC21 Laboratory chemicals. PC24 Lubricants, greases and release products. PC25 Metal working fluids. PC28 Perfumes, fragrances. PC29 Pharmaceuticals PC31 Polishes and wax blends. PC32 Polymer preparations and compounds. PC34 Textile dyes and impregnating products PC35 Washing and cleaning products PC36 Water softeners. PC37 Water treatment chemicals. PC38 Welding and soldering products, flux products PC39 Cosmetics, personal care.
Article category	AC0 Other articles AC1 Vehicles AC2 Machinery, mechanical appliances, electrical/electronic articles AC13 Plastic articles
Main sector	SU3 Industrial uses SU21 Consumer uses SU22 Professional uses
Sector of use	SU1 Agriculture, forestry, fishery SU2a Mining (without offshore industries) SU2b Offshore industries SU4 Manufacture of food products SU6b Manufacture of pulp, paper and paper products SU8 Manufacture of bulk, large-scale chemicals (including petroleum products) SU9 Manufacture of fine chemicals SU10 Formulation [mixing] of preparations and/or re-packaging SU19 Building and construction work SU20 Health services

Environment

Production, transport and downstream use of lactic acid

Environmental release category

ERC1 Manufacture of the substance
 ERC2 Formulation into mixture
 ERC3 Formulation into solid matrix
 ERC4 Use of non-reactive processing aid at industrial site (no inclusion into or onto article)
 ERC5 Use at industrial site leading to inclusion into/onto article
 ERC6a Use of intermediate
 ERC6b Use of reactive processing aid at industrial site (no inclusion into or onto article)
 ERC6d Use of reactive process regulators in polymerisation processes at industrial site (inclusion or not into/onto article)
 ERC7 Use of functional fluid at industrial site
 ERC8a Widespread use of non-reactive processing aid (no inclusion into or onto article, indoor)
 ERC8b Widespread use of reactive processing aid (no inclusion into or onto article, indoor)
 ERC8d Widespread use of non-reactive processing aid (no inclusion into or onto article, outdoor)
 ERC8e Widespread use of reactive processing aid (no inclusion into or onto article, outdoor)
 ERC8f Widespread use leading to inclusion into/onto article (outdoor)
 ERC9a Widespread use of functional fluid (indoor)
 ERC9b Widespread use of functional fluid (outdoor)
 ERC10b Widespread use of articles with high or intended release (outdoor)

Worker

Process category

PROC0 Other process or activity.
 PROC1 Chemical production or refinery in closed process without likelihood of exposure or processes with equivalent containment conditions
 PROC2 Chemical production or refinery in closed continuous process with occasional controlled exposure or processes with equivalent containment conditions
 PROC3 Manufacture or formulation in the chemical industry in closed batch processes with occasional controlled exposure or processes with equivalent containment condition
 PROC4 Chemical production where opportunity for exposure arises
 PROC5 Mixing or blending in batch processes
 PROC6 Calendering operations.
 PROC7 Industrial spraying
 PROC8a Transfer of substance or mixture (charging and discharging) at non-dedicated facilities
 PROC8b Transfer of substance or mixture (charging and discharging) at dedicated facilities
 PROC9 Transfer of substance or mixture into small containers (dedicated filling line, including weighing)
 PROC10 Roller application or brushing
 PROC11 Non industrial spraying
 PROC13 Treatment of articles by dipping and pouring.
 PROC14 Tableting, compression, extrusion, pelletisation, granulation
 PROC15 Use as laboratory reagent.
 PROC16 Use of fuels
 PROC17 Lubrication at high energy conditions in metal working operations
 PROC18 General greasing/lubrication at high kinetic energy conditions
 PROC19 Manual activities involving hand contact
 PROC20 Use of functional fluids in small devices
 PROC21 Low energy manipulation and handling of substances bound in/on materials or articles
 PROC24 High (mechanical) energy work-up of substances bound in/on materials and/or articles
 PROC26 Handling of solid inorganic substances at ambient temperature

2. Conditions of use affecting exposure (Industrial - Environment 1)

Production, transport and downstream use of lactic acid

Product characteristics

Not regarded as dangerous for the environment. No exposure scenario required.

2. Conditions of use affecting exposure (Workers - Health 1)

Product characteristics

Physical state Liquid, vapour pressure < 10 Pa (STP)

Concentration details Covers concentrations up to 100 %. Unless otherwise stated.

Frequency and duration of use

Covers daily exposures up to 8 hours (unless stated differently).

Other given operational conditions affecting workers exposure

Setting Indoor/outdoor use.

Technical conditions and measures at process level (source) to prevent release

Technical protective measures No other specific measures identified.

Organisational measures to prevent/limit releases, dispersion and exposure

Organisational measures Assumes a good basic standard of occupational hygiene is implemented.

Risk management measures

Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN374) if hand contact with substance likely. Clean up contamination/spills as soon as they occur. Wash off any skin contamination immediately. Provide basic employee training to prevent/minimise exposures and to report any skin problems that may develop. Other skin protection measures such as impervious suits and face shields may be required during high dispersion activities which are likely to lead to substantial aerosol release, e.g. spraying.

Wear suitable respiratory protection (conforming to EN140 with type A filter or better) and gloves (type EN374) if regular skin contact likely.

Use suitable eye protection.

3. Exposure estimation (Environment 1)

As no environmental hazard was identified, no environmental-related exposure assessment and risk characterisation was performed.

3. Exposure estimation (Health 1)

Qualitative approach used to conclude safe use.

4. Guidance to check compliance with the exposure scenario (Health 1)

Available hazard data do not enable the derivation of a DNEL for dermal irritant effects. Available hazard data do not enable the derivation of a DNEL for eye irritant effects. Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values. Risk Management Measures are based on qualitative risk characterisation. Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.