L-(+)-lactic acid

Date of compilation: 20/01/2023 Revised: 09/03/2023 Version: 5 (Replaced 4)

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier: L-(+)-lactic acid

CAS: 79-33-4

EC: 201-196-2

Index: 607-743-00-5

REACH: 01-2119474164-39-0003

Other means of identification:

Non-applicable

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

Relevant uses: Acidificant agent for beverage; preservative and flavoring in dressings and salads; Fermentation and pH regulator in beer, wine and spirits; Antimicrobial agent and shelf life extender in bakery, meat products.

Uses advised against: All uses not specified in this section or in section 7.3

Please see the annex for detailed information about the specific and safe usage of the product.

1.3 Details of the supplier of the safety data sheet:

JINDAN Europe BV
Europalaan 12E
5232 BC s-Hertogenbosch - The Netherlands
Phone: 0031738200793 - Fax: 0031738200781
qa@jindan.eu
www.jindan.eu
Telephone nr: +31 73 8200793
FAX nr : +31 73 8200781
E-mail: qa@jindan.eu

Other comments: Spoken languages English, Chinese and Dutch

1.4 Emergency telephone number: +31738200793 (Mo-Fr: 08:00 - 17:00)

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

CLP Regulation (EC) No 1272/2008:

Classification of this product has been carried out in accordance with CLP Regulation (EC) No 1272/2008.

Eye Dam. 1: Serious eye damage, Category 1, H318
Skin Corr. 1C: Skin corrosion, Category 1C, H314

2.2 Label elements:

CLP Regulation (EC) No 1272/2008:

Danger

Hazard statements:

Skin Corr. 1C: H314 - Causes severe skin burns and eye damage.

Precautionary statements:

P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P264: Wash thoroughly after handling.
P280: Wear protective gloves/face protection/protective clothing/protective footwear.
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.
P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.
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: Immediately call a poison center/doctor.

Supplementary information:

- CONTINUED ON NEXT PAGE -

SECTION 2: HAZARDS IDENTIFICATION (continued)

EUH071: Corrosive to the respiratory tract.

2.3 Other hazards:

Product does not meet PBT/vPvB criteria
Endocrine-disrupting properties: The product does not meet the criteria.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance:

Chemical description: Preservative/s

Components:

In accordance with Annex II of Regulation (EC) No 1907/2006 (point 3), the product contains:

Identification	Chemical name/Classification		Concentration
CAS: 79-33-4 EC: 201-196-2 Index: 607-743-00-5 REACH: 01-2119474164-39-0003	**L-(+)-lactic acid** [1] ATP ATP15		**80 - <95 %**
	Regulation 1272/2008	Eye Dam. 1: H318; Skin Corr. 1C: H314; EUH071 - Danger	
CAS: 7732-18-5 EC: 231-791-2 Index: Non-applicable REACH: Non-applicable	**Water** [2] Not classified		**5 - <20 %**
	Regulation 1272/2008		

[1] Main component
[2] Voluntarily-listed substance failing to meet any of the criteria set out in Regulation (EU) No. 2020/878

To obtain more information on the hazards of the substances consult sections 11, 12 and 16.

3.2 Mixture:

Non-applicable

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

This product does not contain substances classified as hazardous for inhalation, however, in case of symptoms of intoxication remove the person affected from the exposure area and provide with fresh air. Seek medical attention if the symptoms get worse or persist.

By skin contact:

Remove contaminated clothing and footwear, rinse skin or shower the person affected if appropriate with plenty of cold water and neutral soap. In serious cases see a doctor. If the product causes burns or freezing, clothing should not be removed as this could worsen the injury caused if it is stuck to the skin. If blisters form on the skin, these should never be burst as this will increase the risk of infection.

By eye contact:

Rinse eyes thoroughly with lukewarm water for at least 15 minutes. Do not allow the person affected to rub or close their eyes. If the injured person uses contact lenses, these should be removed unless they are stuck to the eyes, in which case this could cause further damage. In all cases, after cleaning, a doctor should be consulted as quickly as possible with the SDS of the product.

By ingestion/aspiration:

Request immediate medical assistance, showing the SDS of this product. Do not induce vomiting, because its expulsion from the stomach can be hazardous to the mucus of the main digestive tract, and also risk damage to the respiratory system through inhalation. Rinse out the mouth and throat, as they may have been affected during ingestion. In the case of loss of consciousness do not administer anything orally unless supervised by a doctor. Keep the person affected at rest.

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

Acute and delayed effects are indicated in sections 2 and 11.

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

Non-applicable

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media:

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SECTION 5: FIREFIGHTING MEASURES (continued)

Suitable extinguishing media:

Product is non-flammable under normal conditions of storage, handling and use. In the case of combustion as a result of improper handling, storage or use preferably use polyvalent powder extinguishers (ABC powder), in accordance with the Regulation on fire protection systems.

Unsuitable extinguishing media:

Non-applicable

5.2 Special hazards arising from the substance or mixture:

As a result of combustion or thermal decomposition reactive sub-products are created that can become highly toxic and, consequently, can present a serious health risk.

5.3 Advice for firefighters:

Depending on the magnitude of the fire it may be necessary to use full protective clothing and self-contained breathing apparatus (SCBA). Minimum emergency facilities and equipment should be available (fire blankets, portable first aid kit,...) in accordance with Directive 89/654/EC.

Additional provisions:

Act in accordance with the Internal Emergency Plan and the Information Sheets on actions to take after an accident or other emergencies. Eliminate all sources of ignition. In case of fire, cool the storage containers and tanks for products susceptible to combustion, explosion or BLEVE as a result of high temperatures. Avoid spillage of the products used to extinguish the fire into an aqueous medium.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Isolate leaks provided that there is no additional risk for the people performing this task. Personal protection equipment must be used against potential contact with the spilt product (See section 8). Evacuate the area and keep out those who do not have protection.

For emergency responders:

Wear protective equipment. Keep unprotected persons away. See section 8.

6.2 Environmental precautions:

This product is not classified as hazardous to the environment. Keep product away from drains, surface and ground water.

6.3 Methods and material for containment and cleaning up:

It is recommended:

Absorb the spillage using sand or inert absorbent and move it to a safe place. Do not absorb in sawdust or other combustible absorbents. For any concern related to disposal consult section 13.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A.- General precautions for safe use

Comply with the current legislation concerning the prevention of industrial risks with regards manually handling weights. Maintain order, cleanliness and dispose of using safe methods (section 6).

B.- Technical recommendations for the prevention of fires and explosions

Product is non-flammable under normal conditions of storage, handling and use. It is recommended to transfer at slow speeds to avoid the generation of electrostatic charges that can affect flammable products. Consult section 10 for information on conditions and materials that should be avoided.

C.- Technical recommendations on general occupational hygiene

Do not eat or drink during the process, washing hands afterwards with suitable cleaning products.

D.- Technical recommendations to prevent environmental risks

It is recommended to have absorbent material available at close proximity to the product (See subsection 6.3)

7.2 Conditions for safe storage, including any incompatibilities:

A.- Technical measures for storage

Minimum Temp.:	5 ºC
Maximum Temp.:	30 ºC

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SECTION 7: HANDLING AND STORAGE (continued)

Maximum time: 24 Months

B.- General conditions for storage

Avoid sources of heat, radiation, static electricity and contact with food. For additional information see subsection 10.5

7.3 Specific end use(s):

Please see the annex for detailed information about handling, storage and specific end uses.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters:

Substances whose occupational exposure limits have to be monitored in the workplace (European OEL, not country-specific legislation):

There are no applicable occupational exposure limits for the substances contained in the product

DNEL (Workers):

Non-applicable

DNEL (General population):

Non-applicable

PNEC:

Non-applicable

8.2 Exposure controls:

A.- Individual protection measures, such as personal protective equipment

As a preventative measure it is recommended to use basic Personal Protective Equipment, with the corresponding <<CE marking>> in accordance with Regulation (EU) 2016/425. For more information on Personal Protective Equipment (storage, use, cleaning, maintenance, class of protection,...) consult the information leaflet provided by the manufacturer. For more information see subsection 7.1. All information contained herein is a recommendation which needs some specification from the labour risk prevention services as it is not known whether the company has additional measures at its disposal.

B.- Respiratory protection

The use of protection equipment will be necessary if a mist forms or if the occupational exposure limits are exceeded.

C.- Specific protection for the hands

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory hand protection	NON-disposable chemical protective gloves	CE CAT III	EN ISO 374-1:2016+A1:2018 EN 16523-1:2015+A1:2018 EN ISO 21420:2020	The Breakthrough Time indicated by the manufacturer must exceed the period during which the product is being used. Do not use protective creams after the product has come into contact with skin.

D.- Eye and face protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory face protection	Face shield	CE CAT II	EN 166:2002 EN 167:2002 EN 168:2002 EN ISO 4007:2018	Clean daily and disinfect periodically according to the manufacturer´s instructions. Use if there is a risk of splashing.

E.- Body protection

Pictogram	PPE	Labelling	CEN Standard	Remarks
 Mandatory complete body protection	Disposable clothing for protection against chemical risks	CE CAT III	EN 13034:2005+A1:2009 EN 168:2002 EN ISO 13982-1:2004/A1:2010 EN ISO 6529:2013 EN ISO 6530:2005 EN 464:1994	For professional use only. Clean periodically according to the manufacturer´s instructions.
 Mandatory foot protection	Safety footwear for protection against chemical risk	CE CAT III	EN ISO 20345:2011 EN 13832-1:2019	Replace boots at any sign of deterioration.

F.- Additional emergency measures

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SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

Emergency measure	Standards	Emergency measure	Standards
 Emergency shower	ANSI Z358-1 ISO 3864-1:2011, ISO 3864-4:2011	 Eyewash stations	DIN 12 899 ISO 3864-1:2011, ISO 3864-4:2011

Environmental exposure controls:

In accordance with the community legislation for the protection of the environment it is recommended to avoid environmental spillage of both the product and its container. For additional information see subsection 7.1.D

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

For complete information see the product datasheet.

Appearance:

Physical state at 20 ºC:	Liquid
Appearance:	Characteristic
Colour:	Light yellow , Colourless
Odour:	Characteristic
Odour threshold:	Non-applicable *
Volatility:	
Boiling point at atmospheric pressure:	217 ºC
Vapour pressure at 20 ºC:	3,04E-2 Pa
Vapour pressure at 50 ºC:	12381,01 Pa (12,38 kPa)
Evaporation rate at 20 ºC:	Non-applicable *
Product description:	
Density at 20 ºC:	1133,6 kg/m³
Relative density at 20 ºC:	1,134
Dynamic viscosity at 20 ºC:	18,4 cP
Kinematic viscosity at 20 ºC:	2,35 mm²/s
Kinematic viscosity at 40 ºC:	Non-applicable *
Concentration:	Non-applicable *
pH:	<2
Vapour density at 20 ºC:	Non-applicable *
Partition coefficient n-octanol/water 20 ºC:	-0,43
Solubility in water at 20 ºC:	860 kg/m³
Solubility properties:	Non-applicable *
Decomposition temperature:	Non-applicable *
Melting point/freezing point:	53 ºC
Flammability:	
Flash Point:	Non Flammable (>60 ºC)
Flammability (solid, gas):	Non-applicable *
Autoignition temperature:	>400 ºC
Lower flammability limit:	Non-applicable *
Upper flammability limit:	Non-applicable *
Particle characteristics:	
Median equivalent diameter:	Non-applicable

*Not relevant due to the nature of the product, not providing information property of its hazards.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (continued)

9.2 Other information:

Information with regard to physical hazard classes:

Explosive properties:	Non-applicable *
Oxidising properties:	Non-applicable *
Corrosive to metals:	Non-applicable *
Heat of combustion:	Non-applicable *
Aerosols-total percentage (by mass) of flammable components:	Non-applicable *

Other safety characteristics:

Surface tension at 20 ºC:	0,07 N/m
Refraction index:	Non-applicable *

*Not relevant due to the nature of the product, not providing information property of its hazards.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

No hazardous reactions are expected because the product is stable under recommended storage conditions. See section 7 from Safety Data Sheet.

10.2 Chemical stability:

Chemically stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

Under the specified conditions, hazardous reactions that lead to excessive temperatures or pressure are not expected.

10.4 Conditions to avoid:

Applicable for handling and storage at room temperature:

Shock and friction	Contact with air	Increase in temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Acids	Water	Oxidising materials	Combustible materials	Others
Not applicable	Not applicable	Precaution	Not applicable	Avoid alkalis or strong bases

10.6 Hazardous decomposition products:

See subsection 10.3, 10.4 and 10.5 to find out the specific decomposition products. Depending on the decomposition conditions, complex mixtures of chemical substances can be released: carbon dioxide (CO), carbon monoxide and other organic compounds.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008:

The experimental information related to the toxicological properties of the product itself is not available

Dangerous health implications:

In case of exposure that is repetitive, prolonged or at concentrations higher than the recommended occupational exposure limits, adverse effects on health may result, depending on the means of exposure:

A- Ingestion (acute effect):

- Acute toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for consumption. For more information see section 3
- Corrosivity/Irritability: Corrosive product, if it is swallowed causes burns destroying the tissues. For more information about secondary effects from skin contact see section 2.

B- Inhalation (acute effect):

- Acute toxicity : Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for inhalation. For more information see section 3.
- Corrosivity/Irritability: Corrosive to the respiratory tract

C- Contact with the skin and the eyes (acute effect):

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SECTION 11: TOXICOLOGICAL INFORMATION (continued)

- Contact with the skin: Above all, skin contact may occur as fabrics of all thicknesses can be destroyed, resulting in burns. For more information on the secondary effects see section 2.
- Contact with the eyes: Produces serious eye damage after contact.

D- CMR effects (carcinogenicity, mutagenicity and toxicity to reproduction):

- Carcinogenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for the effects mentioned. For more information see section 3.
  IARC: Non-applicable
- Mutagenicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- Reproductive toxicity: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

E- Sensitizing effects:

- Respiratory: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous with sensitising effects. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

F- Specific target organ toxicity (STOT) - single exposure:

Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

G- Specific target organ toxicity (STOT)-repeated exposure:

- Specific target organ toxicity (STOT)-repeated exposure: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.
- Skin: Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

H- Aspiration hazard:

Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

Other information:

Non-applicable

Specific toxicology information on the substances:

Identification	Acute toxicity		Genus
L-(+)-lactic acid	LD50 oral	3730 mg/kg	Rat
CAS: 79-33-4	LD50 dermal	Non-applicable	
EC: 201-196-2	LC50 inhalation	Non-applicable	

11.2 Information on other hazards:

Endocrine disrupting properties

Endocrine-disrupting properties: The product does not meet the criteria.

Other information

Non-applicable

SECTION 12: ECOLOGICAL INFORMATION

Based on available data, the classification criteria are not met, as it does not contain substances classified as hazardous for this effect. For more information see section 3.

12.1 Toxicity:

Product-specific aquatic toxicity:

Acute toxicity		Species	Genus
LC50	320 mg/L (96 h)	Brachydanio rerio	Fish
EC50	240 mg/L (48 h) (ISO 14669)	Daphnia magna	Crustacean
EC50	3500 mg/L (72 h)	Pseudokirchneriella subcapitata	Algae

Substance-specific aquatic toxicity:

Acute toxicity:

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SECTION 12: ECOLOGICAL INFORMATION (continued)

Identification	Concentration		Species	Genus
L-(+)-lactic acid	LC50	320 mg/L (96 h)	Brachydanio rerio	Fish
CAS: 79-33-4	EC50	240 mg/L (48 h)	Daphnia magna	Crustacean
EC: 201-196-2	EC50	3500 mg/L (72 h)	Acartia tonsa	Crustacean

12.2 Persistence and degradability:

Not available

12.3 Bioaccumulative potential:

Not available

12.4 Mobility in soil:

Not available

12.5 Results of PBT and vPvB assessment:

Product does not meet PBT/vPvB criteria

12.6 Endocrine disrupting properties:

Endocrine-disrupting properties: The product does not meet the criteria.

12.7 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods:

Code	Description	Waste class (Regulation (EU) No 1357/2014)
	It is not possible to assign a specific code, as it depends on the intended use by the user	Hazardous

Type of waste (Regulation (EU) No 1357/2014):

HP8 Corrosive

Waste management (disposal and evaluation):

Consult the authorized waste service manager on the assessment and disposal operations in accordance with Annex I and Annex 2 (Directive 2008/98/EC). As under 15 01 (2014/955/EC) of the code and in case the container has been in direct contact with the product, it will be processed the same way as the actual product. Otherwise, it will be processed as non-hazardous residue. Waste should not be disposed of to drains. See paragraph 6.2.

Regulations related to waste management:

In accordance with Annex II of Regulation (EC) No 1907/2006 (REACH) the community or state provisions related to waste management are stated

Community legislation: Directive 2008/98/EC, 2014/955/EU, Regulation (EU) No 1357/2014

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land:

With regard to ADR 2023 and RID 2023:

14.1	**UN number or ID number:**	UN3265
14.2	**UN proper shipping name:**	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)
14.3	**Transport hazard class(es):**	8
	Labels:	8
14.4	**Packing group:**	III
14.5	**Environmental hazards:**	No
14.6	**Special precautions for user**	
	Special regulations:	274
	Tunnel restriction code:	E
	Physico-Chemical properties:	see section 9
	Limited quantities:	5 L
14.7	**Maritime transport in bulk according to IMO instruments:**	Non-applicable

Transport of dangerous goods by sea:

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SECTION 14: TRANSPORT INFORMATION (continued)

With regard to IMDG 40-20:

14.1	**UN number or ID number:**	UN3265
14.2	**UN proper shipping name:**	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)
14.3	**Transport hazard class(es):**	8
	Labels:	8
14.4	**Packing group:**	III
14.5	**Marine pollutant:**	No
14.6	**Special precautions for user**	
	Special regulations:	274, 223
	EmS Codes:	F-A, S-B
	Physico-Chemical properties:	see section 9
	Limited quantities:	5 L
	Segregation group:	SGGI
14.7	**Maritime transport in bulk according to IMO instruments:**	Non-applicable

Transport of dangerous goods by air:

With regard to IATA/ICAO 2023:

14.1	**UN number or ID number:**	UN3265
14.2	**UN proper shipping name:**	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)
14.3	**Transport hazard class(es):**	8
	Labels:	8
14.4	**Packing group:**	III
14.5	**Environmental hazards:**	No
14.6	**Special precautions for user**	
	Physico-Chemical properties:	see section 9
14.7	**Maritime transport in bulk according to IMO instruments:**	Non-applicable

SECTION 15: REGULATORY INFORMATION

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

Regulation (EC) No 528/2012: contains a preservative to protect the initial properties of the treated article. Contains L-(+)-lactic acid.

Candidate substances for authorisation under the Regulation (EC) No 1907/2006 (REACH): Non-applicable

Substances included in Annex XIV of REACH ("Authorisation List") and sunset date: Non-applicable

Regulation (EC) No 1005/2009, about substances that deplete the ozone layer: Non-applicable

Article 95, REGULATION (EU) No 528/2012: L-(+)-lactic acid (Product-type 1, 2, 3, 4, 6)

REGULATION (EU) No 649/2012, in relation to the import and export of hazardous chemical products: Non-applicable

Seveso III:

Non-applicable

Limitations to commercialisation and the use of certain dangerous substances and mixtures (Annex XVII REACH, etc ....):

Shall not be used in:
—ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays,
—tricks and jokes,
—games for one or more participants, or any article intended to be used as such, even with ornamental aspects.

Specific provisions in terms of protecting people or the environment:

It is recommended to use the information included in this safety data sheet as a basis for conducting workplace-specific risk assessments in order to establish the necessary risk prevention measures for the handling, use, storage and disposal of this product.

Other legislation:

The product could be affected by sectorial legislation

HACCP: Hazard analysis and critical control points, ISO: 22000

15.2 Chemical safety assessment:

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SECTION 15: REGULATORY INFORMATION (continued)

The provider has carried out a chemical safety assessment

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

The SDS shall be supplied in an official language of the country where the product is placed on the market. This safety data sheet has been designed in accordance with ANNEX II-Guide to the compilation of safety data sheets of Regulation (EC) No 1907/2006 (COMMISSION REGULATION (EU) 2020/878).

Modifications related to the previous Safety Data Sheet which concerns the ways of managing risks.:

Non-applicable

Texts of the legislative phrases mentioned in section 2:

H314: Causes severe skin burns and eye damage.
H318: Causes serious eye damage.

Texts of the legislative phrases mentioned in section 3:

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3

CLP Regulation (EC) No 1272/2008:

Eye Dam. 1: H318 - Causes serious eye damage.
Skin Corr. 1C: H314 - Causes severe skin burns and eye damage.

Advice related to training:

Training is recommended in order to prevent industrial risks for staff using this product and to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

http://echa.europa.eu
http://eur-lex.europa.eu

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road
IMDG: International maritime dangerous goods code
IATA: International Air Transport Association
ICAO: International Civil Aviation Organisation
COD: Chemical Oxygen Demand
BOD5: 5day biochemical oxygen demand
BCF: Bioconcentration factor
LD50: Lethal Dose 50
LC50: Lethal Concentration 50
EC50: Effective concentration 50
LogPOW: Octanolwater partition coefficient
Koc: Partition coefficient of organic carbon
UFI: unique formula identifier
IARC: International Agency for Research on Cancer

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ANNEX: EXPOSURE SCENARIO

Exposure Scenario Lactic Acid

Exposure Scenario 1

1 Exposure scenario Industrial use in agriculture, forestry, fishery	
use descriptors related to the life cycle stage	SU1; PROC15/3/4/8b/9; PC12/15/9a/20/21;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 8a: Wide dispersive indoor use of processing aids in open systems
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 15: Use as laboratory reagent PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
2.1 Contributing scenario (1) controlling environmental exposure	
For the environment, no hazards are identified, and no exposure assessment is required. The operation conditions and RMM for environment is not relevant.	
2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system	
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.	
Product characteristic	
Not relevant	
Amounts used	
Not relevant	

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ANNEX: EXPOSURE SCENARIO (continued)

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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ANNEX: EXPOSURE SCENARIO (continued)

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

Exposure Scenario 2

1 Exposure scenario Industrial use in mining	
use descriptors related to the life cycle stage	SU 2a/2b PROC 2;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 2: Use in closed, continuous process with occasional controlled exposure

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

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ANNEX: EXPOSURE SCENARIO (continued)

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

Exposure Scenario 3

1 Exposure scenario

Industrial use in mining without offshore industries

use descriptors related to the life cycle stage	SU 2a; PROC 2; PC37
Name of contributing environmental scenario	ERC 4: Industrial use of processing aids in processes

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ANNEX: EXPOSURE SCENARIO (continued)

(1) and corresponding ERC	ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 2: Use in closed, continuous process with occasional controlled exposure

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

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

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

Skin and body protection

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

Exposure Scenario 4

1 Exposure scenario

Industrial manufacturing without subsequent relevant service life

use descriptors related to the life cycle stage	SU 3; PROC1/10/13/14/15/16/17/18/19/20/24/26/2/3/4/5/6/7/8a/8b/9/11; PC14/15/20/21/24/3/35/38/9a/4/8/31/9b/9c/1/25
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 5: Industrial use resulting in inclusion into or onto a matrix ERC 6b: Industrial use of reactive processing aids ERC 7: Industrial use of substances in closed systems ERC 8a: Wide dispersive indoor use of processing aids in open systems

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ANNEX: EXPOSURE SCENARIO (continued)

	ERC 8b: Wide dispersive indoor use of reactive substances in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems ERC 8e: Wide dispersive outdoor use of reactive substances in open systems ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 9b: Wide dispersive outdoor use of substances in
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 1: Use in closed process, no likelihood of exposure PROC 10: Roller application or brushing PROC 13: Treatment of articles by dipping and pouring PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15: Use as laboratory reagent PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected PROC 17: Lubrication at high energy conditions and in partly open process PROC 18: Greasing at high energy conditions PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems PROC 24: High (mechanical) energy work-up of
	substances bound in materials and/or articles PROC 26: Handling of solid inorganic substances at ambient temperature PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 6: Calendering operations

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ANNEX: EXPOSURE SCENARIO (continued)

	PROC 7: Industrial spraying PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 11: Non industrial spraying

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

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ANNEX: EXPOSURE SCENARIO (continued)

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial manufacturing with subsequent relevant service life

use descriptors related to the life cycle stage	SU 3; PROC10/11/5/7/8a/8b; PC9a/9b/9c/35 AC1
Name of contributing environmental scenario (1) and corresponding ERC	ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 5: Industrial use resulting in inclusion into or onto a matrix
List of names of contributing worker scenarios	PC 9a: Coatings and paints, thinners, paint removes

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

(2) and corresponding PROCs	PC 9b: Fillers, putties, plasters, modelling clay PC 9c: Finger paints PC 35: Washing and cleaning products (including solvent based products)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

Skin and body protection

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

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.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for manufacture of pulp, paper and paper products

use descriptors related to the life cycle stage	SU 6b PROC4;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 1: Manufacture of substances
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.

The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

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ANNEX: EXPOSURE SCENARIO (continued)

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for manufacture of bulk, large scale chemicals

use descriptors related to the life cycle stage	SU 8; PROC15/3/4/5/8a/8b/9; PC15/20/21/9a/19/35
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC 6b: Industrial use of reactive processing aids
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 15: Use as laboratory reagent PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

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ANNEX: EXPOSURE SCENARIO (continued)

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

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ANNEX: EXPOSURE SCENARIO (continued)

Information for contributing scenario(2)
For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES
The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario Industrial use for manufacture of fine chemicals	
use descriptors related to the life cycle stage	SU 9; PROC1/15/2/21/26/3/4/5/6/8a/8b/9; PC19/21/15/20/9a/35/37
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC 6b: Industrial use of reactive processing aids ERC 6d: Industrial use of process regulators for polymerisation processes in production of resins, rubbers, polymers ERC 9a: Wide dispersive indoor use of substances in closed systems
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 1: Use in closed process, no likelihood of exposure PROC 15: Use as laboratory reagent PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 21: Low energy manipulation of substances bound in materials and/or articles PROC 26: Handling of solid inorganic substances at ambient temperature PROC 3: Use in closed batch process (synthesis or

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ANNEX: EXPOSURE SCENARIO (continued)

	formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 6: Calendering operations PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

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ANNEX: EXPOSURE SCENARIO (continued)

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for manufacture of plastic products

use descriptors related to the life cycle stage	SU 3; PROC 5; PC 32; AC 13
Name of contributing environmental scenario	ERC 6c: Industrial use of monomers for

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ANNEX: EXPOSURE SCENARIO (continued)

(1) and corresponding ERC	manufacture of thermoplastics
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:
Respiratory protection
Not required; except in case of aerosol formation.
Breathing apparatus needed only when aerosol or mist is formed.

Hand protection
Rubber gloves. Break through time > 8 hours.
Eye protection
Face-shield.
Skin and body protection

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for building and construction work

use descriptors related to the life cycle stage	SU 19; PROC 9; PC 0: Other;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 5: Industrial use resulting in inclusion into or onto a matrix
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.

The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and

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ANNEX: EXPOSURE SCENARIO (continued)

Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no

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ANNEX: EXPOSURE SCENARIO (continued)

exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for health services

use descriptors related to the life cycle stage	SU 20; PROC 9/15; PC 19/21;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 5: Industrial use resulting in inclusion into or onto a matrix
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 15: Use as laboratory reagent

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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ANNEX: EXPOSURE SCENARIO (continued)

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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. **For products containing ≥5% lactic acid, the following risk management measures are applied:**

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for formulation of preparations and/or re-packaging, without relevant subsequent service life

use descriptors related to the life cycle stage	SU 10; PROC 1/10/11/14/15/18/26/9/2/3/4/5/7/8a/8b/19; PC14/15/19/20/21/35/37/38/39/9a/24/25/28/29/4/8/31/17
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 5: Industrial use resulting in inclusion into or onto a matrix ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates) ERC 6b: Industrial use of reactive processing aids ERC 7: Industrial use of substances in closed systems ERC 9a: Wide dispersive indoor use of substances in
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 1: Use in closed process, no likelihood of exposure PROC 10: Roller application or brushing PROC 11: Non industrial spraying PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15: Use as laboratory reagent PROC 18: Greasing at high energy conditions PROC 26: Handling of solid inorganic substances at

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ANNEX: EXPOSURE SCENARIO (continued)

	ambient temperature PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 7: Industrial spraying PROC 8a: Transfer of substance or preparation
	(charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 19: Hand-mixing with intimate contact and only PPE available.

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

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ANNEX: EXPOSURE SCENARIO (continued)

1 Exposure scenario Industrial use for formulation of preparations and/or re-packaging, with subsequent relevant service life	
use descriptors related to the life cycle stage	SU 10; PROC 10/11/5/7/8a/8b; PC35/9a/9b/9c AC 1
Name of contributing environmental scenario (1) and corresponding ERC	ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 5: Industrial use resulting in inclusion into or onto a matrix
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 10: Roller application or brushing PROC 11: Non industrial spraying PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 7: Industrial spraying PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

2.1 Contributing scenario (1) controlling environmental exposure
For the environment, no hazards are identified, and no exposure assessment is required. The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system
All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.
Product characteristic
Not relevant
Amounts used
Not relevant
Frequency and duration of use/exposure
Not relevant
Human factors not influenced by risk management
Not relevant
Other given operational conditions affecting workers exposure

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

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ANNEX: EXPOSURE SCENARIO (continued)

1 Exposure scenario Industrial use for manufacture of food products, without relevant subsequent service life	
use descriptors related to the life cycle stage	SU 4; PROC 3/4/5/0; PC2/20/36/37/0
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 5: Industrial use resulting in inclusion into or onto a matrix ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 0: Other: not specified

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

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ANNEX: EXPOSURE SCENARIO (continued)

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant.

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Industrial use for manufacture of food products, with relevant subsequent service life

use descriptors related to the life cycle stage	SU 4; PROC 5;

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ANNEX: EXPOSURE SCENARIO (continued)

	PC 0: Other: not specified AC 0: Other: not specified
Name of contributing environmental scenario (1) and corresponding ERC	ERC 3: Formulation in materials
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

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

Hand protection

Rubber gloves. Break through time > 8 hours.

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ANNEX: EXPOSURE SCENARIO (continued)

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

1 Exposure scenario

Professional use for public domain, without relevant subsequent service life

use descriptors related to the life cycle stage	SU 22; PROC 1/10/11/14/15/17/19/2/20/24/3/4/5/7/8a/8b/9/13; PC 19/21/12/34/39/35/31/24/25
Name of contributing environmental scenario (1) and corresponding ERC	ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 5: Industrial use resulting in inclusion into or onto a matrix ERC 6b: Industrial use of reactive processing aids ERC 7: Industrial use of substances in closed systems ERC 8a: Wide dispersive indoor use of processing aids

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ANNEX: EXPOSURE SCENARIO (continued)

	in open systems ERC 8b: Wide dispersive indoor use of reactive substances in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems ERC 8e: Wide dispersive outdoor use of reactive substances in open systems ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 9b: Wide dispersive outdoor use of substances in
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 1: Use in closed process, no likelihood of exposure PROC 10: Roller application or brushing PROC 11: Non industrial spraying PROC 14: Production of preparations or articles by tabletting, compression, extrusion, pelletisation PROC 15: Use as laboratory reagent PROC 17: Lubrication at high energy conditions and in partly open process PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems PROC 24: High (mechanical) energy work-up of
	substances bound in materials and/or articles PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 7: Industrial spraying PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers

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ANNEX: EXPOSURE SCENARIO (continued)

	at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing) PROC 13: Treatment of articles by dipping and pouring

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting workers exposure

Not relevant

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

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ANNEX: EXPOSURE SCENARIO (continued)

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for industrial use of L-Lactic acid.

Exposure Scenario 17

1 Exposure scenario

Professional use for public domain, with relevant subsequent service life

use descriptors related to the life cycle stage	SU 22; PROC 10/11/13/16/18/19/20/8a/8b;
Name of contributing environmental scenario (1) and corresponding ERC	ERC 10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing) ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems ERC 8f: Wide dispersive outdoor use resulting in

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ANNEX: EXPOSURE SCENARIO (continued)

	inclusion into or onto a matrix ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 9b: Wide dispersive outdoor use of substances in closed systems
List of names of contributing worker scenarios (2) and corresponding PROCs	PROC 10: Roller application or brushing PROC 11: Non industrial spraying PROC 13: Treatment of articles by dipping and pouring PROC 16: Using material as fuel sources, limited exposure to unburned product to be expected PROC 18: Greasing at high energy conditions PROC 19: Hand-mixing with intimate contact and only PPE available. PROC 20: Heat and pressure transfer fluids in dispersive, professional use but closed systems PROC 8a: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic
Not relevant
Amounts used
Not relevant
Frequency and duration of use/exposure
Not relevant
Human factors not influenced by risk management
Not relevant
Other given operational conditions affecting workers exposure
Not relevant

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ANNEX: EXPOSURE SCENARIO (continued)

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

Not relevant

Technical conditions and measures to control dispersion from source towards the worker

Ensure adequate ventilation, especially in confined areas.

Organisational measures to prevent /limit releases, dispersion and exposure

Not relevant

Conditions and measures related to personal protection, hygiene and health evaluation

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

For human exposure, the only identified hazards are skin and eye irritation, and due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The DU works inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for consumer use of L-Lactic acid.

Exposure Scenario 18

1 Exposure scenario

Consumer use for private household, without relevant subsequent service life

use descriptors related to the life cycle stage	SU 21; PC

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ANNEX: EXPOSURE SCENARIO (continued)

	1/12/14/15/17/2/20/21/24/25/31/32/35/39/9a/8/4/9b/9c/13
Name of contributing environmental scenario (1) and corresponding ERC	ERC 1: Manufacture of substances ERC 2: Formulation of preparations ERC 4: Industrial use of processing aids in processes and products, not becoming part of articles ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 8c: Wide dispersive indoor use resulting in inclusion into or onto a matrix ERC 8d: Wide dispersive outdoor use of processing aids in open systems ERC 9a: Wide dispersive indoor use of substances in closed systems
List of names of contributing consumer scenarios (2-n) and corresponding PC and sub-product-categories, as applicable	PC 1: Adhesives, sealants PC 12: Fertilisers PC 14: Metal surface treatment products, including galvanic and electroplating products PC 15: Non-metal-surface treatment products PC 17: Hydraulic fluids PC 2: Adsorbents PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents PC 21: Laboratory chemicals PC 24: Lubricants, greases, release products PC 25: Metal working fluids PC 31: Polishes and wax blends PC 32: Polymer preparations and compounds PC 35: Washing and cleaning products (including solvent based products) PC 39: Cosmetics, personal care products PC 9a: Coatings and paints, thinners, paint removes PC 4: Anti-freeze and de-icing products PC 3: Air care products

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ANNEX: EXPOSURE SCENARIO (continued)

	PC 9b: Fillers, putties, plasters, modelling clay PC 9c: Finger paints PC 13: Fuels

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.
The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting consumer exposure

Not relevant

Conditions and measures related to information and behavioural advice to consumers

Not relevant

Conditions and measures related to personal protection and hygiene

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

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ANNEX: EXPOSURE SCENARIO (continued)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

Lactic acid is labelled for skin and eye irritation. Under the current classification and labelling requirements for preparations, preparations containing less than 10% lactic acid do not have to be classified and labelled for skin irritation, and preparations containing less than 5% lactic acid do not have to be classified for eye irritation.
For products that contain less than 5% lactic acid, therefore no end use product has to be classified based solely on the presence of lactic acid. No exposure assessment is required.
For products that contain more than 5% lactic acid, due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The consumer inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the downstream user can demonstrate on his own that his operational conditions and implemented risk management measures are adequate. Risks are regarded as controlled for consumer use of L-Lactic acid.

Exposure Scenario 19

1 Exposure scenario

Consumer use for private household, with relevant subsequent service life

use descriptors related to the life cycle stage	SU 21; PC 15/20/24/35/4/8/1/9b/9c/31; AC 1/2/0
Name of contributing environmental scenario (1) and corresponding ERC	ERC 10b: Wide dispersive outdoor use of long-life articles and materials with high or intended release (including abrasive processing) ERC 8a: Wide dispersive indoor use of processing aids in open systems ERC 8d: Wide dispersive outdoor use of processing aids in open systems ERC 8f: Wide dispersive outdoor use resulting in inclusion into or onto a matrix ERC 9a: Wide dispersive indoor use of substances in closed systems ERC 9b: Wide dispersive outdoor use of substances in closed systems
List of names of contributing consumer scenarios (2-n) and corresponding PC and sub-product-categories, as applicable	PC 15: Non-metal-surface treatment products PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents

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ANNEX: EXPOSURE SCENARIO (continued)

	PC 24: Lubricants, greases, release products PC 35: Washing and cleaning products (including solvent based products) PC 4: Anti-freeze and de-icing products PC 1: Adhesives, sealants PC 9b: Fillers, putties, plasters, modelling clay PC 9c: Finger paints PC 31: Polishes and wax blends

2.1 Contributing scenario (1) controlling environmental exposure

For the environment, no hazards are identified, and no exposure assessment is required.

The operation conditions and RMM for environment is not relevant.

2.2 Contributing scenario (2) controlling worker exposure for industrial use of formulation preparations in a closed system

All Process Categories are covered by this contributing scenario as all Operational Conditions (OCs) and Risk Management Measures (RMMs) are identical.

Product characteristic

Not relevant

Amounts used

Not relevant

Frequency and duration of use/exposure

Not relevant

Human factors not influenced by risk management

Not relevant

Other given operational conditions affecting consumer exposure

Not relevant

Conditions and measures related to information and behavioural advice to consumers

Not relevant

Conditions and measures related to personal protection and hygiene

For products containing ≥5% lactic acid, the following risk management measures are applied:

Respiratory protection

Not required; except in case of aerosol formation.

Breathing apparatus needed only when aerosol or mist is formed.

Hand protection

Rubber gloves. Break through time > 8 hours.

Eye protection

Face-shield.

- CONTINUED ON NEXT PAGE -

ANNEX: EXPOSURE SCENARIO (continued)

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.

For products containing ≤5% lactic acid, no RMM is necessary.

3 Exposure information and relevance to its source

Information for contributing scenario(1)

For the environment, no hazards are identified, and no exposure assessment is required.

Information for contributing scenario(2)

Lactic acid is labelled for skin and eye irritation. Under the current classification and labelling requirements for preparations, preparations containing less than 10% lactic acid do not have to be classified and labelled for skin irritation, and preparations containing less than 5% lactic acid do not have to be classified for eye irritation.

For products that contain less than 5% lactic acid, therefore no end use product has to be classified based solely on the presence of lactic acid. No exposure assessment is required.

For products that contain more than 5% lactic acid, due to RMM, no exposure to lactic acid or its relevant dilutions is possible. Exposure is 0. There is no risk to human health.

4 Guidance to DU to evaluate whether he works inside the boundaries set by the ES

The consumer inside the boundaries set by the ES if either the proposed risk management measures as described above are met or the operational conditions and implemented risk management measures are demonstrated to be adequate. Risk is regarded as controlled for consumer use.

- END OF SAFETY DATA SHEET -