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

1.1. Product identifier

Product form : Substance

Name : Ethyl (S)-lactate

Trade name : PURASOLV®EL
PURASOLV®ELECT
PURASOLV®ELECT Ultra
PURASOLV®EL FOOD

IUPAC name : ethyl (S)-2-hydroxypropionate

EC Index-No. : 607-129-00-7

EC-No. : 211-694-1

CAS-No. : 687-47-8

REACH registration No : 01-2119516234-49

Formula : C5H10O3

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Solvents
flavouring ingredient
Speciality chemical
See the list of identified uses and exposure scenarios in the annex of the safety data sheet.

1.2.2. Uses advised against:

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier

Purac Biochem bv
Arkelsedijk 46
4206 AC Gorinchem - The Netherlands
T +31 183 695695 - F +31 183 695604
sds@corbion.com

1.4. Emergency telephone number

Emergency number : +31 183 695695

Country	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	PO Box 1297 Beaumont Road 9 Dublin	+353 1 809 2566 (Healthcare professionals-24/7) +353 1 809 2166 (public, 8am - 10pm, 7/7)	
United Kingdom	National Health Service (NHS)		111 999 (in life-threatening emergencies)	
Wales	National Health Service (NHS)		0845 46 47	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids, Category 3	H226
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation	H335
Serious eye damage/eye irritation, Category 1	H318

Full text of H statements : see section 16

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Adverse physicochemical, human health and environmental effects

Flammable liquid and vapour. May cause respiratory irritation. Causes serious eye damage.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :

GHS02 GHS05 GHS07

Signal word (CLP) : Danger

Hazard statements (CLP) : H226 - Flammable liquid and vapour.
H335 - May cause respiratory irritation.
H318 - Causes serious eye damage.

Precautionary statements (CLP) : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water .
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 or doctor.

2.3. Other hazards

This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII

This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

Name : Ethyl (S)-lactate

CAS-No. : 687-47-8

EC-No. : 211-694-1

EC Index-No. : 607-129-00-7

Name	Product identifier	Conc. (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate	(CAS-No.) 687-47-8 (EC-No.) 211-694-1 (EC Index-No.) 607-129-00-7 (REACH-no) 01-2119516234-49	100	Flam. Liq. 3, H226 Eye Dam. 1, H318 STOT SE 3, H335

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Call a poison center or a doctor if you feel unwell. Wash contaminated clothing before reuse.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Call a poison center or a doctor if you feel unwell.

First-aid measures after skin contact : Rinse skin with water/shower. Take off immediately all contaminated clothing.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

First-aid measures after ingestion : Rinse mouth. Call a poison center or a doctor if you feel unwell.

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

Symptoms/effects after inhalation : May cause respiratory irritation.

Symptoms/effects after eye contact : Serious damage to eyes.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Do not use a solid water stream as it may scatter and spread fire.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable liquid and vapour.

Hazardous decomposition products in case of fire : Thermal decomposition can lead to the release of irritating gases and vapours.

5.3. Advice for firefighters

Firefighting instructions : Evacuate area. Move containers from fire area if it can be done without personal risk. Prevent fire fighting water from entering the environment. Use water spray or fog for cooling exposed containers.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Evacuate area. Do not touch or walk on the spilled product. No flames, no sparks. Eliminate all sources of ignition. Avoid breathing vapours, mist. Avoid contact with skin and eyes. Ventilate spillage area.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams. Stop leak without risks if possible.

Methods for cleaning up : Large amounts: Cover spill with non combustible material, e.g.: sand, earth, vermiculite. Shovel or sweep up and put in a closed container for disposal. Flush contaminated areas with plenty of water. Small quantities of liquid spill: take up in non-combustible absorbent material and shovel into container for disposal. After cleaning, flush traces away with water. Notify authorities if product enters sewers or public waters. Never return spills in original containers for possible later re-use. Use non-sparking tools.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Handle in accordance with good industrial hygiene and safety procedures. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Flammable vapours may accumulate in the container. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing mist, vapours. Avoid contact with skin and eyes.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Ground/bond container and receiving equipment. Use only non-sparking tools. Use explosion-proof electrical/ventilating/lighting equipment.

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Storage conditions	: Store in a well-ventilated place. Keep container tightly closed. Store locked up. Vapours may form flammable and explosive mixture with air. Keep under inert atmosphere.
Incompatible materials	: Heat sources. Strong bases. Strong acids. Organic materials.
Storage temperature	: < 56 °C
Storage area	: Store according to local legislation.

7.3. Specific end use(s)

Annex.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate (687-47-8)	
PNEC (Water)	
PNEC aqua (freshwater)	0.32 mg/l
PNEC aqua (marine water)	0.032 mg/l
PNEC aqua (intermittent, freshwater)	3.2 mg/l
PNEC (Sediment)	
PNEC sediment (freshwater)	1.66 mg/kg dwt
PNEC sediment (marine water)	0.166 mg/kg dwt
PNEC (Soil)	
PNEC soil	0.145 mg/kg dwt

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station. Keep in a cool place. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Assess the risk of potentially explosive atmospheres and the need for explosion-proof equipment.

Hand protection:

Protective gloves

Type	Material	Permeation	Thickness (mm)	Penetration	Standard
Protective gloves	Butyl rubber	6 (> 480 minutes)	0.5		EN 374

Eye protection:

Safety glasses

Type	Use	Characteristics	Standard
Safety glasses with side shields	Droplet, Aerosols	With side shields	EN 166

Skin and body protection:

Wear suitable protective clothing

Type	Standard
Long sleeved protective clothing	

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Device	Filter type	Condition	Standard
Half-face mask (DIN EN 140)	Type A/P2, Brown	Vapour, Aerosols	EN 14387, EN 140

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Personal protective equipment symbol(s):

Environmental exposure controls:

Avoid release to the environment.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Workers must be trained in the proper use and handling of this product as required under applicable regulations. Do not eat, drink or smoke when using this product. Wash hands immediately after handling the product. Wash contaminated clothing before reuse.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: clear
Colour	: Colourless
Odour	: mild. characteristic. Esters.
Odour threshold	: 0.18 ppm
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -9 °C
Freezing point	: No data available
Boiling point	: 154 °C Atm. press.: 176 mm Hg
Flash point	: 56 °C (closed cup)
Auto-ignition temperature	: 400 °C
Decomposition temperature	: No data available
Flammability (solid, gas)	: Not applicable
Vapour pressure	: 2.7 mbar (@ 20 °C)
Relative vapour density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.03 g/cm³ (@ 20 °C)
Solubility	: Miscible
Partition coefficient n-octanol/water (Log Pow)	: 0.06
Viscosity, kinematic	: 2.718 mm²/s
Viscosity, dynamic	: 2.8 mPa·s (@ 20 °C)
Explosive properties	: Can form explosive mixture with air.
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

Flammability limit - upper	: 11,4%
Flammability limit - lower	: 1.5%

SECTION 10: Stability and reactivity

10.1. Reactivity

Flammable liquid and vapour.

10.2. Chemical stability

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Do not expose to temperatures above 56 °C / 132.8 °F.

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10.5. Incompatible materials
Acids. Strong bases. Organic materials.

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral) : Not classified

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate (687-47-8)	
LD50 oral rat	> 2000 mg/kg bodyweight (OECD 401 method)
LC50 inhalation rat (mg/l)	> 5.4 mg/l air (OECD 403 method)

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.

STOT-repeated exposure : Not classified

ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate (687-47-8)	
NOAEC (inhalation, rat, vapour, 90 days)	0.2 mg/l air (OECD 412 method)

Aspiration hazard : Not classified

Ethyl (S)-lactate (687-47-8)	
Viscosity, kinematic	2.718 mm²/s

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term (chronic) : Not classified

Not rapidly degradable

ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate (687-47-8)	
LC50 fish 1	320 mg/l (OECD 203 method)
EC50 Daphnia 1	683 mg/l (OECD 201 method)
EC50 72h algae (1)	3500 mg/l (OECD 201 method)
EC50 72h algae (2)	2300 mg/l (OECD 201 method)
NOEC chronic algae	320 mg/l (OECD 201 method)

12.2. Persistence and degradability

Ethyl (S)-lactate (687-47-8)	
Persistence and degradability	Readily biodegradable.

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12.3. Bioaccumulative potential

Ethyl (S)-lactate (687-47-8)	
Partition coefficient n-octanol/water (Log Pow)	0.06
Bioaccumulative potential	Bioaccumulation unlikely.

ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate (687-47-8)	
BCF fish 1	(hydrolysis)
Partition coefficient n-octanol/water (Log Pow)	0.06

12.4. Mobility in soil

Ethyl (S)-lactate (687-47-8)	
Surface tension	30.6 mN/m (@ 25 °C)

12.5. Results of PBT and vPvB assessment

Ethyl (S)-lactate (687-47-8)
This substance/mixture does not meet the PBT criteria of REACH regulation, annex XIII
This substance/mixture does not meet the vPvB criteria of REACH regulation, annex XIII

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : Dispose in a safe manner in accordance with local/national regulations.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

Product/Packaging disposal recommendations : Empty containers should be taken for recycling, recovery or waste in accordance with local regulation.

Additional information : Flammable vapours may accumulate in the container.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 1192	UN 1192	UN 1192	UN 1192	UN 1192
14.2. UN proper shipping name				
ETHYL LACTATE	ETHYL LACTATE	Ethyl lactate	ETHYL LACTATE	ETHYL LACTATE
14.3. Transport hazard class(es)				
3	3	3	3	3
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No

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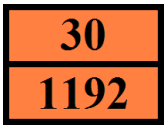
No supplementary information available

14.6. Special precautions for user

Overland transport

Classification code (ADR)	: F1
Limited quantities (ADR)	: 5l
Excepted quantities (ADR)	: E1
Packing instructions (ADR)	: P001, IBC03, LP01, R001
Mixed packing provisions (ADR)	: MP19
Portable tank and bulk container instructions (ADR)	: T2
Portable tank and bulk container special provisions (ADR)	: TP1
Tank code (ADR)	: LGBF
Vehicle for tank carriage	: FL
Transport category (ADR)	: 3
Special provisions for carriage - Packages (ADR)	: V12
Special provisions for carriage - Operation (ADR)	: S2
Hazard identification number (Kemler No.)	: 30
Orange plates	: 
Tunnel restriction code (ADR)	: D/E
EAC code	: •2Y

Transport by sea

Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P001, LP01
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T2
Tank special provisions (IMDG)	: TP1
EmS-No. (Fire)	: F-E
EmS-No. (Spillage)	: S-D
Stowage category (IMDG)	: A
Flash point (IMDG)	: 46°C c.c.
Properties and observations (IMDG)	: Colourless liquid. Flashpoint: 46°C c.c. Explosive limits: 1.5% to 11.4% Miscible with water.

Air transport

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y344
PCA limited quantity max net quantity (IATA)	: 10L
PCA packing instructions (IATA)	: 355
PCA max net quantity (IATA)	: 60L
CAO packing instructions (IATA)	: 366
CAO max net quantity (IATA)	: 220L
ERG code (IATA)	: 3L

Inland waterway transport

Classification code (ADN)	: F1
Limited quantities (ADN)	: 5 L
Excepted quantities (ADN)	: E1
Equipment required (ADN)	: PP, EX, A
Ventilation (ADN)	: VE01

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Number of blue cones/lights (ADN)	: 0

Rail transport

Classification code (RID)	: F1
Limited quantities (RID)	: 5L
Excepted quantities (RID)	: E1
Packing instructions (RID)	: P001, IBC03, LP01, R001
Mixed packing provisions (RID)	: MP19
Portable tank and bulk container instructions (RID)	: T2
Portable tank and bulk container special provisions (RID)	: TP1
Tank codes for RID tanks (RID)	: LGBF
Transport category (RID)	: 3
Special provisions for carriage – Packages (RID)	: W12
Colis express (express parcels) (RID)	: CE4
Hazard identification number (RID)	: 30

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

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

Reference code	Applicable on	Entry title or description
3(a)	Ethyl (S)-lactate ; ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F
3(b)	Ethyl (S)-lactate ; ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate	Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10
40.	Ethyl (S)-lactate ; ethyl (S)-2-hydroxypropionate; ethyl L-lactate; ethyl-(S)-lactate	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

Ethyl (S)-lactate is not on the REACH Candidate List

Ethyl (S)-lactate is not on the REACH Annex XIV List

Ethyl (S)-lactate is not subject to Regulation (EU) No 649/2012 of the European Parliament and of the Council of 4 july 2012 concerning the export and import of hazardous chemicals.

Ethyl (S)-lactate is not subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

Other information, restriction and prohibition regulations	: Young people below the age of 18 years are not allowed to use the product. in accordance with ATEX directives.

15.1.2. National regulations

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

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SECTION 16: Other information

Indication of changes:
Printed by ExESS software. Toxicological information.

Abbreviations and acronyms:	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BLV	Biological limit value
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC-No.	European Community number
EN	European Standard
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Training advice : Ensure staff are informed of and trained on the nature of exposure and basic actions to minimise exposure.

Full text of H- and EUH-statements:	
Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Flam. Liq. 3	Flammable liquids, Category 3
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

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Corbion SDS EU (REACH Annex II)

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READER GUIDE

Exposure Scenario ES1 is a generic exposure scenario covering all identified uses falling under REACH (use as solvent and use as intermediate), *viz.*:

Industrial uses
1 Manufacture of cosmetic products
4 Manufacture of cleaning and maintenance products
5 Industrial use of cleaning and maintenance products
9 Industrial formulation of lubricant additives, lubricants, greases and heat transfer fluids
10 Industrial handling and dilution of metalworking fluids concentrates
11 Industrial use of lubricants in high energy open processes
13 Formulation and use of chemicals
14 Manufacture of anti-freeze and de-icing products
15 Manufacture of painted glass articles
16 Manufacture of electrical equipment
19 Additional uses
20 Additional uses

Professional uses
12 Professional use of lubricants in high energy open processes
6 Professional use of cleaning and maintenance products
17 Coformulant in plant protection products
21 Additional uses

Consumer uses
2 End use of cosmetic products
3 Consumer use of cleaning and maintenance products
7 Other consumer uses
8 Scented articles
18 Coformulant in plant protection products
22 Additional uses

ES1: Generic exposure scenario for use as solvent and as intermediate
9.1.1. Exposure scenario

Ethyl lactate is a non-hazardous substance. It is not labelled for environmental effects or ecotoxicity, and is also not labelled for any human effects, with the exception of eye and respiratory tract irritation. Note that the skin and eye irritation potential of ethyl lactate is most likely a pH effect, due to the enzymatic formation of lactic acid through hydrolysis in vivo, including in skin. As such, no risk assessment for the environment is required, and no environmental exposure assessment is necessary. For human health, ethyl lactate is not labelled for any 'dose-effect' endpoint, and thus no quantitative risk assessment is necessary or possible. Ethyl lactate is labelled for eye and respiratory tract irritation.
In all production, storage and transportation conditions and processes, regardless of use, where PURAC's ethyl lactate is handled, i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible eye and respiratory tract exposure to ethyl lactate. In all identified downstream uses where ethyl lactate is handled (such as the receipt of transported ethyl lactate, the storage of ethyl lactate, the introduction of ethyl lactate in any relevant process, the preparation, handling and storage of any products containing ethyl lactate), i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible eye and respiratory tract exposure to ethyl lactate.
As such, a generic exposure scenario for all identified uses of ethyl lactate can be defined:
- For the environment, no hazards are identified, and no exposure assessment is required.
- For human exposure, the only identified hazards are eye and respiratory tract irritation, and due to RMM, no exposure to ethyl lactate is possible. Exposure is 0.

9.1.2. Exposure estimation
In all production, storage and transportation conditions and processes, regardless of use, where PURAC's ethyl lactate is handled, i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible eye and respiratory tract exposure to ethyl lactate. In all identified downstream uses where ethyl lactate is handled (such as the receipt of transported ethyl lactate, the storage of ethyl lactate, the introduction of ethyl lactate in any relevant process, the preparation, handling and storage of any products containing ethyl lactate), i.e. where there would be a potential for human exposure to a 'dangerous substance or preparation', Risk Management Measures are already prescribed, and enforced, that exclude any possible eye and respiratory tract exposure to ethyl lactate.

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As such, a generic exposure scenario for all identified uses of ethyl lactate can be defined:

- For the environment, no hazards are identified, and no exposure assessment is required.
- For human exposure, the only identified hazards are eye and respiratory tract irritation, and due to RMM, no exposure to ethyl lactate is possible. Exposure is 0.

Exposure Scenario ES2 is a generic exposure scenario covering use in food, i.e. uses not covered by REACH:

Exposure scenario
Use of ethyl lactate is food is subject to food regulations; as such no explicit exposure and risk assessment is necessary under REACH.

Exposure estimation
Use of ethyl lactate is food is subject to food regulations; as such no explicit exposure and risk assessment is necessary under REACH.

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1. EXPOSURE SCENARIO

Number	**ES1**
Short Title of Exposure Scenario	**Use as solvent and as intermediate in industrial, professional, and consumer applications**

Use descriptors

Sector of use	SU0, SU1, SU4, SU5, SU6a, SU6b, SU8, SU9, SU10, SU11, SU12, SU13, SU14, SU15, SU16, SU17, SU18, SU19, SU20
Product category	PC0, PC1, PC2, PC3, PC4, PC8, PC9a, PC9b, PC9c, PC12, PC13, PC14, PC15, PC16, PC17, PC18, PC19, PC20, PC21, PC23, PC24, PC25, PC26, PC27, PC28, PC29, PC31, PC32, PC33, PC34, PC35, PC36, PC37, PC39
Process categories	PROC1, PROC2, PROC3, PROC4, PROC5, PROC6, PROC7, PROC8a, PROC8b, PROC9, PROC10, PROC11, PROC12, PROC13, PROC14, PROC15, PROC16, PROC17, PROC18, PROC19, PROC20, PROC21,PROC22, PROC23, PROC24, PROC25
Environmental Release Category	ERC1, ERC2, ERC3, ERC4, ERC5, ERC6a, ERC6b, ERC7, ERC8a, ERC8b, ERC8c, ERC8d, ERC8e, ERC8f, ERC9b, ERC10a, ERC10b, ERC11a, ERC11b
Article categories	AC0, AC2, AC3, AC4, AC7, AC8, AC10, AC11, AC12, AC31, AC32, AC34, AC35, AC36

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1 Contributing Scenario - Environment

Not applicable.

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2.2 Contributing Scenario - Worker & Consumer

Product Characteristics	
Physical state @20°C	Liquid ..
Concentration of Substances in Preparation or Article	Covers percentage substance in the product up to 100 % (unless stated differently).
Duration and frequency of use	Covers daily exposures up to 8 hours (unless stated differently).
Other Given Operational Conditions Affecting Worker Exposure	Assumes a good basic standard of occupational hygiene is implemented.
Working area	Indoor/Outdoor Use.
Technical conditions and measures to control dispersion from source towards the worker	Avoid temperatures above 59 °C / 138 °F. Ensure adequate ventilation, especially in confined areas.

Contributing Scenarios

General measures	In case of insufficient ventilation wear suitable respiratory equipment (EN 141). Use suitable eye protection (safety glasses with side-shields, tested to EN 166). Other protection measures such as impervious suits, face shields and suitable respiratory equipment may be required during high dispersion activities which are likely to lead to substantial aerosol release e.g. spraying. Provide basic employee training to prevent / minimize exposures and to report any eye or respiratory problems that may develop.
General measures applicable to all activities	Avoid direct skin contact with product. Identify potential areas for indirect skin contact. Wear gloves (tested to EN 374) if hand contact with substance is likely. Clean up contamination/spills as soon as they occur. Wash off skin contamination immediately.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Environment Exposure Estimation	Ethyl lactate is not classified as hazardous for environmental endpoints. A quantitative exposure assessment for the environment has not been conducted.
Health Exposure Estimation	Ethyl lactate is classified as an eye and respiratory tract irritant, which requires a qualitative risk characterisation of any eye and respiratory tract exposures according to REACH guidance Chapter E. A quantitative assessment of eye and respiratory tract exposures has not been conducted, and is in fact not possible.

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4. GUIDANCE TO DOWNSTREAM USER FOR EVALUATING EMPLOYEE WHETHER HE WORKS INSIDE THE BOUNDARIES SET BY THE ES

Control of Environment Exposure

Not applicable.

Control of Worker Exposure

Available hazard data do not allow the derivation of a DNEL for eye or respiratory tract irritant effects. Risk Management Measures are based on qualitative risk characterisation. When the Risk Management Measures/Operational Conditions outlined in Section 2 are implemented, predicted exposure to ethyl lactate is expected to be zero.

Available hazard data do not support the need for a DNEL to be established for other health effects. Users are advised to consider national Occupational Exposure Limits or other equivalent values.

Where other Risk Management Measures/Operational Conditions are adopted, then users should ensure that risks are managed to at least equivalent levels.

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1. EXPOSURE SCENARIO

Number	**ES2**
Short Title of Exposure Scenario	**Use in food**

Use descriptors

Sector of use	Not applicable.
Product category	Not applicable.
Process categories	Not applicable.
Environmental Release Category	Not applicable.
Article categories	Not applicable.

Exposure of operators, consumers, bystanders and the environment as a consequence of the use of ethyl lactate, and the associated risk, will be covered by food legislation. As such, exposure and risk assessment for this use falls outside the scope of REACH and this extended Safety Data Sheet.

2. CONDITIONS OF USE AFFECTING EXPOSURE

2.1 Contributing Scenario - Environment

See Section 1.

2.2 Contributing Scenario - Worker & Consumer

See Section 1.

3. EXPOSURE ESTIMATION AND REFERENCE TO ITS SOURCE

Environment Exposure Estimation	See section 1.
Health Exposure Estimation	See Section 1.

4. GUIDANCE TO DOWNSTREAM USER FOR EVALUATING EMPLOYEE WHETHER HE WORKS INSIDE THE BOUNDARIES SET BY THE ES

Control of Environment Exposure	See Section 1.
Control of Worker Exposure	See Section 1.
Control of Consumer Exposure	See Section 1.

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