CERTIFICATE OF ANALYSIS

Product Name	Lactic Acid
Batch No.	4451902
Expiry Date	November 2024

Test	Units	Specification	Results
Colour fresh	APHA	<=100	59
Assay (w/w)	%	79.5 - 80.5	80.1

Parameters not tested in all lots but validated through in-process or final testing.

Test	Units	Specification
Stereochemical purity (L-isomer)	%	>=95
Sulphated ash	%	<=0.1
Solubility		soluble in water and ethanol
Positive test for lactate		Passes test
Density (20°C)	g/ml	1.18 - 1.20
Heavy metals total	ppm	<=10
Iron	ppm	<=10
Lead	ppm	<=0.5
Arsenic	ppm	<=1
Calcium	ppm	<=20
Mercury	ppm	<=1
Cyanide	ppm	<=5
Chloride	ppm	<=10
Sulphate	ppm	<=20
Citrate, Oxalat ,Phosphate, Tartrate		Passes test
Reducing sugars		Passes test FCC
Sugars/reducing substances		Passes test

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

January 05, 2021

To whom it may concern:

Herewith we, declare that:

for the product produced at manufacturing location Gorinchem, the Netherlands with the names Lactic Acid the following information regarding allergen is applicable:

Allergenic foods and derivatives	**Allergens intentionally present on the production line?**		**Allergens intentionally present on other production line in same plant?**		**Cross contamination possible?**	
Annex II Regulation (EC) No 2011/1169	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
Cereals containing gluten						
Wheat	☐	☒	☐	☒	☐	☒
Rye	☐	☒	☐	☒	☐	☒
Barley	☐	☒	☐	☒	☐	☒
Oats	☐	☒	☐	☒	☐	☒
Spelt	☐	☒	☐	☒	☐	☒
Kamut	☐	☒	☐	☒	☐	☒
Hybridised strains	☐	☒	☐	☒	☐	☒
Crustaceans	☐	☒	☐	☒	☐	☒
Eggs	☐	☒	☐	☒	☐	☒
Fish	☐	☒	☐	☒	☐	☒
Peanuts	☐	☒	☐	☒	☐	☒
Soybeans	☐	☒	☐	☒	☐	☒
Milk (inc. lactose)	☐	☒	☐	☒	☐	☒
(Tree) Nuts						
Almond	☐	☒	☐	☒	☐	☒
Hazelnut	☐	☒	☐	☒	☐	☒
Walnuts	☐	☒	☐	☒	☐	☒
Cashews	☐	☒	☐	☒	☐	☒
Pecan nuts	☐	☒	☐	☒	☐	☒
Brazil nuts	☐	☒	☐	☒	☐	☒
Pistachio nuts	☐	☒	☐	☒	☐	☒
Macadamia nuts and Queensland nuts	☐	☒	☐	☒	☐	☒
Celery	☐	☒	☐	☒	☐	☒
Mustard	☐	☒	☐	☒	☐	☒
Sesame seeds	☐	☒	☐	☒	☐	☒
Sulphur dioxide and sulphites (E220 – E228)	☐	☒	☐	☒	☐	☒

Allergenic foods and derivatives	Allergens intentionally present on the production line?		Allergens intentionally present on other production line in same plant?		Cross contamination possible?	
Lupin	☐	☒	☐	☒	☐	☒
Molluscs	☐	☒	☐	☒	☐	☒
LeDa (formely known as ALBA)	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
Lactose	☐	☒	☐	☒	☐	☒
Cocoa	☐	☒	☐	☒	☐	☒
Glutamate (E620-E625)	☐	☒	☐	☒	☐	☒
Chicken meat	☐	☒	☐	☒	☐	☒
Coriander	☐	☒	☐	☒	☐	☒
Corn/ maize	☐	☒	☐	☒	☐	☒
Legumes	☐	☒	☐	☒	☐	☒
Beef	☐	☒	☐	☒	☐	☒
Pork	☐	☒	☐	☒	☐	☒
Carrot	☐	☒	☐	☒	☐	☒
Other legislation/ miscellaneous	**YES**	**NO**	**YES**	**NO**	**YES**	**NO**
Buckwheat	☐	☒	☐	☒	☐	☒
Other Nuts						
Pine nuts	☐	☒	☐	☒	☐	☒
Coconut	☐	☒	☐	☒	☐	☒
Chestnuts	☐	☒	☐	☒	☐	☒
Hickory nut	☐	☒	☐	☒	☐	☒
Chinquapin	☐	☒	☐	☒	☐	☒
Butternut	☐	☒	☐	☒	☐	☒
Ginko nut	☐	☒	☐	☒	☐	☒
Lichee nut	☐	☒	☐	☒	☐	☒
Pili nut	☐	☒	☐	☒	☐	☒
Shea nut	☐	☒	☐	☒	☐	☒
Beech nut	☐	☒	☐	☒	☐	☒
Matsutake mushroom	☐	☒	☐	☒	☐	☒
Yam	☐	☒	☐	☒	☐	☒
Gelatin	☐	☒	☐	☒	☐	☒
Sunflower seed	☐	☒	☐	☒	☐	☒
Poppy seed	☐	☒	☐	☒	☐	☒
Cotton seed	☐	☒	☐	☒	☐	☒
Azo dyes : Sunset yellow (E 110), Quinoline yellow (E 104), Carmoisine (E 122), Allura red (E 129), Tartrazine (E 102) , Ponceau 4R (E 124)	☐	☒	☐	☒	☐	☒
Latex	☐	☒	☐	☒	☐	☒
Fruit						
Kiwi	☐	☒	☐	☒	☐	☒
Banana	☐	☒	☐	☒	☐	☒
Peach	☐	☒	☐	☒	☐	☒
Apple	☐	☒	☐	☒	☐	☒
Orange	☐	☒	☐	☒	☐	☒
Mango	☐	☒	☐	☒	☐	☒
Tomato	☐	☒	☐	☒	☐	☒

GMO DECLARATION

Lactic Acid

Our company supplies the above ingredient to your company.

We declare that this product:

- **Does not consist and does not contain Genetically Modified Organisms.**
- **Is not produced from and does not contain ingredients produced from Genetically Modified Organisms.**

04/08/2021

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

1.1. Product identifier

Product form : Mixture
Name : Lactic acid

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 : Food additive
Speciality chemical
See annex for more detailed information.

1.2.2. Uses advised against:

Restrictions on use : No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier
Madar Corporation Limited

19-20 Sandleheath Industrial Estate
Fordingbridge
SP6 1PA
T +44 0 1425 655 555
technical@madarcorporation.co.uk

Emergency number

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	

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Skin corrosion/irritation, Category 2	H315
Serious eye damage/eye irritation, Category 1	H318

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

Harmful if swallowed. Causes skin irritation. Causes serious eye damage.

2.2. Label elements

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

Hazard pictograms (CLP)

GHS05

Signal word (CLP)	Danger
Contains	S-lactic acid
Hazard statements (CLP)	H315 - Causes skin irritation. H318 - Causes serious eye damage.
Precautionary statements (CLP)	P280 - Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 - IF ON SKIN: Wash with plenty of water. 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. P362 - Take off contaminated clothing.

2.3. Other hazards

Other hazards which do not result in classification : No additional information.

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

Component	
S-lactic acid (79-33-4)	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

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	Conc. (% w/w)	Classification according to Regulation (EC) No. 1272/2008 [CLP]
S-lactic acid	(CAS-No.) 79-33-4 (EC-No.) 201-196-2 (EC Index-No.) 607-743-00-5 (REACH-no) 01-2119474164-39, x	≥ 50	Skin Irrit. 2, H315 Eye Dam. 1, H318

Specific concentration limits:		
Name	**Product identifier**	**Specific concentration limits**
S-lactic acid	(CAS-No.) 79-33-4 (EC-No.) 201-196-2 (EC Index-No.) 607-743-00-5 (REACH-no) 01-2119474164-39, x	(1 ≤C < 3) Eye Irrit. 2, H319 (3 ≤C < 100) Eye Dam. 1, H318 (10 ≤C < 100) Skin Irrit. 2, H315

Full text of H-statements: see section 16

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.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

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.

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

Symptoms/effects after skin contact : Irritation. irritation (itching, redness, blistering).

Symptoms/effects after eye contact : Serious damage to eyes. Redness, pain. Burns.

Symptoms/effects after ingestion : May be harmful if swallowed.

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

Treat symptomatically. If breathing is difficult, give oxygen. Keep victim under observation. Symptoms may be delayed.

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 : No fire hazard.

Explosion hazard : No direct explosion hazard.

Hazardous decomposition products in case of fire : Under fire conditions, hazardous fumes will be present: Carbon monoxide, Carbon dioxide.

5.3. Advice for firefighters

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

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

General measures : No additional information.

6.1.1. For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.

Emergency procedures : Evacuate unnecessary personnel. Ventilate spillage area. Do not touch or walk on the spilled product. Avoid breathing vapours, mist. Avoid contact with skin and eyes.

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 if safe to do so.

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.

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

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". 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. Wear personal protective equipment. Ensure good ventilation of the work station. Avoid breathing vapours, mist. Avoid contact with skin and eyes.

Hygiene measures : Wash contaminated clothing before reuse. 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

Storage conditions : Keep container tightly closed in a cool, well-ventilated place.

Incompatible materials : Strong oxidizing agents.

Storage area : Store according to local legislation.

7.3. Specific end use(s)

Annex.

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

No additional information available

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

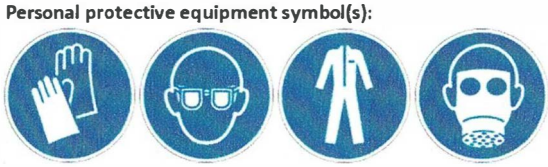
Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Do not expose to temperatures above 200 °C / 392 °F.

8.2.2. Personal protection equipment

Personal protective equipment:

Wear recommended personal protective equipment.

Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:			
Chemical goggles or face shield. Safety glasses			
Type	**Field of application**	**Characteristics**	**Standard**
Safety goggles	Droplet, Aerosols		EN 166
Face shield	Droplet, Aerosols		EN 166

8.2.2.2. Skin protection

Skin and body protection:	
Wear suitable protective clothing	
Type	**Standard**
acid-resistant protective clothing, Boots	EN 13034

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk
19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

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

8.2.2.3. Respiratory protection

Respiratory protection:			
Where exposure through inhalation may occur from use, respiratory protection equipment is recommended			
Device	**Filter type**	**Condition**	**Standard**
Half-face mask (DIN EN 140)	Type A - High-boiling (>65 °C) organic compounds	Aerosols, Droplet, Vapour	EN 140

8.2.2.4. Thermal hazards
No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Liquid
Colour	:	Colourless. yellowish.
Appearance	:	clear.
Odour	:	characteristic.
Odour threshold	:	Not available
Melting point	:	Not applicable
Freezing point	:	Not available
Boiling point	:	120 – 130 °C
Flammability	:	Not applicable
Explosive limits	:	Not available
Lower explosive limit (LEL)	:	Not available
Upper explosive limit (UEL)	:	Not available
Flash point	:	Not available
Auto-ignition temperature	:	> 400 °C 93% w/w
Decomposition temperature	:	> 200 °C
pH	:	< 1.2 (25°C)
Viscosity, kinematic	:	Not available
Viscosity, dynamic	:	5 – 60 mPa·s (25°C)
Solubility	:	Miscible with water.
Partition coefficient n-octanol/water (Log Kow)	:	Not available
Partition coefficient n-octanol/water (Log Pow)	:	-0.62
Vapour pressure	:	Not available
Vapour pressure at 50 °C	:	Not available
Density	:	1.2 g/cm³
Relative density	:	Not available
Relative vapour density at 20 °C	:	Not available
Particle size	:	Not applicable

Particle size distribution	:	Not applicable
Particle shape	:	Not applicable
Particle aspect ratio	:	Not applicable
Particle aggregation state	:	Not applicable
Particle agglomeration state	:	Not applicable
Particle specific surface area	:	Not applicable
Particle dustiness	:	Not applicable

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

Surface tension : 44 - 50 mN/m @50 - 90%

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Do not expose to temperatures above 200 °C / 392 °F.

10.5. Incompatible materials

Strong oxidizing agents.

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

S-lactic acid (79-33-4)	
LD50 oral rat	3543 mg/kg bodyweight (EPA OPP 81-1 method)
LD50 dermal rabbit	> 2000 mg/kg bodyweight (EPA OPP 81-2 method)
LC50 Inhalation - Rat (Dust/Mist)	> 7.94 mg/l/4h (OECD 403 method)

Skin corrosion/irritation	:	Causes skin irritation. pH: < 1.2 (25°C)
Serious eye damage/irritation	:	Causes serious eye damage. pH: < 1.2 (25°C)

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk
19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	Not classified
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

11.2. Information on other hazards

11.2.1. Endocrine disrupting properties

11.2.2 Other information

Potential adverse human health effects and symptoms : Causes serious eye damage,Redness, pain,Burns,Causes skin irritation,irritation (itching, redness, blistering)

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

S-lactic acid (79-33-4)	
LC50 - Fish [1]	130 – 320 mg/l
EC50 - Crustacea [1]	320 – 750 mg/l
ErC50 algae	3500 mg/l
NOEC chronic algae	1900 mg/l

12.2. Persistence and degradability

L-lactic acid	
Persistence and degradability	Readily biodegradable.

S-lactic acid (79-33-4)	
Persistence and degradability	Readily biodegradable.

12.3. Bioaccumulative potential

L-lactic acid	
Partition coefficient n-octanol/water (Log Pow)	-0. 62
Bioaccumulative potential	Bioaccumulation unlikely.

S-lactic acid (79-33-4)	
Partition coefficient n-octanol/water (Log Pow)	-0.54 (OECD 107 method)

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

L-lactic acid
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

Component	
S-lactic acid (79-33-4)	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. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

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

Sewage disposal recommendations : Disposal must be done according to official regulations.

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

SECTION 14: Transport information

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

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk
Page 9 of 12

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

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(b)	L-lactic acid ; S-lactic acid	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

Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

Contains no substance 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.

Contains no substance subject to Regulation (EU) No 2019/1021 of the European Parliament and of the Council of 20 June 2019 on persistent organic pollutants

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

A chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:
Trade name. Full Layout. Exposure controls/personal protection.

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

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
COD	Chemical oxygen demand (COD)
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
EN	European Standard
IARC	International Agency for Research on Cancer
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
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
VOC	Volatile Organic Compounds
CAS-No.	Chemical Abstract Service number
N.O.S.	Not Otherwise Specified
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties

Training advice : Training staff on good practice.

Full text of H- and EUH-statements:	
Eye Dam. 1	Serious eye damage/eye irritation, Category 1

19-20 Sandleheath Industrial Estate, Fordingbridge, Hampshire, SP6 1PA, UK
Tel: 01425 655555 Email: technical@madarcorporation.co.uk

Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Skin Irrit. 2	Skin corrosion/irritation, Category 2
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.

Corbion SDS EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Lactic Acid

Description	Natural Lactic acid, which is produced by fermentation from carbohydrates. It can be used in many applications in food and non food areas.	
Assay	Assay	79.5-80.5 % (w/w)
	Stereochemical purity (Corbion method)	min. 95% (% (S)-enantiomer)
Visual sensory characteristics	Color fresh	max. 100 Apha
Identification	Solubility	miscible with water
	Positive for lactate	passes test
	Relative density 20 °C	1.18-1.20 g/ml
Purity	Sulfated ash / residue on ignition	max. 0.1 %
	Calcium	max. 20 ppm
	Chlorides	max. 10 ppm
	Sulfate	max. 20 ppm
	Arsenic (as As)	max. 1 ppm
	Heavy metals	max. 10 ppm
	Iron	max. 10 ppm
	Lead	max. 0.5 ppm
	Mercury	max. 1 ppm
	Cyanide	max. 5 mg/kg
	Citric, oxalic, phosphoric, tartaric acid	passes test
	Reducing sugars	passes test FCC
	Sugars	passes test
Physical-chemical-properties	Molecular formula	$CH_3CHOHCOOH$
	Molecular weight	90
	Chemical name	2-hydroxypropionic acid
Regulatory / Registration	CAS number	79-33-4 (general 50-21-5)
	EEC Additive number	E270 Lactic acid
	GRAS status	21CFR184.1061
	Complies with	FCC, 231/2012/EC
	EC number	201-196-2

Suitability for Vegetarian and Vegan Diet

We hereby certify that the Jungbunzlauer products

- **Lactic Acid**

are manufactured by fermentation, extraction or synthesis. Above mentioned products do not contain animal derivatives and have never been exposed to animal derivatives.

Furthermore, Jungbunzlauer does not use any ingredients or additives in the manufacture of its products that originate from animal sources or that have been in contact with animals.

Therefore, the above mentioned products are fully suitable to be consumed by vegetarians or vegans.