

Material safety data sheet*

L-(+)-lactic acid

1. MATERIAL AND COMPANY DESIGNATION

1.1. Product identifier:

PRODUCT NAME: L-(+) – lactic acid
CAS-number: 79-33-4
EC number: 201-196-2
Reach reg no 01-2119474164-39-003

1.2. Relevant identified uses of the substance:

Identified uses: Acidulant, pH modifier, preservative in food, cosmetic and beverage, natural antibiotics in feed stuff, cleaning agent or antiseptic/disinfectant/pesticide in washing/cleaning products.

Uses advised against: No information available

1.3. Details of the supplier of the safety data sheet:

Supplier : JINDAN Europe
Europalaan 12E
5232 BC 's Hertogenbosch
The Netherlands
Telephone nr: +31 73 8200793
FAX nr : +31 73 8200781
E-mail: qa@jindan.eu

Emergency telephone number +31 652 733 991
Opening hours: Monday to Friday, from 8:00 until 17h30
Other comments: Language English, Portuguese, Chinese and Dutch

Only representative Reach Consulting Group
Suite 1E Paramount court, Corrig road, Sandyford, Dublin Ireland
Info@reach24h.com
Tel: 00353 (0) 1 8899951

1.4. Details of the product manufacturer:

Manufacturer: Henan Jindan Lactic Acid Technology Co., Ltd.
No.8 Jindan Avenue, Dancheng County, Henan China
jindanla@jindanlactic.com
Tel: +86 394 3196766
fax: +86 394 3195838

2. HAZARDS IDENTIFICATION

2.1. Classification and label elements of substances according to EC 1272/2008 (CLP)

Skin corrosion/irritation, Category 1, Sub-Category 1C; H314.
Signal word: Danger

Serious eye Damage/ eye irritation, category 1; H318;
Signal word: DANGER

Adverse Physicochemical, human health and environmental effects:

Causes severe skin burns and eye damage. Causes serious eye damage.

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2.2. Label elements

Label according to Regulation (EC) No. 1272/2008 (CLP)

Hazard pictograms (CLP)



GHS05

Signal word (CLP)

: Danger

Hazard statements (CLP)

: H314 - Causes severe skin burns and eye damage.

Precautionary statements (CLP)

: P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 P303+P361+P353+P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.. Immediately call a POISON CENTER or doctor.
 P305+P351+P338+P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
 P405 - Store locked up.
 P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

EUH-statements

: EUH071 - Corrosive to the respiratory tract.

2.3. Other hazards:

Other hazards which do not result in classification: No information available

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 substance is not 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

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Name	Composition	Product identifier	Classifications according to Regulation (EC) 1272/2008 (CLP)
L-(+)- lactic acid	Lactic acid - Min 80% Water – Max 20%	CAS No 79-33-4 EC No 201-196-2 REACH No: 01-2119474164-39-003	Skin Corr. 1C, H314 Eye Dam. 1, H318 EUH071

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

3.2. Mixtures:

Not applicable

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4. FIRST AID MEASURES

4.1 Description of first aid measures

In general:

in case of inhalation:

in case of skin contact:

in case of eye contact:

in case of ingestion:

Call a physician immediately

Remove person to fresh air and keep comfortable for breathing.

Rinse skin with water/shower. Take off immediately all contaminated clothing.

Call a physician immediately.

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Rinse mouth. Do not induce vomiting. Call a physician immediately.

4.2. Important symptoms and effects:

Symptoms/effects

Causes severe skin burns and eye damage. Causes serious eye damage.

Potential acute health effects:

Ingestion: burns, vomiting, gastrointestinal disturbance.

Inhalation: severe irritation of respiratory tract as coughing, choking or shortness of breath, headache and dizziness.

inflammation of the eye; redness, watering and itching; skin inflammation; itching, scaling, reddening, blistering.

Potential chronic health effects: chronic eye irritation, severe skin irritation and respiratory tract irritation leading to frequent attacks of bronchial infection.

4.3. Important symptoms and effects:

Treat symptomatically.

5. MEASURES FOR EXTINGUISHING FIRES

5.1. Extinguishing media:

Suitable extinguishing media:

dry chemical powder at small fire; water spray; Foam. Carbon dioxide.

Unsuitable extinguishing media:

Do not use water jet since you may cause the fire to spread.

5.2. Special hazards arising from the product:

Fire Hazard:

The product is not flammable.

Specific Hazards:

thermal decomposition can lead to release of irritating gases and vapors.

5.3. Advice for fire-fighters

Specific Protection Equipment required:

self-contained breathing apparatus in pressure demand and full protective gear.

Firefighting instructions:

Cool containers / tanks with spray water if possible. Do not allow run-off from fire fighting to enter drains or water courses. Eliminate all ignition sources if safe to do so. Wear personal protective equipment. Approach from upwind. Evacuate personnel to a safe area.

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6. MEASURES IN CASE OF ACCIDENTAL LEAKAGE

6.1. Personal precautions, protective equipment and emergency procedures:

Emergency procedures: Ventilate spillage area. Avoid breathing dust, mist or spray. Avoid contact with skin and eyes. Do not touch or walk on the spilled product. Do not touch spilled material. Ensure adequate ventilation, especially in confined areas. Evacuate personnel to a safe area. Remove all sources of ignition. Do not breathe dust/fume/gas/mist/vapours/spray.

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:

Environmental measures: avoid dispersal of spilled material and contact with soil, waterways, drains and sewers

6.3. Methods and material for containment and cleaning up:

For containment: Collect spillage.

Methods for cleaning up: Large amounts: Prevent further leakage or spillage if safe to do so. Dike to collect large spills. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.
Small amounts: Wipe up with absorbent material (e.g. cloth, fleece). After cleaning, flush away traces with water. Never return spills in original containers for re-use.

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

6.4. Reference to other sections:

Reference to other sections Section 13 for information on disposal

7. HANDLING AND STORAGE

7.1. Precautions for safe handling:

Precautions for safe handling: Do not handle until all safety precautions have been read and understood. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid contact with skin and eyes. Always wash hands after handling the product. Avoid prolonged or repeated contact with skin. Contaminated work clothing should not be allowed out of the workplace. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Handle in accordance with good industrial hygiene and safety practice. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures: Handle in accordance with good industrial hygiene and safety practice. 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 before breaks and immediately after handling the product. Wash contaminated clothing before re-use.

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7.2. Conditions for safe storage, including any incompatibilities:

Technical measures: Keep only in the original container. Store in dry, cool, well-ventilated area. Containers which are opened should be properly resealed and kept upright to prevent leakage.

Conditions for safe storage: Store locked up. Store in accordance with local regulations. Keep containers tightly closed in a cool, well-ventilated place.

Incompatible materials: Oxidizing agent

7.3. Specific end use(s):

Specific use(s): SDS section 1.2. – additional text

8. MAXIMUM ALLOWABLE EXPOSURE/PROTECTION EQUIPMENT

8.1. Control parameters

National occupational exposure and biological limit values: No additional information available

Recommended monitoring procedures: No additional information available

Air contaminants formed: No additional information available

DNEL and PNEC: No additional information available

Control banding: No additional information available

8.2. Exposure controls:

Engineering controls: Ensure good ventilation of the work station.

Exposure control: equipped with eyewash facility and safety shower, adequate Ventilation to keep airborne concentrations low

Personal protection:

Eye and face protection: Face-shield (EN166).

Skin protection: Long sleeved clothing. Chemical resistant apron. Boots.

Hand protection: Protective gloves (EN374): Butyl rubber. Glove thickness: 0.5 mm . Break through time: >8 hours. Unsuitable materials: Natural Rubber, Nitrile rubber, Fluorinated rubber, PVC.

Respiratory protection: Aerosol or mist formation: In case of insufficient ventilation wear suitable respiratory equipment (APF). - Recommended Filter Type: A, Brown.

Thermal hazards: No additional information available

Environmental exposure controls: Avoid release to the environment. The product should not be allowed to enter drains, water courses or the soil.

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9. PHYSICAL AND CHEMICAL DESCRIPTION

9.1. Information on basic physical and Chemical properties

Physical state	Liquid
Colour	Yellowish to Colourless.
Appearance	Colorless viscous liquid.
Odour	Not available
Odour threshold	Not available
Melting point	53 °C
Freezing point	Not available
Boiling point	216.6 °C
Flammability	Not applicable
Explosive properties	Non explosive
Oxidising properties	Non oxidising
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
Decomposition temperature	Not available
pH	Not available
Viscosity, kinematic	Not available
Viscosity, dynamic	18.4 mPa·s @20°C
Solubility	Water: 860 g/l@20°C
Partition coefficient n-octanol/water (Log Pow)	-0.54 @25°C,pH=7
Vapour pressure	0.038 Pa @25°C
Vapour pressure at 50 °C	Not available
Density	1.18 – 1,22 g/cm ³
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:

Surface tension	70.7 mN/m
Dissociation constant pKa	3.85 @ 20 °C, 1 g/L

9.3. Other safety characteristics:

No additional information available.

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10 STABILITY AND REACTIVITY

10.1. Reactivity:

Reactivity

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

10.2. Chemical stability:

Stability:

stable under recommended conditions.

10.3. Possibility of hazardous reactions:

Possibility of hazardous reactions:

no dangerous reactions known. Hazardous polymerizations does not occur.

10.4. Conditions to avoid:

Conditions to avoid:

heating, avoid temperatures above 200 °C

10.5. Incompatible materials:

Material to avoid:

oxidizing agents.

10.6. Hazardous decomposition products:

Hazardous decomposition products:

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

11 TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

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

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LD50 oral rat	3543 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 Inhalation - Rat	> 7.94 mg/m ³

Skin corrosion/irritation	Causes severe skin burns.
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	Not classified
STOT-repeated exposure	Not classified
Aspiration hazard	Not classified

11.2. Information on other hazards

No additional information available

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12 ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology – general:

Before neutralization, the product may represent a danger to aquatic organisms.

Acute Fish Toxicity
Acute daphnia toxicity
Acute algae toxicity

LC50 = 320 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [semi-static])
EC 50 = 240 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC 50 = 3500 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata [Static])

12.2. Persistence and degradability

Persistence and degradability

Readily biodegradable.

12.3. Bio-accumulative potential

Bio-accumulative potential

Log POW = ca -0.54 @25°C,pH=7

12.4. Mobility in soil

Mobility in soil

ca. 1L/kg

12.5. PBT and vPvB assessment

PBT assessment

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

vPvB assessment

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

12.6. Endocrine disrupting properties:

Endocrine disrupting properties:

The substance is not 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.

12.7. Other adverse effects:

Other adverse effects:

no additional information available

13 DISPOSAL CONSIDERATIONS:

13.1. Waste treatment methods

Dispose of contents/container in accordance with licensed collector's sorting instructions.
Dispose of in accordance with local regulations.






13.2. Contaminated packaging

Dispose of contents/container in accordance with licensed collector's sorting instructions.
Empty containers should be taken to an approved waste handling site for recycling or disposal. Dispose of in accordance with local regulations.

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14 DIRECTIONS FOR TRANSPORT

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
UN 3265	UN 3265	UN 3265	UN 3265	UN 3265
14.2. UN proper shipping name				
CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)	Corrosive liquid, acidic, organic, n.o.s. (L-(+)-lactic acid)	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid)
Transport document description				
UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid), 8, III, (E)	UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid), 8, III	UN 3265 Corrosive liquid, acidic, organic, n.o.s. (L-(+)-lactic acid), 8, III	UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid), 8, III	UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (L-(+)-lactic acid), 8, III
14.3. Transport hazard class(es)				
8	8	8	8	8
				
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
No supplementary information available				

14.6. Special precautions for user

Overland transport

Classification code (ADR)	C3	C3
Special provisions (ADR)	274	
Limited quantities (ADR)	5I	
Excepted quantities (ADR)	E1	
Packing instructions (ADR)	P001, IBC03, LP01, R001	
Mixed packing provisions (ADR)	MP19	
Portable tank and bulk container instructions (ADR)	T7	
Portable tank and bulk container special provisions (ADR)	TP1, TP28	
Tank code (ADR)	L4BN	
Vehicle for tank carriage	AT	
Transport category (ADR)	3	

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Special provisions for carriage - Packages (ADR) V12

Hazard identification number (Kemler No.) 80

Orange plates

80
3265

Tunnel restriction code (ADR) E

EAC code 2X

APP code B

Transport by sea

Special provisions (IMDG) 223, 274

Limited quantities (IMDG) 5 L

Excepted quantities (IMDG) E1

Packing instructions (IMDG) P001, LP01

IBC packing instructions (IMDG) IBC03

Tank instructions (IMDG) T7

Tank special provisions (IMDG) TP1, TP28

EmS-No. (Fire) F-A

EmS-No. (Spillage) S-B

Stowage category (IMDG) A

Stowage and handling (IMDG) SW2

Segregation (IMDG) SGG1, SG36, SG49

Properties and observations (IMDG) Causes burns to skin, eyes and mucous membranes.

Air transport

PCA Excepted quantities (IATA) E1

PCA Limited quantities (IATA) Y841

PCA limited quantity max net quantity (IATA) 1L

PCA packing instructions (IATA) 852

PCA max net quantity (IATA) 5L

CAO packing instructions (IATA) 856

CAO max net quantity (IATA) 60L

Special provisions (IATA) A3, A803

ERG code (IATA) 8L

Inland waterway transport

Classification code (ADN) C3

Special provisions (ADN) 274

Limited quantities (ADN) 5 L

Excepted quantities (ADN) E1

Equipment required (ADN) PP, EP

Number of blue cones/lights (ADN) 0

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Transport by sea

Special provisions (IMDG)	223, 274
Limited quantities (IMDG)	5 L
Excepted quantities (IMDG)	E1
Packing instructions (IMDG)	P001, LP01
IBC packing instructions (IMDG)	IBC03
Tank instructions (IMDG)	T7
Tank special provisions (IMDG)	TP1, TP28
EmS-No. (Fire)	F-A
EmS-No. (Spillage)	S-B
Stowage category (IMDG)	A
Stowage and handling (IMDG)	SW2
Segregation (IMDG)	SGG1, SG36, SG49
Properties and observations (IMDG)	Causes burns to skin, eyes and mucous membranes.

Air transport

PCA Excepted quantities (IATA)	E1
PCA Limited quantities (IATA)	Y841
PCA limited quantity max net quantity (IATA)	1L
PCA packing instructions (IATA)	852
PCA max net quantity (IATA)	5L
CAO packing instructions (IATA)	856
CAO max net quantity (IATA)	60L
Special provisions (IATA)	A3, A803
ERG code (IATA)	8L

Inland waterway transport

Classification code (ADN)	C3
Special provisions (ADN)	274
Limited quantities (ADN)	5 L
Excepted quantities (ADN)	E1
Equipment required (ADN)	PP, EP
Number of blue cones/lights (ADN)	0

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Rail transport

Classification code (RID)	C3
Special provisions (RID)	274
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)	T7
Portable tank and bulk container special provisions (RID)	TP1, TP28
Tank codes for RID tanks (RID)	L4BN
Transport category (RID)	3
Special provisions for carriage – Packages (RID)	W12
Colis express (express parcels) (RID)	CE8
Hazard identification number (RID)	80

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

15 Regulations

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

No REACH Annex XVII restrictions

L-(+)-lactic acid is not on the REACH Candidate List

L-(+)-lactic acid is not on the REACH Annex XIV List

L-(+)-lactic acid 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.

L-(+)-lactic acid 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

15.2. Chemical safety Assessment:

Chemical safety Assessment A chemical safety assessment has been carried out.

16 Other information

16.1. Revision information:

Date of the previous revision: 23-06-2021

Date of this revision: 29-12-2021

Revision summary: Update according to Commission Delegated Regulation (EU) 2020/1182, and physical and chemical properties

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16.2. Abbreviations and acronyms:

Abbreviations and acronyms	
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
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
vPvB	Very Persistent and Very Bioaccumulative
ED	Endocrine disrupting properties
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

Full text of H- and EUH-statements

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Skin Corr. 1C	Skin corrosion/irritation, Category 1, Sub-Category 1C
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
EUH071	Corrosive to the respiratory tract.

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16.3. Key literature references and sources of data:

Literature suggestions

ESISI IUCLID Dataset (European chemical Substances Information system)
EPA-HPV dataset;
ICSC (International Chemical Safety Cards Dataset);
GESTIS (Substance database)

16.4. Relevant R-phrases and H-statements

R-phrases (code and full text):

R41
R38

Risk of serious damage on eyes
Irritating to skin

H-statements (code and full text):

H315
H318

causes skin irritation
causes serious eye damage

16.5. Training advice:

Training advice:

no data available

Version 9, 23-06-2021

update according to Regulation (EC) No 1907/2006

*according to EU rules 93/112; with commission Regulation (EU)2015/830 and Regulation (EC) No 1907/2006

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