IMPROVEMENT THROUGH BIOTECHNOLOGY

SAFETY DATA SHEET

ENDOZYM Velluto

In conformity to Regulation (EU) 2020/878

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Velluto
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

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AEB OCEANIA PTY LTD
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SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Supplemental Hazard statement Code(s):
not applicable

Precautionary statements:
Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

Contains:
Arabinanase, Pectin lyase, Pectin methylesterase.

Ingredients: Glycerol, sucrose, L-arabinanase, pectin lyase, pectin methylesterase, sodium chloride, potassium sorbate, water q.s. to 100.
For food, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matters. Only for industrial use.

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Refer to paragraph 16 for full text of hazard statements

Substance	Concentration[w/w]	Classification	Index	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
Arabinanase	>= 5 < 10%	Resp. Sens. 1, H334	3.2.1.99	37325-54-5	253-463-8	
Pectin lyase	>= 1 < 5%	Resp. Sens. 1, H334	4.2.2.10	9033-35-6	232-894-5	
Pectin methylesterase	>= 1 < 5%	Resp. Sens. 1, H334	3.1.1.11	9025-98-3	232-807-0	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Wash immediately and thorougly with running water for at least 10 minutes.

Ingestion:
Not dangerous. In case of malaise consult a doctor.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.

Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Preferably use in a closed circuit. Use with adequate ventilation. Use suitable protective equipment. Avoid contact with eyes, skin, respiratory tract and clothing. Handle the product after consulting all other sections of this safety data sheet. Do not eat or drink while handling the product. See also the following paragraph 8.

7.2. Conditions for safe storage, including any incompatibilities

Store in the original sealed package, protected from light, in a cool, dry, odorless place and at a temperature < 20°C. Do not freeze. Lot number (BN) and expiry date (EXP): see barcodes.

7.3. Specific end use(s)

Manufacture of food products:
Handle with Care. Store in the original sealed package, protected from light, in a cool, dry, odorless place and at a temperature < 20°C. Do not freeze. Lot number (BN) and expiry date (EXP): see barcodes.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3

USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
intermittent emissions = 8,85 (mg/l)
ground = 0,141 (mg/kg ground)

- Substance: Pectin lyase
PNEC
Sweet water = 0,052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations

(ii) Other

Wear normal work clothing.

(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Liquid	
Colour	Brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4,5 - 5,5 (20°C)	
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	not determined as considered not relevant for the characterization of the product	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0,950 - 1,300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

No data available

9.2.2 Other safety characteristics

No data available.

SECTION 10. Stability and reactivity

10.1. Reactivity

not relevant

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

None under recommended storage conditions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

Arabinanase:
Not available

Pectin methylesterase:
Not available

10.5. Incompatible materials

None

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Arabinanase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Pectin lyase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Pectin methylesterase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
(b) skincorrosion/irritation: Glycerol: Not classified
Arabinanase: Not corrosive
Pectin lyase: Not corrosive
Pectin methylesterase: Not corrosive
Glycerol: Not classified
Arabinanase: Not irritating
Pectin lyase: Not irritating
Pectin methylesterase: Not irritating
(c) serious eye damage/irritation: Glycerol: Not classified
Arabinanase: Not corrosive
Pectin lyase: Not corrosive
Pectin methylesterase: Not corrosive
Glycerol: Not classified
Arabinanase: Not irritating
Pectin lyase: Not irritating
Pectin methylesterase: Not irritating
(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
Arabinanase: May cause sensitization by inhalation.
Pectin lyase: Sensitizer: May cause sensitization by inhalation.
Pectin methylesterase: May cause sensitization by inhalation.
(e) germ cell mutagenicity: Glycerol: Not classified
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(f) carcinogenicity: Glycerol: Not classified
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
Arabinanase: Not available
Pectin lyase: Unavailable

Pectin methylesterase: Unavailable
(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
Arabinanase: Once sensitized, a severe allergic reaction may occur upon subsequent exposure to very low levels.
Pectin lyase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
Pectin methylesterase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable

11.2. Information on other hazards

No data available.

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss EC50-48 h - Daphnia 1955 mg / l
EC50-72 h - algae 3200 mg / l Entosiphon sulcatum

Arabinanase:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg / l / 48h): not available
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available
Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available

Pectin lyase:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg / l / 48h): not available
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available
Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available

Pectin methylesterase:
Acute toxicity - fish LC50 (mg/l/96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h): not available
Acute algae toxicity ErC50 (mg/l/72-96h): not available
Chronic toxicity - fish NOEC (mg/l): not available
Chronic toxicity - crustaceans NOEC (mg/l): not available
Chronic algae toxicity NOEC (mg/l): not available

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance
ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

Arabinanase:
Not available

Pectin lyase:
Readiily biodegradable

Pectin methylesterase:
not available

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

Arabinanase:
Not available

Pectin lyase:
not available

Pectin methylesterase:
not available

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

Arabinanase:
Not available

Pectin lyase:
not available

Pectin methylesterase:
not available

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or contained substances (All. XVII Reg. EC 1907/2006): not applicable
Substances in Candidate List (art. 59 Reg. EC 1907/2006): the product does not contain SVHC in a proportion ≥ 0.1%.
Substances subject to authorisation (Ann. XIV Reg. CEC 1907/2006): the product does not contain SVHC in a proportion ≥ 0.1%.
Reg. (EU) n. 1169/2011: see 2.2
Regulation (EU) 1332/2008; see p.2.2

REGULATION (EU) No 1357/2014 - waste:
HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Regulation (UE) n. 1169/2011 (on the provision of food information to consumers)
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.
Regulation (EU) 1332/2008 (Food enzymes)

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable

n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
• ECHA Registered Substances:
• https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances
• SDS supplier
• GESTIS DNEL Database: http://www.dguv.de/ifa/gestis/gestis-dnel-datenbank/index-2.jsp
• GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition. (IIXX)

Changes to the previous edition: first issue.

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Thiol
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

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SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.1.2 Additional information:

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements:
Prevention
P261 - Avoid breathing apours/spray.

P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

Contains:
pectin lyases, polygalacturonase

Ingredients : Potassium chloride, maltodextrin, glycerol, pectin lyases, polygalacturonase, ammonium sulphate, potassium sorbate, water qs to 100.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use.

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
potassium chloride substance for which there are Community workplace exposure limits	>= 5 < 10%			7447-40-7	231-211-8	
Glycerol substance for which there are Community workplace exposure limits	>= 3 < 5%			56-81-5	200-289-5	

Substance	Concentration[w/w]	Classification	Index	CAS	EINECS	REACh
pectin lyases	>= 3 < 5%	Resp. Sens. 1, H334	4.2.2.10	9033-35-6	232-894-5	
polygalacturonase	>= 2,5 < 3%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Rinse immediately under running water for 10 to 15 minutes, keeping the eyelid open. Remove contact lenses if worn and if they can be easily removed.

Ingestion:
Not dangerous. In case of malaise consult a doctor.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.
Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact and inhalation of vapors
Handle the product after consulting all other sections of this safety data sheet.
At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3
USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

- Substance: potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
STP = 10 (mg/l)

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
ground = 0,141 (mg/kg ground)

- Substance: pectin lyases

PNEC
Sweet water = 0,052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(ii) Other
Wear normal work clothing.

(c) Respiratory protection

Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Viscous liquid	
Colour	brune to brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4.5 - 6.5 (20°C)	
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0.950 - 1.300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

Irrilevant

9.2.2 Other safety characteristics

Irrilevant

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

Glycerol:
Reacts with: Strong acids. Strong foundations

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

polygalacturonase:
Non pertinent.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:

potassium chloride:
None under recommended storage and handling conditions.

Glycerol:
Humidity

pectin lyases:
None under recommended storage and handling conditions.

polygalacturonase:
None.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
pectin lyases: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd

(b) skincorrosion/irritation: potassium chloride: Unclassified
Glycerol: Not classified

pectin lyases: Not corrosive
polygalacturonase: Unavailable
potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Not irritating
polygalacturonase: Irritating

(c) serious eye damage/irritation: potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Not corrosive
polygalacturonase: Unavailable
potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Not irritating
polygalacturonase: Irritating

(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Sensitizer: May cause sensitization by inhalation.
polygalacturonase: May cause sensitization by inhalation

(e) germ cell mutagenicity: potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Unavailable
polygalacturonase: Unavailable

(f) carcinogenicity: potassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Unavailable
polygalacturonase: Unavailable

(g) eproductivetoxicity: potassium chloride: Unclassified
Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
pectin lyases: Unavailable
polygalacturonase: Unavailable

(h) specific target organ toxicity (STOT) single exposure: potassium chloride: Unclassified
Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
pectin lyases: Unavailable
polygalacturonase: Unavailable

(i) specific target organ toxicity (STOT) repeated exposurepotassium chloride: Unclassified
Glycerol: Not classified
pectin lyases: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
polygalacturonase: Unavailable

(j) aspiration hazard: potassium chloride: Unclassified
Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
pectin lyases: Unavailable
polygalacturonase: Unavailable

11.2. Information on other hazards

No data available.

11.2.1. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss
EC50-48 h - Daphnia 1955 mg / l
EC50-72 h - algae 3200 mg / l Entosiphon sulcatum
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

pectin lyases:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h) [1]: 2000 mg/l
Acute toxicity - crustaceans EC50 (mg/l/48h) [2]: 212 mg/l
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available

Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.
Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
potassium chloride:
It does not apply to inorganic substances.

Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance
ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

pectin lyases:
Readiily biodegradable

polygalacturonase:
Unavailable

12.3. Bioaccumulative potential

==========
Related to contained substances:
potassium chloride:
It does not apply to inorganic substances.

Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

pectin lyases:
not available

polygalacturonase:
Unavailable

12.4. Mobility in soil

==========
Related to contained substances:
potassium chloride:
It must have been very mobile in the ground.

Glycerol:
ground Product that penetrates easily into the ground.

pectin lyases:
not available

polygalacturonase:
Unavailable

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.
Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1333/2008; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

REGULATION (EU) No 1357/2014 - waste:HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Points modified from previous revision:- 2.2. Label elements - 3.2 Composition/information on ingredients - Mixtures - 7. Handling and storage- 8.2 Exposure controls- 9.1 Information on basic physical and chemical properties - 10.Stability and reactivity- 11.1
Information on hazard classes as defined in Regulation (EC) No 1272/2008 -12.Ecological information- 15- Regulatory information- 16. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European

Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition.

Changes to the previous edition: general update.

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Glucalyse 2.0
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
Tel. +39.030.2307.1 Fax +39.030.2307281
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1.4. Emergency telephone number

AEB SpA
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AEB USA
Switchboard: +1 2096258139 (GMT -8; Language: English)

AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.1.2 Additional information:

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Supplemental Hazard statement Code(s):
not applicable

Precautionary statements:

Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

Contains: beta-glucanase (β1-3, β1-6), polygalacturonase

Ingredients: glycerol, beta-glucanase (ß1-3, ß1-6), potassium chloride, ammonium sulphate, polygalacturonase, potassium sorbate, water q.s. to 100.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply
Do not ingest. Keep out of reach of children.

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Substance	Concentration[w/w]	Classification	IUB number	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
Beta-glucanase (β1-3, β1-6)	>= 5 < 10%	Resp. Sens. 1, H334	3.2.1.6	62213-14-3	263-462-4	
potassium chloride	>= 3 < 5%			7447-40-7	231-211-8	

Substance	Concentration[w/w]	Classification	IUB number	CAS	EINECS	REACh
substance for which there are Community workplace exposure limits						
polygalacturonase	>= 1 < 2,5%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation: ventilate the environment. Immediately remove the patient from the contaminated environment and keep him at rest in a well-ventilated area. In case of malaise consult a doctor.
Direct contact with the skin (of the pure product): wash thoroughly with soap and water.
Direct contact with the eyes (of the pure product): rinse immediately with running water for 10-15 minutes, keeping the eyelid open. Remove contact lenses if they are worn and can be easily removed.
Ingestion: drink water in sips. Consult a doctor if you experience symptoms.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.
Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact and inhalation of vapors
Handle the product after consulting all other sections of this safety data sheet.

At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3
USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
ground = 0,141 (mg/kg ground)

- Substance: Beta-glucanase (β1-3,
β1-6)
PNEC
Sweet water = 0,0052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
STP = 10 (mg/l)

- Substance: polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection
(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.
(ii) Other
Wear normal work clothing
(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Viscous liquid	
Colour	Brown to brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4.5 - 6.5	

Physical and chemical properties	Value	Determination method
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0.950 - 1.300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

Irrilevant

9.2.2 Other safety characteristics

Irrilevant

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
Glycerol:
Reacts with: Strong acids. Strong foundations

Beta-glucanase (β1-3,
β1-6):
Not relevant.

potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

polygalacturonase:
Non pertinent.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

Beta-glucanase (β1-3,
β1-6):
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

potassium chloride:
None under recommended storage and handling conditions.

polygalacturonase:
None.

10.5. Incompatible materials

No one in particular

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Beta-glucanase (β1-3,
β1-6): Ingestion - LD50 rat (mg/kg/24h bw): > 2000
Skin contact - LC50 rabbit (mg/kg/24h bw): nd

Inhalation - LC50 rat (mg/l/4h): 2.42
potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd
(b) skincorrosion/irritation: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Irritating
(c) serious eye damage/irritation: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Irritating
(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
potassium chloride: Unclassified
polygalacturonase: May cause sensitization by inhalation
(e) germ cell mutagenicity: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable
(f) carcinogenicity: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable
(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable

(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
Beta-glucanase (β1-3,
β1-6): May cause sensitization by inhalation
potassium chloride: Unclassified
polygalacturonase: Unavailable

11.2. Information on other hazards

No data available.

11.2.1. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss
EC50-48 h - Daphnia 1955 mg / l
EC50-72 h - algae 3200 mg / l Entosiphon sulcatum
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Beta-glucanase (β1-3,
β1-6):
Acute toxicity - fish LC50 (mg / l / 96h): nd
Acute toxicity - crustaceans EC50 (mg / l / 48h): nd
Acute toxicity to algae ErC50 (mg / l / 72-96h): nd
Chronic toxicity - fish NOEC (mg / l): nd
Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity to algae NOEC (mg / l): nd
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.

Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance
ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

Beta-glucanase (β1-3,
β1-6):
Easily biodegradable

potassium chloride:
It does not apply to inorganic substances.

polygalacturonase:
Unavailable

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

Beta-glucanase (β1-3,
β1-6):
No bioaccumulation potential

potassium chloride:
It does not apply to inorganic substances.

polygalacturonase:
Unavailable

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

Beta-glucanase (β1-3,
β1-6):
Unavailable

potassium chloride:
It must have been very mobile in the ground.

polygalacturonase:
Unavailable

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.

Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1333/2008; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

REGULATION (EU) No 1357/2014 - waste:HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value

vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition. (IIXX)

Changes to the previous edition: first issued

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Elevage 2.0
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
Tel. +39.030.2307.1 Fax +39.030.2307281
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Produced by
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1.4. Emergency telephone number

AEB SpA
Centralino/Switchboard: +39.030.2307.1 - (h 8.30-12.00 13.30-18.00 GMT +1; Lingua/Language: Italiano, English)

AEB USA
Switchboard: +1 2096258139 (GMT -8; Language: English)

AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.1.2 Additional information:

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements:
Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.

Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

Contains:
betaglucanase (ß1-3, ß1-6), polygalacturonase, pectinmethylesterase.

Ingredients: glycerol, potassium chloride, betaglucanase (ß1-3, ß1-6), ammonium sulphate, polygalacturonase, pectinmethylesterase, potassium sorbate, water qs to 100.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use.

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
potassium chloride substance for which there are Community workplace exposure limits	>= 3 < 5%			7447-40-7	231-211-8	
Beta-glucanase (β1-3, β1-6)	>= 2,5 < 3%	Resp. Sens. 1, H334	3.2.1.6	62213-14-3	263-462-4	

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
polygalacturonase	>= 1 < 2,5%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	
Pectin methylesterase	>= 0,1 < 1%	Resp. Sens. 1, H334	3.1.1.11	9025-98-3	232-807-0	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Rinse immediately under running water for 10 to 15 minutes, keeping the eyelid open. Remove contact lenses if worn and if they can be easily removed.

Ingestion:
Drink water in sips. Consult a doctor in case of symptoms.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.
Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact and inhalation of vapors
Handle the product after consulting all other sections of this safety data sheet.

At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3
USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
ground = 0,141 (mg/kg ground)

- Substance: potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
STP = 10 (mg/l)

- Substance: Beta-glucanase (β1-3,β1-6)
PNEC
Sweet water = 0,0052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(ii) Other
Wear normal work clothing.

(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Viscous liquid	
Colour	brune to brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4.5 - 6.5	

Physical and chemical properties	Value	Determination method
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0.950 - 1.300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

Irrilevant

9.2.2 Other safety characteristics

Irrilevant

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
Glycerol:
Reacts with: Strong acids. Strong foundations

potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

Beta-glucanase (β1-3,β1-6):
Not relevant.

polygalacturonase:
Non pertinent.

Pectin methylesterase:
Not relevant.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

potassium chloride:
None under recommended storage and handling conditions.

Beta-glucanase (β1-3,β1-6):
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

polygalacturonase:
None.

Pectin methylesterase:
Not available

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
Beta-glucanase (β1-3,
β1-6): Ingestion - LD50 rat (mg/kg/24h bw): > 2000
Skin contact - LC50 rabbit (mg/kg/24h bw): nd
Inhalation - LC50 rat (mg/l/4h): 2.42
polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd
Pectin methylesterase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available

(b) skincorrosion/irritation: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Not corrosive
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Irritating
Pectin methylesterase: Not irritating

(c) serious eye damage/irritation: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Not corrosive
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Irritating
Pectin methylesterase: Not irritating

(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
polygalacturonase: May cause sensitization by inhalation
Pectin methylesterase: May cause sensitization by inhalation.

(e) germ cell mutagenicity: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(f) carcinogenicity: Glycerol: Not classified

potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.

(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): May cause sensitization by inhalation
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

11.2. Information on other hazards

No data available.

11.2.1. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss
EC50-48 h - Daphnia 1955 mg / l

EC50-72 h - algae 3200 mg / l Entosiphon sulcatum
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Beta-glucanase (β1-3,β1-6):
Acute toxicity - fish LC50 (mg / l / 96h): nd
Acute toxicity - crustaceans EC50 (mg / l / 48h): nd
Acute toxicity to algae ErC50 (mg / l / 72-96h): nd
Chronic toxicity - fish NOEC (mg / l): nd
Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity to algae NOEC (mg / l): nd
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.
Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Pectin methylesterase:
Acute toxicity - fish LC50 (mg/l/96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h): not available
Acute algae toxicity ErC50 (mg/l/72-96h): not available
Chronic toxicity - fish NOEC (mg/l): not available
Chronic toxicity - crustaceans NOEC (mg/l): not available
Chronic algae toxicity NOEC (mg/l): not available
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance

ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase (β1-3,β1-6):
Easily biodegradable

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase (β1-3,β1-6):
No bioaccumulation potential

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

potassium chloride:
It must have been very mobile in the ground.

Beta-glucanase (β1-3,β1-6):
Unavailable

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.

Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1333/2008; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

REGULATION (EU) No 1357/2014 - waste:HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Points modified from previous revision:- 2.2. Label elements - 3.2 Composition/information on ingredients - Mixtures - 7.Handling and storage- 8.2 Exposure controls- 9.1 Information on basic physical and chemical properties - 10.Stability and reactivity- 11.1
Information on hazard classes as defined in Regulation (EC) No 1272/2008 -12.Ecological information- 15- Regulatory information- 16. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition.

Changes to the previous edition: first emission.

IMPROVEMENT THROUGH BIOTECHNOLOGY

SAFETY DATA SHEET

ENDOZYM Velluto

In conformity to Regulation (EU) 2020/878

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Velluto
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB France Sarl
Siège social : 10 rue du stade 68240 Kaysersberg-Vignoble, France Tél. +33 (0)389.47.32.33 - Fax +33 (0)389.47.33.34
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Produced by
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1.4. Emergency telephone number

AEB SpA
Centralino/Switchboard: +39.030.2307.1 - (h 8.30-12.00 13.30-18.00 GMT +1; Lingua/Language: Italiano, English)

AEB USA
Switchboard: +1 2096258139 (GMT -8; Language: English)

AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Supplemental Hazard statement Code(s):
not applicable

Precautionary statements:
Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

Contains:
Arabinanase, Pectin lyase, Pectin methylesterase.

Ingredients: Glycerol, sucrose, L-arabinanase, pectin lyase, pectin methylesterase, sodium chloride, potassium sorbate, water q.s. to 100.
For food, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matters. Only for industrial use.

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Refer to paragraph 16 for full text of hazard statements

Substance	Concentration[w/w]	Classification	Index	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
Arabinanase	>= 5 < 10%	Resp. Sens. 1, H334	3.2.1.99	37325-54-5	253-463-8	
Pectin lyase	>= 1 < 5%	Resp. Sens. 1, H334	4.2.2.10	9033-35-6	232-894-5	
Pectin methylesterase	>= 1 < 5%	Resp. Sens. 1, H334	3.1.1.11	9025-98-3	232-807-0	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Wash immediately and thorougly with running water for at least 10 minutes.

Ingestion:
Not dangerous. In case of malaise consult a doctor.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.

Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Preferably use in a closed circuit. Use with adequate ventilation. Use suitable protective equipment. Avoid contact with eyes, skin, respiratory tract and clothing. Handle the product after consulting all other sections of this safety data sheet. Do not eat or drink while handling the product. See also the following paragraph 8.

7.2. Conditions for safe storage, including any incompatibilities

Store in the original sealed package, protected from light, in a cool, dry, odorless place and at a temperature < 20°C. Do not freeze. Lot number (BN) and expiry date (EXP): see barcodes.

7.3. Specific end use(s)

Manufacture of food products:
Handle with Care. Store in the original sealed package, protected from light, in a cool, dry, odorless place and at a temperature < 20°C. Do not freeze. Lot number (BN) and expiry date (EXP): see barcodes.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3

USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
intermittent emissions = 8,85 (mg/l)
ground = 0,141 (mg/kg ground)

- Substance: Pectin lyase
PNEC
Sweet water = 0,052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations

(ii) Other

Wear normal work clothing.

(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Liquid	
Colour	Brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4,5 - 5,5 (20°C)	
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	not determined as considered not relevant for the characterization of the product	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0,950 - 1,300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

No data available

9.2.2 Other safety characteristics

No data available.

SECTION 10. Stability and reactivity

10.1. Reactivity

not relevant

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

None under recommended storage conditions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

Arabinanase:
Not available

Pectin methylesterase:
Not available

10.5. Incompatible materials

None

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Arabinanase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Pectin lyase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Pectin methylesterase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
(b) skincorrosion/irritation: Glycerol: Not classified
Arabinanase: Not corrosive
Pectin lyase: Not corrosive
Pectin methylesterase: Not corrosive
Glycerol: Not classified
Arabinanase: Not irritating
Pectin lyase: Not irritating
Pectin methylesterase: Not irritating
(c) serious eye damage/irritation: Glycerol: Not classified
Arabinanase: Not corrosive
Pectin lyase: Not corrosive
Pectin methylesterase: Not corrosive
Glycerol: Not classified
Arabinanase: Not irritating
Pectin lyase: Not irritating
Pectin methylesterase: Not irritating
(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
Arabinanase: May cause sensitization by inhalation.
Pectin lyase: Sensitizer: May cause sensitization by inhalation.
Pectin methylesterase: May cause sensitization by inhalation.
(e) germ cell mutagenicity: Glycerol: Not classified
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(f) carcinogenicity: Glycerol: Not classified
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
Arabinanase: Not available
Pectin lyase: Unavailable

Pectin methylesterase: Unavailable
(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable
(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
Arabinanase: Once sensitized, a severe allergic reaction may occur upon subsequent exposure to very low levels.
Pectin lyase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
Pectin methylesterase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
Arabinanase: Not available
Pectin lyase: Unavailable
Pectin methylesterase: Unavailable

11.2. Information on other hazards

No data available.

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss EC50-48 h - Daphnia 1955 mg / l
EC50-72 h - algae 3200 mg / l Entosiphon sulcatum

Arabinanase:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg / l / 48h): not available
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available
Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available

Pectin lyase:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg / l / 48h): not available
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available
Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available

Pectin methylesterase:
Acute toxicity - fish LC50 (mg/l/96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h): not available
Acute algae toxicity ErC50 (mg/l/72-96h): not available
Chronic toxicity - fish NOEC (mg/l): not available
Chronic toxicity - crustaceans NOEC (mg/l): not available
Chronic algae toxicity NOEC (mg/l): not available

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance
ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

Arabinanase:
Not available

Pectin lyase:
Readiily biodegradable

Pectin methylesterase:
not available

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

Arabinanase:
Not available

Pectin lyase:
not available

Pectin methylesterase:
not available

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

Arabinanase:
Not available

Pectin lyase:
not available

Pectin methylesterase:
not available

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or contained substances (All. XVII Reg. EC 1907/2006): not applicable
Substances in Candidate List (art. 59 Reg. EC 1907/2006): the product does not contain SVHC in a proportion ≥ 0.1%.
Substances subject to authorisation (Ann. XIV Reg. CEC 1907/2006): the product does not contain SVHC in a proportion ≥ 0.1%.
Reg. (EU) n. 1169/2011: see 2.2
Regulation (EU) 1332/2008; see p.2.2

REGULATION (EU) No 1357/2014 - waste:
HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Regulation (UE) n. 1169/2011 (on the provision of food information to consumers)
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.
Regulation (EU) 1332/2008 (Food enzymes)

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable

n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
• ECHA Registered Substances:
• https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances
• SDS supplier
• GESTIS DNEL Database: http://www.dguv.de/ifa/gestis/gestis-dnel-datenbank/index-2.jsp
• GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition. (IIXX)

Changes to the previous edition: first issue.

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Glucalyse 2.0
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
Tel. +39.030.2307.1 Fax +39.030.2307281
E-mail: info@aeb-group.com - Internet: www.aeb-group.com
E-mail tecnico competente/technical dept.: sds@aeb-group.com

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Email: info@aebusa.com - Internet: www.aeb-group.com

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18 Track Crescent, Cor. Station Road
Montague Gardens 7441
Cape Town (South Africa)
Tel.: +27 215512700 - Fax: +27 (0) 215511919
Email: info@aeb.co.za - Internet: www.aeb-group.com

AEB OCEANIA PTY LTD
178A Wakaden Street
Griffith NSW 2680
T: 1300 704 971
Email: aeboceania@aeb-group.com - Internet: www.aeb-group.com

Produced by
AEB FRANCE Sarl - 10, rue du Stade - 68240 KAYSERSBERG-VIGNOBLE, France

1.4. Emergency telephone number

AEB SpA
Centralino/Switchboard: +39.030.2307.1 - (h 8.30-12.00 13.30-18.00 GMT +1; Lingua/Language: Italiano, English)

AEB USA
Switchboard: +1 2096258139 (GMT -8; Language: English)

AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.1.2 Additional information:

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Supplemental Hazard statement Code(s):
not applicable

Precautionary statements:

Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

Contains: beta-glucanase (β1-3, β1-6), polygalacturonase

Ingredients: glycerol, beta-glucanase (ß1-3, ß1-6), potassium chloride, ammonium sulphate, polygalacturonase, potassium sorbate, water q.s. to 100.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply
Do not ingest. Keep out of reach of children.

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Substance	Concentration[w/w]	Classification	IUB number	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
Beta-glucanase (β1-3, β1-6)	>= 5 < 10%	Resp. Sens. 1, H334	3.2.1.6	62213-14-3	263-462-4	
potassium chloride	>= 3 < 5%			7447-40-7	231-211-8	

Substance	Concentration[w/w]	Classification	IUB number	CAS	EINECS	REACh
substance for which there are Community workplace exposure limits						
polygalacturonase	>= 1 < 2,5%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation: ventilate the environment. Immediately remove the patient from the contaminated environment and keep him at rest in a well-ventilated area. In case of malaise consult a doctor.
Direct contact with the skin (of the pure product): wash thoroughly with soap and water.
Direct contact with the eyes (of the pure product): rinse immediately with running water for 10-15 minutes, keeping the eyelid open. Remove contact lenses if they are worn and can be easily removed.
Ingestion: drink water in sips. Consult a doctor if you experience symptoms.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.
Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact and inhalation of vapors
Handle the product after consulting all other sections of this safety data sheet.

At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3
USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
ground = 0,141 (mg/kg ground)

- Substance: Beta-glucanase (β1-3,
β1-6)
PNEC
Sweet water = 0,0052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
STP = 10 (mg/l)

- Substance: polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection
(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.
(ii) Other
Wear normal work clothing
(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Viscous liquid	
Colour	Brown to brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4.5 - 6.5	

Physical and chemical properties	Value	Determination method
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0.950 - 1.300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

Irrilevant

9.2.2 Other safety characteristics

Irrilevant

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
Glycerol:
Reacts with: Strong acids. Strong foundations

Beta-glucanase (β1-3,
β1-6):
Not relevant.

potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

polygalacturonase:
Non pertinent.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

Beta-glucanase (β1-3,
β1-6):
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

potassium chloride:
None under recommended storage and handling conditions.

polygalacturonase:
None.

10.5. Incompatible materials

No one in particular

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Beta-glucanase (β1-3,
β1-6): Ingestion - LD50 rat (mg/kg/24h bw): > 2000
Skin contact - LC50 rabbit (mg/kg/24h bw): nd

Inhalation - LC50 rat (mg/l/4h): 2.42
potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd
(b) skincorrosion/irritation: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Irritating
(c) serious eye damage/irritation: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Irritating
(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
potassium chloride: Unclassified
polygalacturonase: May cause sensitization by inhalation
(e) germ cell mutagenicity: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable
(f) carcinogenicity: Glycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable
(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
Beta-glucanase (β1-3,
β1-6): Unavailable
potassium chloride: Unclassified
polygalacturonase: Unavailable
(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
Beta-glucanase (β1-3,
β1-6): Not classified
potassium chloride: Unclassified
polygalacturonase: Unavailable

(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
Beta-glucanase (β1-3,
β1-6): May cause sensitization by inhalation
potassium chloride: Unclassified
polygalacturonase: Unavailable

11.2. Information on other hazards

No data available.

11.2.1. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss
EC50-48 h - Daphnia 1955 mg / l
EC50-72 h - algae 3200 mg / l Entosiphon sulcatum
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Beta-glucanase (β1-3,
β1-6):
Acute toxicity - fish LC50 (mg / l / 96h): nd
Acute toxicity - crustaceans EC50 (mg / l / 48h): nd
Acute toxicity to algae ErC50 (mg / l / 72-96h): nd
Chronic toxicity - fish NOEC (mg / l): nd
Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity to algae NOEC (mg / l): nd
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.

Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance
ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

Beta-glucanase (β1-3,
β1-6):
Easily biodegradable

potassium chloride:
It does not apply to inorganic substances.

polygalacturonase:
Unavailable

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

Beta-glucanase (β1-3,
β1-6):
No bioaccumulation potential

potassium chloride:
It does not apply to inorganic substances.

polygalacturonase:
Unavailable

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

Beta-glucanase (β1-3,
β1-6):
Unavailable

potassium chloride:
It must have been very mobile in the ground.

polygalacturonase:
Unavailable

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.

Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1333/2008; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

REGULATION (EU) No 1357/2014 - waste:HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value

vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition. (IIXX)

Changes to the previous edition: first issued

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM Elevage 2.0
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
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Produced by
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1.4. Emergency telephone number

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AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.1.2 Additional information:

For full text of Hazard- and EU Hazard-statements: see SECTION 16.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements:
Prevention
P261 - Avoid breathing vapours/spray.
P284 - In case of inadequate ventilation wear respiratory protection.

Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

Contains:
betaglucanase (ß1-3, ß1-6), polygalacturonase, pectinmethylesterase.

Ingredients: glycerol, potassium chloride, betaglucanase (ß1-3, ß1-6), ammonium sulphate, polygalacturonase, pectinmethylesterase, potassium sorbate, water qs to 100.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use.

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
Glycerol substance for which there are Community workplace exposure limits	>= 25 < 50%			56-81-5	200-289-5	
potassium chloride substance for which there are Community workplace exposure limits	>= 3 < 5%			7447-40-7	231-211-8	
Beta-glucanase (β1-3, β1-6)	>= 2,5 < 3%	Resp. Sens. 1, H334	3.2.1.6	62213-14-3	263-462-4	

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
polygalacturonase	>= 1 < 2,5%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	
Pectin methylesterase	>= 0,1 < 1%	Resp. Sens. 1, H334	3.1.1.11	9025-98-3	232-807-0	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Rinse immediately under running water for 10 to 15 minutes, keeping the eyelid open. Remove contact lenses if worn and if they can be easily removed.

Ingestion:
Drink water in sips. Consult a doctor in case of symptoms.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTERor a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills with earth or sand.
If the product has entered a watercourse, sewers or has contaminated soil or vegetation, notify the authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for removal. Possibly absorb it with inert materia or sucked it.
Prevent it from entering the sewer system.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Avoid contact and inhalation of vapors
Handle the product after consulting all other sections of this safety data sheet.

At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Glycerol:
Limit value - Eight hours
Australia 10 (1) mg/m3
Belgium 10 mg/m3
Canada - Ontario 10 mg/m3
Canada - Quebec 10 mg/m3
Finland 20 mg/m3
France 10 mg/m3
Germany (AGS) 200 (1) mg/m3
Germany (DFG) 200 (1) mg/m3
Ireland 10 mg/m3
New Zealand 10 (1) mg/m3
Poland 10 mg/m3
Singapore 10 mg/m3
South Africa Mining 10 ppm
South Korea 10 mg/m3
Spain 10 mg/m3
Switzerland 50 inhalable aerosols mg/m3
USA - OSHA 15 (1) mg/m3
5 (2) mg/m3
United Kingdom 10 mg/m3

Limit value - Short-term
Germany (AGS) 400 (1)(2) mg/m3
Germany (DFG) 400 (1)(2) mg/m3
Switzerland 100 inhalable aerosols mg/m3

Remarks
Australia (1) This value refers to inhalable dust containing no asbestos and < 1% crystalline silica.
Germany (AGS) (1) Inhalable fraction (2) Average value 15 minutes
Germany (DFG) (1) Inhalable fraction (2) Average value 15 minutes
New Zealand (1) The value for inhalable dusts containing no asbestos and less than 1% free silica.
USA - OSHA (1) Inhalable fraction (2) Breathable fraction

potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

- Substance: Glycerol
DNEL
Systemic effects Long term Workers inhalation = 56 (mg/m3)
PNEC
Sweet water = 0,885 (mg/l)
sediment Sweet water = 3,3 (mg/kg/sediment)
Sea water = 0,088 (mg/l)
sediment Sea water = 0,33 (mg/kg/sediment)
ground = 0,141 (mg/kg ground)

- Substance: potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
STP = 10 (mg/l)

- Substance: Beta-glucanase (β1-3,β1-6)
PNEC
Sweet water = 0,0052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(ii) Other
Wear normal work clothing.

(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Viscous liquid	
Colour	brune to brown	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4.5 - 6.5	

Physical and chemical properties	Value	Determination method
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	0.950 - 1.300	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

Irrilevant

9.2.2 Other safety characteristics

Irrilevant

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
Glycerol:
Reacts with: Strong acids. Strong foundations

potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

Beta-glucanase (β1-3,β1-6):
Not relevant.

polygalacturonase:
Non pertinent.

Pectin methylesterase:
Not relevant.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:
Glycerol:
Humidity

potassium chloride:
None under recommended storage and handling conditions.

Beta-glucanase (β1-3,β1-6):
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

polygalacturonase:
None.

Pectin methylesterase:
Not available

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Glycerol: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
Beta-glucanase (β1-3,
β1-6): Ingestion - LD50 rat (mg/kg/24h bw): > 2000
Skin contact - LC50 rabbit (mg/kg/24h bw): nd
Inhalation - LC50 rat (mg/l/4h): 2.42
polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd
Pectin methylesterase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available

(b) skincorrosion/irritation: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Not corrosive
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Irritating
Pectin methylesterase: Not irritating

(c) serious eye damage/irritation: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Not corrosive
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Irritating
Pectin methylesterase: Not irritating

(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
polygalacturonase: May cause sensitization by inhalation
Pectin methylesterase: May cause sensitization by inhalation.

(e) germ cell mutagenicity: Glycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(f) carcinogenicity: Glycerol: Not classified

potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(g) eproductivetoxicity: Glycerol: Not classified - Does not affect fertility. Non-toxic for development.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(h) specific target organ toxicity (STOT) single exposure: Glycerol: Not classified Ingestion may cause nausea, vomiting and avoidance.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Unavailable
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

(i) specific target organ toxicity (STOT) repeated exposureGlycerol: Not classified
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): Not classified
polygalacturonase: Unavailable
Pectin methylesterase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.

(j) aspiration hazard: Glycerol: Inhalation: May cause irritation to the respiratory tract and other mucous membranes.
potassium chloride: Unclassified
Beta-glucanase (β1-3,
β1-6): May cause sensitization by inhalation
polygalacturonase: Unavailable
Pectin methylesterase: Unavailable

11.2. Information on other hazards

No data available.

11.2.1. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Glycerol:
Acute aquatic toxicity: Not classified
Chronic aquatic toxicity: Not classified
LC50-96 h - fish 54000 mg / l Oncorhynchus mykiss
EC50-48 h - Daphnia 1955 mg / l

EC50-72 h - algae 3200 mg / l Entosiphon sulcatum
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Beta-glucanase (β1-3,β1-6):
Acute toxicity - fish LC50 (mg / l / 96h): nd
Acute toxicity - crustaceans EC50 (mg / l / 48h): nd
Acute toxicity to algae ErC50 (mg / l / 72-96h): nd
Chronic toxicity - fish NOEC (mg / l): nd
Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity to algae NOEC (mg / l): nd
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.
Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Pectin methylesterase:
Acute toxicity - fish LC50 (mg/l/96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h): not available
Acute algae toxicity ErC50 (mg/l/72-96h): not available
Chronic toxicity - fish NOEC (mg/l): not available
Chronic toxicity - crustaceans NOEC (mg/l): not available
Chronic algae toxicity NOEC (mg/l): not available
Acute toxicity M-factor = 1
Chronic toxicity M-factor = 1

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Glycerol:
Persistence and degradability Readily biodegradable.
COD value 1.16 g O2 / g substance

ThOD (gO2 / g) 1.217 g O2 / g substance
BOD (% of ThOD) 71% DTO

potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase (β1-3,β1-6):
Easily biodegradable

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.3. Bioaccumulative potential

==========
Related to contained substances:
Glycerol:
Log P octanol / water at 20 ° C -1.76 - 2.6
Kow log -1.76 Bioaccumulative potential
Not expected to bioaccumulate.

potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase (β1-3,β1-6):
No bioaccumulation potential

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.4. Mobility in soil

==========
Related to contained substances:
Glycerol:
ground Product that penetrates easily into the ground.

potassium chloride:
It must have been very mobile in the ground.

Beta-glucanase (β1-3,β1-6):
Unavailable

polygalacturonase:
Unavailable

Pectin methylesterase:
not available

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

Based on available data, there are no substances that interfere with the Endocrine System in accordance with Regulation (EU) 2017/2100

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.

Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1333/2008; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

REGULATION (EU) No 1357/2014 - waste:HP13 - Sensitising

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Points modified from previous revision:- 2.2. Label elements - 3.2 Composition/information on ingredients - Mixtures - 7.Handling and storage- 8.2 Exposure controls- 9.1 Information on basic physical and chemical properties - 10.Stability and reactivity- 11.1
Information on hazard classes as defined in Regulation (EC) No 1272/2008 -12.Ecological information- 15- Regulatory information- 16. Other information

Description of hazard statements set out in paragraph 3
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition.

Changes to the previous edition: first emission.

SECTION 1. Identification of the substance/mixture and of the company/enterprise

1.1. Product identifier

Product name : ENDOZYM β - Split
Product code: refer to sales department

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

Enzyme preparations
Sectors of use:
Manufacture of food products[SU4]
Product category:
Technological adjuvant

Not recommended uses
Do not use for purposes other than those listed

1.3. Details of the supplier of the safety data sheet

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
Tel. +39.030.2307.1 Fax +39.030.2307281
E-mail: info@aeb-group.com - Internet: www.aeb-group.com
E-mail tecnico competente/technical dept.: sds@aeb-group.com

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Email: aeboceania@aeb-group.com - Internet: www.aeb-group.com

Produced by
AEB FRANCE Sarl - 10, rue du Stade - 68240 KAYSERSBERG-VIGNOBLE, France

1.4. Emergency telephone number

AEB SpA
Centralino/Switchboard: +39.030.2307.1 - (h 8.30-12.00 13.30-18.00 GMT +1; Lingua/Language: Italiano, English)

AEB USA
Switchboard: +1 2096258139 (GMT -8; Language: English)

AEB AFRICA (PTY) LTD
Switchboard: +27 215512700 (GMT +1; Language: English, Afrikaans)

AEB OCEANIA PTY LTD
Switchboard: +61 1300 704 971 (GMT +9; Language: English)

SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

2.1.1 Classification according to Regulation (EC) No 1272/2008:

Pictograms:
GHS08

Hazard Class and Category Code(s):
Resp. Sens. 1

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

The product, if inhaled, can cause sensitization.

2.2. Label elements

Labelling according to Regulation (EC) No 1272/2008:

Pictogram, Signal Word Code(s):
GHS08 - Danger

Hazard statement Code(s):
H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements:
Prevention
P261 - Avoid breathing dust.
P284 - In case of inadequate ventilation wear respiratory protection.
Response
P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P342+P311 - If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

Contains:
Polygalacturonase, pectin lyase, beta glucanase.

Ingredients : Maltodextin, polygalacturonase, ammonium sulphate, pectin lyase, potassium chloride, beta-glucanase, potassium sorbate.

Food use, oenological use. Not intended for the final consumer. In accordance with current regulations on the specific matter. Only for industrial use

2.3. Other hazards

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

The use of this chemical agent implies the obligation of the "risk assessment" by the employer according to the provisions of Legislative Decree April 9, 2008 no. 81 and subsequent amendments. If the results of the risk assessment demonstrate that, in relation to the type, quantity, methods and frequency of exposure, there is only a low risk for the safety and irrelevant for the health of the workers and that the measures referred to in paragraph 1 of Legislative Decree April 9, 2008 no. 81 are sufficient to reduce the risk, the provisions of articles 225, 226, 229, 230 of the same Legislative Decree do not apply

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

Refer to paragraph 16 for full text of hazard statements

Substance	Concentration[w/w]	Classification	IUB N°	CAS	EINECS	REACh
Polygalacturonase	>= 1,5 < 5%	Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335	3.2.1.15	9032-75-1	232-885-6	
Pectin lyase	>= 0,3 < 2,5%	Resp. Sens. 1, H334	4.2.2.10	9033-35-6	232-894-5	
Potassium chloride substance for which there are Community workplace exposure limits	>= 0,01 < 2,5%			7447-40-7	231-211-8	
Beta-glucanase	>= 0,01 < 1%	Resp. Sens. 1, H334	3.2.1.6	62213-14-3	263-462-4	

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation:
Ventilate the area. Move immediately the contaminated patient from the area and keep him at rest in a well ventilated area. If you feel unwell seek medical advice.

Direct contact with skin (of the pure product).:
Wash thoroughly with soap and running water.

Direct contact with eyes (of the pure product).:
Rinse immediately under running water for 10 to 15 minutes, keeping the eyelid open. Remove contact lenses if worn and if they can be easily removed.

Ingestion:
Not dangerous. In case of malaise consult a doctor.

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTER or a doctor.

SECTION 5. Firefighting measures

5.1. Extinguishing media

Suggested extinguishing media:
Water spray, CO2, foam, dry chemical, depending on the materials involved in the fire.

Extinguishing media to avoid:
Water jets. Use water jets only to cool the surfaces of the containers exposed to fire.

5.2. Special hazards arising from the substance or mixture

No data available.

5.3. Advice for firefighters

Use protection for the breathing apparatus
Safety helmet and full protective clothing.
The water spray can be used to protect the people involved in the extinction.
You may also use self-contained breathing apparatus, especially when working in confined and poorly ventilated areas.
Keep containers cool with water spray

SECTION 6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1 For non-emergency personnel:
Leave the area surrounding the spill or release. Do not smoke
Wear gloves and protective clothing

6.1.2 For emergency responders:
Eliminate all unguarded flames and possible sources of ignition. No smoking.
Privide a sufficient ventilation.
Evacuate the danger area and, in case, consult an expert.

6.2. Environmental precautions

Contain spills
Inform the competent authorities.
Dispose of the waste material in compliance with the regulations

6.3. Methods and material for containment and cleaning up

6.3.1 Containment:
Rapidly recover the product, wear a mask and protective clothing (for specifications refer to section 8.2. SDS)
Recover the product for reuse, if possible, or for elimination.

6.3.2 Cleaning up:
After wiping up, wash with water the area and materials involved

6.3.3 Other information:
None in particular.

6.4. Reference to other sections

Refer to paragraphs 8 and 13 for more information

SECTION 7. Handling and storage

7.1. Precautions for safe handling

Handle the product after consulting all other sections of this safety data sheet.
At work do not eat or drink.
See also paragraph 8 below.

7.2. Conditions for safe storage, including any incompatibilities

Keep in original container closed tightly. Do not store in open or unlabelled containers.
Keep containers upright and safe by avoiding the possibility of falls or collisions.
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

7.3. Specific end use(s)

Manufacture of food products:
Store in its original sealed packaging away from light in a cool dry place free of odors, at a temperature < 20°C. Do not freeze. Batch number (BN) and Best before date (EXP): See Barcode.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

==========
Related to contained substances:
Potassium chloride:
Limit value - Eight hours
Latvia: 5 mg/m³

- Substance: Polygalacturonase
PNEC
Sweet water = 0,0237 (mg/l)
Sea water = 0,0237 (mg/l)
intermittent emissions = 0,237 (mg/l)
STP = 65 (mg/l)
ground = 0,00376 (mg/kg ground)

- Substance: Pectin lyase
PNEC
Sweet water = 0,052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

- Substance: Potassium chloride
DNEL
Systemic effects Long term Workers inhalation = 1064 (mg/m3)
Systemic effects Long term Workers dermal = 303 (mg/kg bw/day)
Systemic effects Long term Consumers inhalation = 273 (mg/m3)
Systemic effects Long term Consumers dermal = 182 (mg/kg bw/day)
Systemic effects Long term Consumers oral = 91 (mg/kg bw/day)
Systemic effects Short term Workers inhalation = 5320 (mg/m3)
Systemic effects Short term Workers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers inhalation = 1365 (mg/m3)
Systemic effects Short term Consumers dermal = 910 (mg/kg bw/day)
Systemic effects Short term Consumers oral = 455 (mg/kg bw/day)
PNEC
Sweet water = 0,1 (mg/l)
Sea water = 0,1 (mg/l)
intermittent emissions = 1 (mg/l)
STP = 10 (mg/l)

- Substance: Beta-glucanase
PNEC
Sweet water = 0,0052 (mg/l)
Sea water = 0,00052 (mg/l)
STP = 65 (mg/l)
ground = 0,001 (mg/kg ground)

8.2. Exposure controls

Appropriate engineering controls:
Manufacture of food products:
No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

8.2.2 Individual protection measures:

(a) Eye / face protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations.

(b) Skin protection

(i) Hand protection
Not needed for normal use, unless otherwise provided by the employer and / or by assessments of environmental hygiene investigations
.

(ii) Other
Wear normal work clothing.

(c) Respiratory protection
Use adequate protective respiratory equipment (EN 14387:2008)

(d) Thermal hazards
No hazard to report

Environmental exposure controls:
Use according to good working practices and avoid to disperse the product into the environment.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical and chemical properties	Value	Determination method
Physical state	Fine to semi-granular powder	
Colour	Light beige to beige	
Odour	not determined as considered not relevant for the characterization of the product	
Odour threshold	not determined as considered not relevant for the characterization of the product	
Melting point/freezing point	not determined as considered not relevant for the characterization of the product	
Boiling point or initial boiling point and boiling range	not determined as considered not relevant for the characterization of the product	

Physical and chemical properties	Value	Determination method
Flammability	not determined as considered not relevant for the characterization of the product	
Lower and upper explosion limit	not determined as considered not relevant for the characterization of the product	
Flash point	not determined as considered not relevant for the characterization of the product	
Auto-ignition temperature	not determined as considered not relevant for the characterization of the product	
Decomposition temperature	not determined as considered not relevant for the characterization of the product	
pH	4 - 5.5 (Solution 1%)	
Kinematic viscosity	not determined as considered not relevant for the characterization of the product	
Solubility	soluble in water	
Water solubility	miscible in all proportions	
Partition coefficient n-octanol/water (log value)	not determined as considered not relevant for the characterization of the product	
Vapour pressure	not determined as considered not relevant for the characterization of the product	
Density and/or relative density	not determined as considered not relevant for the characterization of the product	
Relative vapour density	not determined as considered not relevant for the characterization of the product	
Particle characteristics	not determined as considered not relevant for the characterization of the product	

9.2. Other information

9.2.1 Information with regard to physical hazard classes

No data available.

9.2.2 Other safety characteristics

No data available.

SECTION 10. Stability and reactivity

10.1. Reactivity

==========
Related to contained substances:
Polygalacturonase:
Non pertinent.

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

Potassium chloride:
The product is not reactive under normal conditions of use, storage and transport.

Beta-glucanase:
Not relevant.

10.2. Chemical stability

No hazardous reaction when handled and stored according to provisions.

10.3. Possibility of hazardous reactions

There are no hazardous reactions

10.4. Conditions to avoid

==========
Related to contained substances:
Polygalacturonase:
None.

Pectin lyase:
None under recommended storage and handling conditions.

Potassium chloride:
None under recommended storage and handling conditions.

Beta-glucanase:
Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.

10.5. Incompatible materials

None in particular.

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

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

(a) acute toxicity: Polygalacturonase: Ingestion - LD50 rat (mg / kg / 24h bw): nd
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): nd
Inhalation - LD50 rat (mg / l / 4h): nd
Pectin lyase: Ingestion - LD50 rat (mg / kg / 24h bw): not available
Skin contact - LC50 rat / rabbit (mg / kg / 24h bw): not available
Inhalation - LD50 rat (mg / l / 4h): not available
Potassium chloride: Ingestion - DL50 rat (mg / kg / 24h pc): 3020
Contact avec la peau - CL50 rat / lapin (mg / kg / 24h pc): n.d.
Inhalation - DL50 rat (mg / l / 4h): n.d.
Beta-glucanase: Ingestion - LD50 rat (mg/kg/24h bw): > 2000
Skin contact - LC50 rabbit (mg/kg/24h bw): nd
Inhalation - LC50 rat (mg/l/4h): 2.42

(b) skincorrosion/irritation: Polygalacturonase: Unavailable
Pectin lyase: Not corrosive
Potassium chloride: Unclassified
Beta-glucanase: Unavailable
Polygalacturonase: Irritating
Pectin lyase: Not irritating
Potassium chloride: Unclassified
Beta-glucanase: Not classified

(c) serious eye damage/irritation: Polygalacturonase: Unavailable
Pectin lyase: Not corrosive
Potassium chloride: Unclassified
Beta-glucanase: Unavailable
Polygalacturonase: Irritating
Pectin lyase: Not irritating
Potassium chloride: Unclassified
Beta-glucanase: Unavailable

(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Polygalacturonase: May cause sensitization by inhalation
Pectin lyase: Sensitizer: May cause sensitization by inhalation.
Potassium chloride: Unclassified
Beta-glucanase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.

(e) germ cell mutagenicity: Polygalacturonase: Unavailable
Pectin lyase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Not classified

(f) carcinogenicity: Polygalacturonase: Unavailable
Pectin lyase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Not classified

(g) eproductivetoxicity: Polygalacturonase: Unavailable
Pectin lyase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Unavailable

(h) specific target organ toxicity (STOT) single exposure: Polygalacturonase: Unavailable
Pectin lyase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Unavailable

(i) specific target organ toxicity (STOT) repeated exposurePolygalacturonase: Unavailable
Pectin lyase: Once sensitized, a severe allergic reaction can occur upon subsequent exposure to very low levels.
Potassium chloride: Unclassified
Beta-glucanase: Not classified

(j) aspiration hazard: Polygalacturonase: Unavailable
Pectin lyase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: May cause sensitization by inhalation

11.2. Information on other hazards

No data available.

SECTION 12. Ecological information

12.1. Toxicity

==========
Related to contained substances:
Polygalacturonase:
Acute toxicity - fish LC50 (mg / l / 96h): n.a.
Acute toxicity - crustaceans EC50 (mg / l / 48h): n.a.
Acute toxicity algae ErC50 (mg / l / 72-96h): n.a
Chronic toxicity - fish NOEC (mg / l): n.a
Chronic toxicity - crustaceans NOEC (mg / l): n.a
Chronic toxicity algae NOEC (mg / l): n.a

Pectin lyase:
Acute toxicity - fish LC50 (mg / l / 96h): not available
Acute toxicity - crustaceans EC50 (mg/l/48h) [1]: 2000 mg/l
Acute toxicity - crustaceans EC50 (mg/l/48h) [2]: 212 mg/l
Acute toxicity algae ErC50 (mg / l / 72-96h): not available
Chronic toxicity - fish NOEC (mg / l): not available
Chronic toxicity - shellfish NOEC (mg / l): not available
Chronic toxicity algae NOEC (mg / l): not available

Potassium chloride:
Acute toxicity - fish LC50 (mg / l / 96h): 880 (Pimephales promelas; (OECD method 203))
Acute toxicity - crustaceans EC50 (mg / l / 48h): 440 (Daphniamagna; (OECD method 202))
Acute toxicity algae EC50 (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))
Chronic toxicity - fish NOEC (mg / l): nd Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity algae NOEC (mg / l / 72h):> 100 (Desmodesmus subspicatus; (method OECD 201))

Beta-glucanase:
Acute toxicity - fish LC50 (mg / l / 96h): nd
Acute toxicity - crustaceans EC50 (mg / l / 48h): nd
Acute toxicity to algae ErC50 (mg / l / 72-96h): nd
Chronic toxicity - fish NOEC (mg / l): nd
Chronic toxicity - crustaceans NOEC (mg / l): nd
Chronic toxicity to algae NOEC (mg / l): nd

Use according to good working practices and avoid to disperse the product into the environment.

12.2. Persistence and degradability

==========
Related to contained substances:
Polygalacturonase:
Unavailable

Pectin lyase:
Readiily biodegradable

Potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase:
Easily biodegradable

12.3. Bioaccumulative potential

==========
Related to contained substances:
Polygalacturonase:
Unavailable

Pectin lyase:
not available

Potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase:
No bioaccumulation potential

12.4. Mobility in soil

==========
Related to contained substances:
Polygalacturonase:
Unavailable

Pectin lyase:
not available

Potassium chloride:
It must have been very mobile in the ground.

Beta-glucanase:
Unavailable

12.5. Results of PBT and vPvB assessment

Based on the available data, no PBT or vPvB substances are present in accordance with Regulation (EC) 1907/2006, annex XIII

12.6. Endocrine disrupting properties

No data available.

12.7. Other adverse effects

No adverse effects

SECTION 13. Disposal considerations

13.1. Waste treatment methods

Do not reuse empty containers. Dispose of them in accordance with the regulations in force. Any remaining product should be disposed of according to applicable regulations by addressing to authorized companies.
Recover if possible. Operate according to local or national regulations

SECTION 14. Transport information

14.1. UN number or ID number

Not included in the field of application of regulations concerning the transport of dangerous goods: by road (ADR); by rail (RID); by air (ICAO / IATA); by sea (IMDG).

14.2. UN proper shipping name

None

14.3. Transport hazard class(es)

None

14.4. Packing group

None

14.5. Environmental hazards

None

14.6. Special precautions for user

No data available.

14.7. Maritime transport in bulk according to IMO instruments

Transport in bulk is not foreseen

SECTION 15. Regulatory information

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

Restrictions relating to the product or the substances contained (Annex XVII EC Reg. 1907/2006): not applicable
Substances in Candidate list (art. 59 EC Reg. 1907/2006): the product does not contain SVHC in percentage = a 0.1 %.

Regulation (EU) 1169/2011: see point 2.2
Regulation (EU) 1308/2013; see point 2.2
Regulation (EC) 1332/2008; see point 2.2

15.2. Chemical safety assessment

No chemical safety assessment was carried out by the supplier

SECTION 16. Other information

16.1. Other information

Points modified from previous revision: 1.2. Relevant identified uses of the substance or mixture and uses advised against - 2.2. Label elements - 3.2 Composition/information on ingredients - Mixtures - 7. Handling and storage- 8.2 Exposure controls- 9.1 Information on basic physical and chemical properties - 10.Stability and reactivity- 11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008 -12.Ecological information- 15- Regulatory information- 16. Other information

Description of hazard statements set out in paragraph 3
H315 = Causes skin irritation.
H319 = Causes serious eye irritation.
H334 = May cause allergy or asthma symptoms or breathing difficulties if inhaled
H335 = May cause respiratory irritation.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Classification according to Regulation (EC) Nr. 1272/2008

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled Classification procedure: Calculation method

Main normative references:
Reg. (CE) n. 1907 del 18/12/06 REACH (Registration, Evaluation and Authorisation of CHemicals) et seq.
Reg. (CE) 1272/2008 CLP (Classification Labelling and Packaging) et seq.
Directive 2012/18/EU (on the control of major-accident hazards involving dangerous substances) et seq.

Training required: This document must be submitted to the employer to determine the possible need for appropriate training for workers to ensure protection of human health and the environment.

n.a.: not applicable
n.d.: not available
ADR: Accord europèen relative au transport International des merchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
ATE: Acute Toxicity Estimat
BFC: BioconCentration Factor
BOD: Biochemical Oxigen Demand
CAS: Chemical Abstract Service number
CAP: Centre AntiPoison
CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)
CL50/LC50: Lethal Concentration 50
DL50/LD50: Lethal Dose 50
COD: Chemical Oxygen Demand
DNEL: Derived No Effect Level
EC50: half maximal Effective Concentration
ERC: Enviroment Release Classes
EU/UE: European Union
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods code
Kow: Octanol water partition coefficient
NOEC: No Observed Effect Concentration
OEL: Occupational Exposure Limit
PBT: Persistent Bioaccumulative and Toxic
PC: Product Categories
PNEC: Predicted No Effect Concentration
PROC: Process Categories
RID: Règlement concernent le transport International ferroviaire des merchandises dangereuses (Regulations concerning International rail transport of dangerous goods)
STOT: Target Organ Systemic Toxicity
STOT (RE): Repeated Exposure
STOT (SE): Single Exposure
STP: Sewage Treatment Plants
SU: Sector of Use
SVCH: Substance of Very High Concern
TLV: Threshold Limit Value
vPvB: Very Persistent Very Bioaccumulative

References and Sources:
- ECHA Registered Substances:
https://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

- SDS raw material supplier

- GESTIS International Limit Value: http://limitvalue.ifa.dguv.de

This msds was made in good faith by technical Office on the basis of the information available at the date of the last revision. The person in charge must regularly inform the employees about the specific risks they encounter when using

this substance/product. The information contained here relate only to the substance/the preparation indicated and may not apply if the product is used improperly or in combination with others. Nothing contained herein shall be construed as a guarantee, either express or implied. It is the responsibility of the user to ensure the opportunities and completeness of the information contained herein for their own particular use.

*** this tab annuls and replaces any previous edition.

Changes to the previous edition: General update.