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

1.1. Product identifier

Product name : ENDOZYM Antibotrytis
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

AEB USA
111 N Cluff Avenue
Lodi CA 95240 (USA)
Tel: +1 2096258139 Fax: +1 2092248953
Email: info@aebusa.com - Internet: www.aeb-group.com

AEB AFRICA (PTY) LTD
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.

2.2. 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:
Pectin lyase, polygalacturonase, beta-glucanase.

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

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

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
Do not ingest.

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
Pectin lyase	>= 1 < 5%	Resp. Sens. 1, H334	4.2.2.10	9033-35-6	232-894-5	
Polygalacturonase	>= 1 < 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	
Potassium chloride substance for which there are Community workplace exposure limits	>= 1 < 5%			7447-40-7	231-211-8	
Beta-glucanase	>= 0,05 < 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 eye lid 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 the original sealed packaging, away from light, in a cool, dry, odour-free place and at a temperature < 20°C. Do not freeze. Batch number (BN) and best before date (EXP): see barcodes.

7.3. Specific end use(s)

Manufacture of food products:
Store in the original sealed packaging, away from light, in a cool, dry, odour-free place and at a temperature < 20°C. Do not freeze. Batch number (BN) and best before date (EXP): see barcodes.

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: 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: 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: 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 powder to semi granulated	
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	

Physical and chemical properties	Value	Determination method
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 (solution 1%)	
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	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:
Pectin lyase:
The product is non-reactive under normal conditions of use, storage and transport.

Polygalacturonase:
Non pertinent.

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:
Pectin lyase:
None under recommended storage and handling conditions.

Polygalacturonase:
None.

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: 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
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
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: Pectin lyase: Not corrosive
Polygalacturonase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Unavailable
Pectin lyase: Not irritating
Polygalacturonase: Irritating
Potassium chloride: Unclassified
Beta-glucanase: Not classified

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

(d) respiratoryorskinsensitisation: The product, if inhaled, can cause sensitization.
Pectin lyase: Sensitizer: May cause sensitization by inhalation.
Polygalacturonase: 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: Pectin lyase: Unavailable
Polygalacturonase: Unavailable
Potassium chloride: Unclassified
Beta-glucanase: Not classified

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

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

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

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

(j) aspiration hazard: Pectin lyase: Unavailable
Polygalacturonase: 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:
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

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

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:
Pectin lyase:
Readiily biodegradable

Polygalacturonase:
Unavailable

Potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase:
Easily biodegradable

12.3. Bioaccumulative potential

==========
Related to contained substances:
Pectin lyase:
not available

Polygalacturonase:
Unavailable

Potassium chloride:
It does not apply to inorganic substances.

Beta-glucanase:
No bioaccumulation potential

12.4. Mobility in soil

==========
Related to contained substances:
Pectin lyase:
not available

Polygalacturonase:
Unavailable

Potassium chloride:
Should be highly mobile in the soil

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 version:2.2 Label elements -3. Composition/information on ingredients- 7.3 Specific end uses- 8.1. Control parameters- 8.2. Exposure controls- 9. Physical and Chemical properties- 10. Stability and reactivity- 11.Toxicological information- 12. Ecological 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 to Reg 878/2020