

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

1.1. Product identifier

Product name : ENDOZYM THERMOSTEP 1
Product code: refer to sales department

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

Enzyme

Sectors of use:

Industrial Manufacturing[SU3], Manufacture of food products[SU4], Public domain (administration, education, entertainment, services, craftsmen)[SU22]

Product category:

Process aid for enological use

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.

2.2. 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:

POLYGALACTURONASE (PG), pectin METHYLESTEREASE (PME), pectin LYASE (PL), β -GLUCANASE, AMMONIUM SULPHATE, POTASSIUM CHLORIDE, POTASSIUM SORBATE

For professional use only

For limited food use.

2.3. Other hazards

The substance / mixture does NOT contain substances PBT/vPvB according to Regulation (EC) No 1907/2006, Annex XIII

The use of this chemical agent involves the obligation of "risk assessment" by the employer in accordance with the provisions of Dlgs n. 81. April 9, 2008. Workers exposed to this chemical agent should not be subject to health surveillance if the results of the risk assessment show that, depending on the type and quantity of dangerous chemical agent and method and frequency of exposure to the agent, there is only a "moderate Risk" for the health and safety of workers and that the measures laid down in the Decree are sufficient to reduce the risk.

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	Classification	Index	CAS	EINECS	REACH
PECTINE LYASE (PL)	> 1 <= 30%	Resp. Sens. 1, H334		9033-35-6	232-894-5	
PECTINE METHYLESTEREASE (PME)	> 1 <= 30%	Resp. Sens. 1, H334		9025-98-3	232-807-0	
POLYGALACTURONASE (PG)	> 1 <= 30%	Resp. Sens. 1, H334		9032-75-1	232-885-6	
β -GLUCANASE	> 2 <= 5%	Resp. Sens. 1, H334		9074-98-0	232-979-7	

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 thoroughly with running water for at least 10 minutes.

Ingestion:

Not hazardous. It's possible to give activated charcoal in water or medicinal mineral vaseline oil.

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

In case of inhalation can cause allergic symptoms, asthma or breathing difficulties.

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 and if you use halogenated extinguishers (Halon 1211 fluobrene, Solkan 123, NAF, etc...)

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.

Provide 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
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

In residential areas do not use on large surfaces.
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 a cool and dry place (T <20°C), away from heat sources and direct exposure to sunlight.

7.3. Specific end use(s)

Industrial Manufacturing:
Handle with extreme caution.
Store in a well ventilated place away from heat sources.

Manufacture of food products:
Handle with care.
Store in a clean, dry, ventilated area away from heat and direct sunlight.
Keep container tightly closed.

Public domain (administration, education, entertainment, services, craftsmen):
Handle with care. Store in a ventilated area and away from heat, keep the container tightly closed.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

No data available.

8.2. Exposure controls



Appropriate engineering controls:

Industrial Manufacturing:

No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

Manufacture of food products:

No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

Public domain (administration, education, entertainment, services, craftsmen):

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

When handling the pure product use safety glasses (EN 166).

(b) Skin protection

(i) Hand protection

When handling the pure product use chemical resistant protective gloves (EN 374-1/EN374-2/EN374-3)

(ii) Other

When handling the pure product wear full protection to the skin (dress generic / antacid work suit, safety shoes S3 EN ISO 20345)

(c) Respiratory protection

Use mask with gas filters and inorganic vapors - Brown , Class 3 , A (EN 143) unless otherwise provided by the employer and / or assessments of environmental investigations hygienistic

(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
Appearance	Brown liquid	

Physical and chemical properties	Value	Determination method
Odour	not determined as deemed not relevant to the characterization of the product	
Odour threshold	not determined as deemed not relevant to the characterization of the product	
pH	3.5-6 (20° C)	
Melting point/freezing point	not determined as deemed not relevant to the characterization of the product	
Initial boiling point and boiling range	not determined as deemed not relevant to the characterization of the product	
Flash point	not determined as deemed not relevant to the characterization of the product	ASTM D92
Evaporation rate	not determined as deemed not relevant to the characterization of the product	
Flammability (solid, gas)	not determined as deemed not relevant to the characterization of the product	
Upper/lower flammability or explosive limits	not determined as deemed not relevant to the characterization of the product	
Vapour pressure	not determined as deemed not relevant to the characterization of the product	
Vapour density	not determined as deemed not relevant to the characterization of the product	
Relative density	not determined as deemed not relevant to the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient: n-octanol/water	not determined as deemed not relevant to the characterization of the product	
Auto-ignition temperature	not determined as deemed not relevant to the characterization of the product	
Decomposition temperature	not determined as deemed not relevant to the characterization of the product	
Viscosity	not determined as deemed not relevant to the characterization of the product	
Explosive properties	not determined as deemed not relevant to the characterization of the product	
Oxidising properties	not determined as deemed not relevant to the characterization of the product	

9.2. Other information

No data available.

SECTION 10. Stability and reactivity

10.1. Reactivity

No reactivity hazards

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

Exposure to heat

10.5. Incompatible materials

Not known

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

ATE(mix) oral = ∞
ATE(mix) dermal = ∞
ATE(mix) inhal = ∞

(a) acute toxicity: PECTINE LYASE (PL): Non-toxic
PECTINE METHYLESTEREASE (PME): Non-toxic
POLYGALACTURONASE (PG): Non-toxic
(b) skin corrosion/irritation PECTINE LYASE (PL): Non-corrosive
PECTINE METHYLESTEREASE (PME): Non-corrosive
POLYGALACTURONASE (PG): Non-corrosive
PECTINE LYASE (PL): Slightly irritating
PECTINE METHYLESTEREASE (PME): Slightly irritating
POLYGALACTURONASE (PG): Slightly irritating
(c) serious eye damage/irritation: PECTINE LYASE (PL): Non-corrosive
PECTINE METHYLESTEREASE (PME): Non-corrosive
POLYGALACTURONASE (PG): Non-corrosive
PECTINE LYASE (PL): Irritating
PECTINE METHYLESTEREASE (PME): Irritating
POLYGALACTURONASE (PG): Irritating
(d) respiratory or skin sensitization: The product, if inhaled, can cause sensitization.
PECTINE LYASE (PL): Respiratory sensitizer
PECTINE METHYLESTEREASE (PME): Respiratory sensitizer

POLYGALACTURONASE (PG): Respiratory sensitizer
(e) germ cell mutagenicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(f) carcinogenicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(g) reproductive toxicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(h) specific target organ toxicity (STOT) single exposure: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(i) specific target organ toxicity (STOT) repeated exposure: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(j) aspiration hazard: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available

ENDOZYM THERMOSTEP 1:

LD50 (rat) Oral (mg/kg body weight) = 3450

LD50 Dermal (rat or rabbit) (mg/kg body weight) = 2000

CL50 Inhalation (rat) vapour/dust/mist/fume (mg/l/4h) or gas (ppmV/4h) = 12200

SECTION 12. Ecological information

12.1. Toxicity

ENDOZYM THERMOSTEP 1:

C(E)L50 (mg/l) = 484

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

12.2. Persistence and degradability

=====
Related to contained substances:

PECTINE LYASE (PL):

Biodegradable

PECTINE METHYLESTEREASE (PME):

Biodegradable

POLYGALACTURONASE (PG):

Biodegradable

12.3. Bioaccumulative potential

=====
Related to contained substances:

PECTINE LYASE (PL):

Not bioaccumulabile

PECTINE METHYLESTEREASE (PME):
Not bioaccumulabile

POLYGALACTURONASE (PG):
Not bioaccumulabile

12.4. Mobility in soil

=====
Related to contained substances:
PECTINE LYASE (PL):
Not available

PECTINE METHYLESTEREASE (PME):
Not available

POLYGALACTURONASE (PG):
Not available

12.5. Results of PBT and vPvB assessment

The substance / mixture does NOT contain substances PBT/vPvB according to Regulation (EC) No 1907/2006, Annex XIII

12.6. 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

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. Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

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
Substances subject to authorisation (Ann. XIV Reg. CEC 1907/2006): the product does not contain SVHC
Reg. EC 648/04: see 2.2
Reg. (EU) n. 1169/2011: see 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

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

Classification based on data of all mixture components

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 (EC) n. 648 of 31/03/04 (on detergents) 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.

Procedure used to classify under CLP mixture (Reg . EC 1272/2008):

Hazards classification: Calculation Method

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 européen relative au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

ATE Acute Toxicity Estimate

BFC Bioconcentration Factor

BOD Biochemical oxygen demand

CAS Chemical Abstracts Service number

CAV Centro antiveneni

CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)

CL50/ LC50 Lethal Concentration 50 (Concentrazione Letale per il 50% degli Individui)

DL 50/LD50 Lethal Dose 50 (Dose Letale per il 50% degli Individui)

COD Chemical Oxygen demand

DNEL Derived no effect level (Livello derivato senza effetto)

EC50 Concentrazione di un dato farmaco tale da produrre il 50% dell'effetto massimale

ERC Environmental Release Classes

EU/UE Unione Europea

IATA International Air Transport Association (Associazione Internazionale del Trasporto Aereo)

ICAO International Civil Aviation Organization (Organizzazione Internazionale dell'Aviazione Civile)

IMDG International Maritime Dangerous Goods code (Codice sul Regolamento del Trasporto Marittimo)

Kow Octanol-water partition coefficient

NOEC No observed effect concentration

OEL Occupational Exposure Limit

PBT Persistent, bioaccumulative and toxic (sostanze persistenti bioaccumulabili e tossiche)

PC Product categories

PNEC Predicted no effect concentration (Concentrazione prevedibile priva di effetti).

PROC Process Categories

RID "Règlement concernant le transport International ferroviaire des marchandises

Dangereuses (Regolamento concernente il trasporto Internazionale ferroviario delle merci pericolose)"

STOT "Target organ systemic toxicity (tossicità sistematica su organi bersaglio)

STOT (RE) Repeated Exposure

STOT (SE) Single Exposure"

STP Sewage Treatment Plants

SU Sector of Use

SVHC Substances of Very High Concern

TLV Threshold limit value (soglia di valore limite)

vPvB Very persistent very bioaccumulative (sostanze molto persistenti e molto bioaccumulabili)

This msds was made in good faith by AEB 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)

First issue

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

1.1. Product identifier

Product name : ENDOZYM THERMOSTEP 2

Product code: refer to sales department

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

Enzyme

Sectors of use:

Industrial Manufacturing[SU3], Manufacture of food products[SU4], Public domain (administration, education, entertainment, services, craftsmen)[SU22]

Product category:

Process aid for food-limited use

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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1.4. Emergency telephone number

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SECTION 2. Hazards identification

2.1. Classification of the substance or mixture

CAS 532-32-1 EINECS 208-534-8 REACH 01-2119460683-35-XXXX

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:

PECTIN LYASE (PL), PECTIN METHYLESTEREASE (PME), POLYGALACTURONASE (PG), AMMONIUM SULFATE, POTASSIUM CHLORIDE, POTASSIUM SORBATE

For professional use only

For limited food use.

2.3. Other hazards

The substance / mixture does NOT contain substances PBT/vPvB according to Regulation (EC) No 1907/2006, Annex XIII

The use of this chemical agent involves the obligation of "risk assessment" by the employer in accordance with the provisions of Dlgs n. 81. April 9, 2008. Workers exposed to this chemical agent should not be subject to health surveillance if the results of the risk assessment show that, depending on the type and quantity of dangerous chemical agent and method and frequency of exposure to the agent, there is only a "moderate Risk" for the health and safety of workers and that the measures laid down in the Decree are sufficient to reduce the risk.

SECTION 3. Composition/information on ingredients

3.1 Substances

Irrilevant

3.2 Mixtures

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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 thoroughly with running water for at least 10 minutes.

Ingestion:

Not hazardous. It's possible to give activated charcoal in water or medicinal mineral vaseline oil.

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

In case of inhalation can cause allergic symptoms, asthma or breathing difficulties.

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 and if you use halogenated extinguishers (Halon 1211 fluobrene, Solkan 123, NAF, etc...)

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.

Provide 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
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

In residential areas do not use on large surfaces.
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 a cool and dry place ($T < 20^{\circ}\text{C}$), away from heat sources and direct exposure to sunlight.

7.3. Specific end use(s)

Industrial Manufacturing:
Handle with extreme caution.
Store in a well ventilated place away from heat sources.

Manufacture of food products:
Handle with care.
Store in a clean, dry, ventilated area away from heat and direct sunlight.
Keep container tightly closed.

Public domain (administration, education, entertainment, services, craftsmen):
Handle with care. Store in a ventilated area and away from heat, keep the container tightly closed.

SECTION 8. Exposure controls/personal protection

8.1. Control parameters

No data available.

8.2. Exposure controls



Appropriate engineering controls:

Industrial Manufacturing:

No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

Manufacture of food products:

No specific monitoring foreseen (act according to good practice and specific rules for the type of risk associated)

Public domain (administration, education, entertainment, services, craftsmen):

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

When handling the pure product use safety glasses (EN 166).

(b) Skin protection

(i) Hand protection

When handling the pure product use chemical resistant protective gloves (EN 374-1/EN374-2/EN374-3)

(ii) Other

When handling the pure product wear full protection to the skin (dress generic / antacid work suit, safety shoes S3 EN ISO 20345)

(c) Respiratory protection

Use mask with gas filters and inorganic vapors - Brown , Class 3 , A (EN 143) unless otherwise provided by the employer and / or assessments of environmental investigations hygienistic

(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
Appearance	Brown liquid	

Physical and chemical properties	Value	Determination method
Odour	not determined as deemed not relevant to the characterization of the product	
Odour threshold	not determined as deemed not relevant to the characterization of the product	
pH	3.5-6 (20° C)	
Melting point/freezing point	not determined as deemed not relevant to the characterization of the product	
Initial boiling point and boiling range	not determined as deemed not relevant to the characterization of the product	
Flash point	not determined as deemed not relevant to the characterization of the product	ASTM D92
Evaporation rate	not determined as deemed not relevant to the characterization of the product	
Flammability (solid, gas)	not determined as deemed not relevant to the characterization of the product	
Upper/lower flammability or explosive limits	not determined as deemed not relevant to the characterization of the product	
Vapour pressure	not determined as deemed not relevant to the characterization of the product	
Vapour density	not determined as deemed not relevant to the characterization of the product	
Relative density	not determined as deemed not relevant to the characterization of the product	
Solubility	in water	
Water solubility	miscible in all proportions	
Partition coefficient: n-octanol/water	not determined as deemed not relevant to the characterization of the product	
Auto-ignition temperature	not determined as deemed not relevant to the characterization of the product	
Decomposition temperature	not determined as deemed not relevant to the characterization of the product	
Viscosity	not determined as deemed not relevant to the characterization of the product	
Explosive properties	not determined as deemed not relevant to the characterization of the product	
Oxidising properties	not determined as deemed not relevant to the characterization of the product	

9.2. Other information

No data available.

SECTION 10. Stability and reactivity

10.1. Reactivity

No reactivity hazards

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

Exposure to heat

10.5. Incompatible materials

Not known

10.6. Hazardous decomposition products

Does not decompose when used for intended uses.

SECTION 11. Toxicological information

11.1. Information on toxicological effects

ATE(mix) oral = ∞
ATE(mix) dermal = ∞
ATE(mix) inhal = ∞

(a) acute toxicity: PECTINE LYASE (PL): Non-toxic
PECTINE METHYLESTEREASE (PME): Non-toxic
POLYGALACTURONASE (PG): Non-toxic

(b) skin corrosion/irritation PECTINE LYASE (PL): Non-corrosive
PECTINE METHYLESTEREASE (PME): Non-corrosive
POLYGALACTURONASE (PG): Non-corrosive
PECTINE LYASE (PL): Slightly irritating
PECTINE METHYLESTEREASE (PME): Slightly irritating
POLYGALACTURONASE (PG): Slightly irritating

(c) serious eye damage/irritation: PECTINE LYASE (PL): Non-corrosive
PECTINE METHYLESTEREASE (PME): Non-corrosive
POLYGALACTURONASE (PG): Non-corrosive

PECTINE LYASE (PL): Irritating
PECTINE METHYLESTEREASE (PME): Irritating
POLYGALACTURONASE (PG): Irritating

(d) respiratory or skin sensitization: The product, if inhaled, can cause sensitization.

PECTINE LYASE (PL): Respiratory sensitizer
PECTINE METHYLESTEREASE (PME): Respiratory sensitizer

POLYGALACTURONASE (PG): Respiratory sensitizer
(e) germ cell mutagenicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(f) carcinogenicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(g) reproductive toxicity: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(h) specific target organ toxicity (STOT) single exposure: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(i) specific target organ toxicity (STOT) repeated exposure: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available
(j) aspiration hazard: PECTINE LYASE (PL): Not available
PECTINE METHYLESTEREASE (PME): Not available
POLYGALACTURONASE (PG): Not available

ENDOZYM THERMOSTEP 2:

LD50 (rat) Oral (mg/kg body weight) = 3450

LD50 Dermal (rat or rabbit) (mg/kg body weight) = 2000

CL50 Inhalation (rat) vapour/dust/mist/fume (mg/l/4h) or gas (ppmV/4h) = 12200

SECTION 12. Ecological information

12.1. Toxicity

ENDOZYM THERMOSTEP 2:

C(E)L50 (mg/l) = 484

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

12.2. Persistence and degradability

=====
Related to contained substances:

PECTINE LYASE (PL):

Biodegradable

PECTINE METHYLESTEREASE (PME):

Biodegradable

POLYGALACTURONASE (PG):

Biodegradable

12.3. Bioaccumulative potential

=====
Related to contained substances:

PECTINE LYASE (PL):

Not bioaccumulabile

PECTINE METHYLESTEREASE (PME):
Not bioaccumulabile

POLYGALACTURONASE (PG):
Not bioaccumulabile

12.4. Mobility in soil

=====
Related to contained substances:
PECTINE LYASE (PL):
Not available

PECTINE METHYLESTEREASE (PME):
Not available

POLYGALACTURONASE (PG):
Not available

12.5. Results of PBT and vPvB assessment

The substance / mixture does NOT contain substances PBT/vPvB according to Regulation (EC) No 1907/2006, Annex XIII

12.6. 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

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. Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

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
Substances subject to authorisation (Ann. XIV Reg. CEC 1907/2006): the product does not contain SVHC
Reg. EC 648/04: see 2.2
Reg. (EU) n. 1169/2011: see 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

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

Classification based on data of all mixture components

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 (EC) n. 648 of 31/03/04 (on detergents) 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.

Procedure used to classify under CLP mixture (Reg . EC 1272/2008):

Hazards classification: Calculation Method

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 européen relative au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

ATE Acute Toxicity Estimate

BFC Bioconcentration Factor

BOD Biochemical oxygen demand

CAS Chemical Abstracts Service number

CAV Centro antiveneni

CE/EC number EINECS (European Inventory of existing Commercial Substances) e ELINCS (European List of notified Chemical Substances)

CL50/ LC50 Lethal Concentration 50 (Concentrazione Letale per il 50% degli Individui)

DL 50/LD50 Lethal Dose 50 (Dose Letale per il 50% degli Individui)

COD Chemical Oxygen demand

DNEL Derived no effect level (Livello derivato senza effetto)

EC50 Concentrazione di un dato farmaco tale da produrre il 50% dell'effetto massimale

ERC Environmental Release Classes

EU/UE Unione Europea

IATA International Air Transport Association (Associazione Internazionale del Trasporto Aereo)

ICAO International Civil Aviation Organization (Organizzazione Internazionale dell'Aviazione Civile)

IMDG International Maritime Dangerous Goods code (Codice sul Regolamento del Trasporto Marittimo)

Kow Octanol-water partition coefficient

NOEC No observed effect concentration

OEL Occupational Exposure Limit

PBT Persistent, bioaccumulative and toxic (sostanze persistenti bioaccumulabili e tossiche)

PC Product categories

PNEC Predicted no effect concentration (Concentrazione prevedibile priva di effetti).

PROC Process Categories

RID "Règlement concernant le transport International ferroviaire des marchandises

Dangereuses (Regolamento concernente il trasporto Internazionale ferroviario delle merci pericolose)"

STOT "Target organ systemic toxicity (tossicità sistematica su organi bersaglio)

STOT (RE) Repeated Exposure

STOT (SE) Single Exposure"

STP Sewage Treatment Plants

SU Sector of Use

SVHC Substances of Very High Concern

TLV Threshold limit value (soglia di valore limite)

vPvB Very persistent very bioaccumulative (sostanze molto persistenti e molto bioaccumulabili)

This msds was made in good faith by AEB 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.

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First issue
