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

1.1. Product identifier

Product name: ENDOZYM BREWMIX PLUS
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:
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

AEB SpA - Via Vittorio Arici 104 S.Polo - 25134 Brescia (BS) Italy
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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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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

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113 Hanwood Avenue
Hanwood
NSW 2680 (Australia)
Tel: +61 1300 704 971
Email: aeboeceania@aeb-group.com - Internet: www.aeb-group.com

1.4. Emergency telephone number

AEB SpA
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 doctor

Contains:
AMYLASE, Protease, ß-GLUCANASE
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

Irrelevant

3.2 Mixtures

Refer to paragraph 16 for full text of hazard statements

<table>
<thead>
<tr>
<th>Substance</th>
<th>Concentration</th>
<th>Classification</th>
<th>Index</th>
<th>CAS</th>
<th>EINECS</th>
<th>REACh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protease</td>
<td>&gt; 1 &lt;= 40%</td>
<td>Skin Irrit. 2, H315; Eye Irrit. 2, H319; Resp. Sens. 1, H334; STOT SE 3, H335</td>
<td></td>
<td>9001-92-7</td>
<td>232-642-4</td>
<td></td>
</tr>
<tr>
<td>AMYLASE</td>
<td>&gt; 1 &lt;= 40%</td>
<td>Resp. Sens. 1, H334</td>
<td></td>
<td>9000-90-2</td>
<td>232-565-6</td>
<td>01-2119938</td>
</tr>
<tr>
<td>β-GLUCANASE</td>
<td>&gt; 1 &lt;= 40%</td>
<td>Resp. Sens. 1, H334</td>
<td></td>
<td>9074-98-0</td>
<td>232-979-7</td>
<td>627-26-XXX</td>
</tr>
</tbody>
</table>

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

No data available.

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

If experiencing respiratory symptoms: Call a POISON CENTER or 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 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
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
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, 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

Related to contained substances:

AMYLASE:
Occupational exposure limits
Project data: use only in a well ventilated area.
Hygiene measures: do not eat, do not drink and not smoke during use. Wash hands after handling compounds and before eating, smoking, the bathroom, as well as the end of the day.

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 protective skin clothing.

(c) Respiratory protection
During manual operations in case of insufficient ventilation, use adequate protection mask ( 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:

Related to contained substances:

Protease:
Eye/face protection
Visor and goggles. Use eye protection tested and approved in accordance with the requirements of appropriate technical standards as NIOSH (US) or EN 166 (EU)

Skin protection
Manipulate with gloves. The gloves should be checked before being used. Use a suitable technique for the removal of
gloves (without touching the outside of the glove) to avoid skin contact with this product dispose of contaminated gloves after use in accordance with current legislation and good laboratory practices. Wash and dry your hands. Selected protective gloves shall comply with the requirements of EU Directive 89/686/EEC and EN 374 standards arising therefrom.

Physical protection
Full protective clothing resistant to chemical substances, the type of protective equipment should be selected depending on the concentration and amount of hazardous substance in the workplace.

Respiratory protection
For low exposure levels to use respirators for dusts of P95 (US) type or of type P1 (EU EN 143). For most high security levels use cartridge type respirators OV/AG/P99 or ABEK-type P2 (EU EN 143). Use respirators and components tested and approved by the relevant standardisation bodies, such as the NIOSH (U.S.A.) CEN (EU).

AMYLASE:
Personal protective measures, such as personal protective equipment:
Eye protection: safety glasses
Skin protection: protective clothing suitable
Hand protection: protective gloves
Respiratory protection: use a dust mask type P3.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Physical and chemical properties</th>
<th>Value</th>
<th>Determination method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Brown liquid</td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>5 - 6 (20°C)</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Flash point</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td>ASTM D92</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Relative density</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
<tr>
<td>Solubility</td>
<td>in water</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>Miscible in all proportions</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not determined because it is considered not relevant for characterization of the product</td>
<td></td>
</tr>
</tbody>
</table>
Physical and chemical properties | Value | Determination method |
--- | --- | --- |
Auto-ignition temperature | Not determined because it is considered not relevant for characterization of the product |
Decomposition temperature | Not determined because it is considered not relevant for characterization of the product |
Viscosity | Not determined because it is considered not relevant for characterization of the product |
Explosive properties | Not determined because it is considered not relevant for characterization of the product |
Oxidising properties | Not determined because it is considered not relevant for 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 sources and sunlight. Store at T <20 ° C

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 toxicological effects

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

(a) acute toxicity: based on available data, the classification criteria are not met.
(b) skin corrosion/irritation: based on available data, the classification criteria are not met.
(c) serious eye damage/irritation: based on available data, the classification criteria are not met.
(d) respiratory or skin sensitization: The product, if inhaled, can cause sensitization.
(e) germ cell mutagenicity: based on available data, the classification criteria are not met.
(f) carcinogenicity: based on available data, the classification criteria are not met.
(g) reproductive toxicity: based on available data, the classification criteria are not met.
(h) specific target organ toxicity (STOT) single exposure: based on available data, the classification criteria are not met.
(i) specific target organ toxicity (STOT) repeated exposure: based on available data, the classification criteria are not met.
(j) aspiration hazard: based on available data, the classification criteria are not met.

Related to contained substances:
Protease:
Acute toxic
No data available
Corrosion/irritation
No data available
Serious eye injuries/ocular severe irritation
No data available
Respiratory or skin sensitisation
May cause an allergic reaction.
Mutagenicit germ cell tumor
No data available
Cancerogenicit
IARC: no component of this product present at levels greater than or equal to 0.1% identified as known or anticipated carcinogen by IARC.
Reproductive toxic
No data available
Target organ-specific toxic-single exposure
Can irritate the respiratory system.
Target organ-specific toxic-exposure no data available
Danger in case of aspiration
No data available
Potential health consequences
Inhalation May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion can be dangerous if ingested.
The skin May be harmful if absorbed through the skin Causes skin irritation.
Causes serious eye irritation.
Signs and symptoms of exposure
Prolonged exposure can cause: asthma

AMYLASE:
Potential acute health effects inhalation: May cause sensitization by inhalation.
Ingestion: no information available.
Skin contact: no information available.
Eye contact: no information available.
Acute toxic: no information available.
Irritation/corrosion awareness
Potential chronic health effects
Chronic effects: once sensitized, a severe allergic reaction can be enabled further exposure at very low levels.
Cancerogenicit: no information available.
Mutagenicit: no information available.
Teratogenicit: no information available.
Developmental effects: no information available.
Effects on fertility: no information available.
Chronic toxic: no information available.
Cancerogenicit: no information available.
Mutagenicit: no information available.
Teratogenicit: no information available.
Reproductive toxic: no information is available

SECTION 12. Ecological information

12.1. Toxicity

Related to contained substances:
Protease:
No data available

AMYLASE:
The preparation is not considered dangerous for the environment

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

12.2. Persistence and degradability

Related to contained substances:
Protease:
No data available

AMYLASE:
No information available

12.3. Bioaccumulative potential

Related to contained substances:
Protease:
No data available

AMYLASE:
No information available
12.4. Mobility in soil

Related to contained substances:
Protease:
No data 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 MARPOL 73/78 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

REGULATION (EU) No 1357/2014 - waste:
HP4 - Irritant — skin irritation and eye damage
HP5 - Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
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
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 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 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: Environment 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 marchandises 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:
SAFETY DATA SHEET
ENDOZYM BREWMIX PLUS

Issued on 05/26/2017 - Rel. # 2 on 05/26/2017

In conformity to Regulation (EU) 2015/830

- 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 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)

Changes to the previous edition: Emission according Reg.(UE) 830/2015