



Lactozym® Pure 2600 L S

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1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Lactozym® Pure 2600 L S

Chemical Name Enzyme preparation

Declared activity Beta-galactosidase

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

Novozymes' enzyme preparations are biocatalysts used in a variety of industrial processes within food manufacturing .

1.3 Details of the supplier of the safety data sheet

Novozymes A/S
Krogshøjvej 36
2880 Bagsvaerd
Denmark
Tel.: +45 44460000
Fax.: +45 44469999
E-mail: SafetyDataSheet@novozymes.com
www.novozymes.com

1.4 Emergency telephone number

+45 44462223 (24/7)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

REGULATION (EC) No 1272/2008

Respiratory sensitization

Category 1

Classification according to EU Directives 64/548/EEC or 1999/45/EC see section 16.

2.2 Label elements



Signal Word

Danger

Hazard Statements

H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled

Precautionary statements

P261 - Avoid breathing dust/fume/gas/mist/vapours/spray

P285 - In case of inadequate ventilation wear respiratory protection

P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTRE or doctor/physician

P304 + P341 - IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing

Contains

Beta-galactosidase

2.3 Other information

Human health effects

Repeated inhalation of enzyme dust or aerosols resulting from improper handling may induce sensitization and may cause allergic type 1 reactions in sensitized individuals
 Repeated inhalation of enzyme dust or aerosols resulting from improper handling may induce sensitization and may cause allergic type 1 reactions in sensitized individuals
 Mild skin irritation
 Mild eye irritation

Effects of overexposure

See Section 4

The mixture does not meet the criteria for PBT or vPvB.

See Section 11 and 12 for additional Toxicological information

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.2 Mixtures

Hazardous Components

Chemical Name	Weight %	CAS-No	EC No.	EU Classification (67/548/EEC)	CLP Classification (No 1272/2008)
Beta-galactosidase (aep)	1 - 2.5	9031-11-2	232-864-1	R42	Resp. Sens. 1;H334

Active enzyme protein (aep) is the part of the enzyme concentrate contributing to the classification of the mixture.

Regulatory information *

Chemical Name	Weight %	IUB No.	REACH Registration No.
Beta-galactosidase	1 - 2.5	3.2.1.23	-

*: In the scope of REACH registration enzymes are defined as enzyme concentrate (dry matter basis)

For the full text of the R/H phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

4.1 Description of first-aid measures

Inhalation

Effects	May cause allergic respiratory reaction
Symptoms	Shortness of breath, wheezing and coughing The effect of inhalation may be delayed
First Aid	Remove person to fresh air. If signs/symptoms continue, get medical attention Show this safety data sheet to the doctor in attendance

Skin contact

Effects	May cause slight irritation.
Symptoms	Slight irritation.
First Aid	Remove and wash contaminated clothing before re-use. Wash off immediately with plenty of water. If symptoms persist, call a doctor. Show this safety data sheet to the doctor in attendance.

Eye contact

Effects	May cause slight irritation.
Symptoms	Slight irritation
First Aid	Hold eye open and rinse slowly and gently with water for 15-20 min. Remove contact lenses, if present, after the first five minutes, then continue rinsing eye. If symptoms persist, call a doctor. Show this safety data sheet to the doctor in attendance

Ingestion

Effects	Ingestion may cause gastrointestinal irritation.
Symptoms	Irritation
First Aid	Rinse mouth with water and drink plenty of water. If symptoms persist, call a doctor. Show this safety data sheet to the doctor in attendance.

4.2 Most important symptoms and effects, both acute and delayed

See section 4.1

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	Treat symptomatically
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5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide
Unsuitable Extinguishing Media	none
Hazardous combustion products	None

5.2 Special hazards arising from the substance or mixture

May cause allergic respiratory reaction

5.3 Advice for firefighters

Self-contained breathing apparatus

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

For personal protection see section 8

6.2 Environmental precautions

Collect spillage.

6.3 Methods and materials for containment and cleaning up

Avoid formation of dust and aerosols

Spilled preparation should be removed immediately to avoid formation of dust from dried preparation. Take up by mechanical means preferably by a vacuum cleaner equipped with a high efficiency filter. Flush remainder carefully with plenty of water. Avoid splashing and high pressure washing (avoid formation of aerosols). Ensure sufficient ventilation. Wash contaminated clothing.

6.4 Reference to other sections

For personal protection see section 8

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Avoid formation of dust and aerosols

Ensure adequate ventilation

Liquid enzyme preparations are dustfree preparations. However, inappropriate handling may cause formation of dust or aerosols.

7.2 Conditions for safe storage, including any incompatibilities

Keep tightly closed in a dry and cool place.

The product can be transported at ambient temperature. Following delivery, the product should be stored as recommended.

Temperature 0-10 °C (32-50 °F)

7.3 Specific end uses

Handle in accordance with good industrial hygiene and safety practice

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

DNEL/DMEL/PNEC

Chemical Name	DNEL Dermal Acute Local (Workers)	DMEL Inhalation Long term Local (Workers)
Beta-galactosidase (aep)		DMEL = 60 ng/m ³

Derived Minimal Effect Level (DMEL)

8.2 Exposure controls

Ensure adequate ventilation, especially in confined areas

Personal Protective Equipment

Respiratory Protection	In case of insufficient ventilation wear an approved mask with a particle filter type P3 used according to the manufactures instruction
Eye protection	Safety glasses with side-shields
Skin Protection	Long sleeved clothing
Hand Protection	Skin should be washed after contact
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practices
Environmental exposure controls	Local authorities should be advised if significant spillages cannot be contained Waste water should be discharged to sewage treatment plant

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid
Color	light yellow
Odor	Slight fermentation odor
Density (g/ml)	1.15
pH	Adjusted to the range where active enzyme is stable – typically pH 4 – 9
Solubility	none

9.2 Other information

No information available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Not relevant

10.2 Chemical stability

Stable under recommended storage conditions

10.3 Possibility of hazardous reactions

None under normal processing

10.4 Conditions to Avoid

None

10.5 Incompatible Materials

None

10.6 Hazardous Decomposition Products

None

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Chemical Name	Acute oral toxicity	Respiratory sensitization	Genetic toxicity	Skin corrosion/irritation	Serious eye damage/eye irritation
Beta-galactosidase (aep)	LD50: > 2000 mg/kg bw (OECD TG 401, 420)	Sensitizer (Human experience)	No indication of mutagenic effects (OECD TG 471, 476, 487)	Not irritating (OECD TG 404)	Not irritating (OECD TG 405)

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Chemical Name	Daphnia, acute	Acute fish toxicity =	Algae, Acute
Beta-galactosidase (aep)	EC50 (48 hours): 31.7 - 457 mg aep/l (OECD TG 202)	LC50 (96 hours): 58.3 - 326.7 mg aep/l (OECD TG 203)	ErC50 (72 hours): >= 5.2 mg aep/l (OECD TG 201)

12.2 Persistence and degradability

Chemical Name	Persistence and degradability	Partition coefficient (n-octanol/water)
Beta-galactosidase (aep)	Readily biodegradable (OECD 301)	LogPow: <0

12.3 Bioaccumulative potential

Chemical Name	Bioaccumulative potential
Beta-galactosidase (aep)	Does not bioaccumulate

12.4 Mobility in soil

Not relevant

12.5 Results of PBT and vPvB assessment

Components do not meet PBT or vPvB criteria according to REACH Annex XIII

12.6 Other adverse effects

No information available

13. DISPOSAL CONSIDERATIONS**13.1 Waste treatment methods**

Dispose of in accordance with local regulations

Waste water should be discharged to sewage treatment plant

Waste codes should be assigned by the user based on the application for which the product was used

14. TRANSPORT INFORMATION**Transport Regulations**

No dangerous goods according to transport regulations

No special precautions required

14.1

UN number Not applicable

14.2

UN proper shipping name Not applicable

14.3

Transport hazard class(es) Not applicable

14.4

Packing group Not applicable

14.5

Environmental hazards Not applicable

14.6

Special precautions for user Not applicable

14.7

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable

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

WGK Classification 1

The product complies with the recommended purity specifications for food-grade enzymes given by the Joint FAO/WHO Expert Committee on Food Additives (JECFA) and the Food Chemical Codex (FCC).

15.2 Chemical Safety Report

No chemical safety assessment has been carried out

16. OTHER INFORMATION

Text of R/H phrases mentioned in Section 2&3

R42 - May cause sensitization by inhalation

GHS-Classification The GHS calculation method has been used for classification of this mixture.

Classification according to EU Directives 64/548/EEC or 1999/45/EC

Symbol(s) Xn - Harmful

R-code(s) R42

Further information This SDS is in compliance with EU Regulation No. 453/2010

For further information please consult available product documentation including 'Product Application Guidelines' and/or 'Application Sheets', which are available on www.mynovozymes.com or from Novozymes sales representatives.

Training advice Details on the safe handling of this product can be found in the "Handling enzymes" on www.novozymes.com

Disclaimer The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text. Furthermore, as the conditions of use are beyond the control of Novozymes, it is the responsibility of the customer to determine the conditions of safe use of these products.

End of Safety Data Sheet

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