

SAFETY DATA SHEET

SECTION I - PRODUCT & COMPANY IDENTIFICATION **

1.1 Product Identification:	LACTOSIDE 247™
Product code:	6684
1.2 Product description	Fermentation antimicrobial
Product use:	Fuel ethanol production
Uses advised against	Product should only be used for the purpose specified above
1.3 Details of the supplier	Lallemand Biofuels & Distilled Spirits Vejlevej 10, Fredericia DK-7000 Denmark +45 75 91 50 80
Telephone	
1.4 Emergency telephone:	+45 8212 1212 Danish Poison Centre Velkommen til Giftlinjen (bispebjerghospital.dk)

SECTION 2- HAZARD IDENTIFICATION **

2.1 Classification of substance or mixture: classification according to Regulation (EC) No 1272/2008 transposed as The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019 in the United Kingdom

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

Respiratory sensitisation: Category 1

Serious eye damage: Category 1

Skin sensitisation: Category 1

Chronic aquatic toxicity: Category 3

2.2	Signal Word	Label Elements
	Hazard Statements	Danger H318 Causes serious eye damage. H317 May cause an allergic skin reaction. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H412 Harmful to aquatic life with long-lasting effects.



Precautionary Statements	P261 Avoid breathing dust. P284 In case of inadequate ventilation wear respiratory protection. P280 Wear protective gloves/protective clothing/eye protection/face protection.
Response	P304 + P340 IF INHALED Remove person to fresh air and keep comfortable for breathing. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. P342 + P311 If experiencing respiratory symptoms: call a doctor or Poison Centre.
2.3	Other hazards The product does not meet the criteria for PBT/vPvB.
2.4	Additional information No further information.

SECTION 3– DATA ON COMPONENTS ****3.1 Substances: Not applicable****3.2 Mixtures:**

Name	% by weight	CAS #	EC-No	Hazard Statement	SCL/M factor
Penicillin G Potassium	50-75	113-98-4	204-038-0	Resp. Sens. 1: H334; Skin Sens. 1: H317.	-
Virginiamycin	3-10	11006-76-1	234-244-6	Acute Tox. 4: H302; Eye Dam. 1: H318, Skin Sens. H317.	-
Zinc sulfate	<2.5	7733-02-0	231-793-3	Acute Tox. 4: H302; Eye Dam. 1: H318; Aquatic Acute 1: H400; Aquatic chronic 1: H410.	M=1

3.3. Additional Information **

Major Component Substance Identity	Molecular Formula and Weight	EC / List & CAS no.	REACH Registration Hazard classification
Penicillin G Potassium	C ₁₆ H ₁₇ KN ₂ O ₄ S 372.5 g/mol	204-038-0 / 113-98-4	According to the classification provided by companies to ECHA in REACH registrations this substance may cause an allergic skin reaction and may cause allergy or asthma symptoms or breathing difficulties if inhaled. This substance is used in formulation or re-packing and at industrial sites.
Zinc Sulfate	O ₄ SZn; 161.47 g/mol	231-793-3 / 7733-02-0	According to the harmonised classification and labelling (CLP00) approved by the European Union, this substance is very toxic to aquatic life, is very toxic to aquatic life with long lasting effects, is harmful if swallowed and causes serious eye damage.

SECTION 4– FIRST AID MEASURES ****4.1 Description of First Aid Measures**

Eye contact:	If substance has got into eyes, immediately wash out with plenty of water for at least 15 minutes. Hold eyelids apart. Obtain immediate medical advice.
Skin contact:	Immediately remove contaminated clothing and wash affected area with water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention.
Inhalation:	Immediately remove person to fresh air. If allergic respiratory reaction occurs seek medical advice. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of hands and feet, dizziness, chest pain, muscle pain or flushing.
Ingestion:	Rinse mouth with water (do not swallow). Seek medical advice.

4.2 Most important symptoms and effects both acute and delayed

Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of hands and feet, dizziness, chest pain, muscle pain or flushing.

4.3 Indication of the immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5– FIRE FIGHTING MEASURES

5.1 Extinguishing media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water, Carbon dioxide (CO ₂), Dry chemical. Not specified.
Suitable extinguishing media	
Unsuitable extinguishing media	
5.2 Special hazards arising from substance or mixture	Thermal decomposition can lead to release of irritating gases and vapors. Carbon monoxide, carbon dioxide, Nitrogen oxides, Sulfur oxides, Sodium oxides.
Hazardous combustion products	
5.3 Advice for firefighters	Use self-contained breathing apparatus and personal protective equipment.

SECTION 6– ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions	Use personal protective equipment. Keep away unprotected persons. Ensure adequate ventilation. Avoid contact with skin and eyes. Avoid dust formation. Do not breathe dust.
6.2 Environmental precautions	Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.
6.3 Methods for containment and clean up	Sweep or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.
6.4 Reference to other sections	For disposal see Section 13.

SECTION 7 – HANDLING & STORAGE

7.1 Handling:	Avoid formation of dust. Do not breathe dust. Avoid contact with eyes, skin and clothing. Wear protective equipment described in Section 8. Ensure good ventilation when handling this product. Do not eat, drink or smoke in the working areas. Wash hands after handling the mixture.
7.2 Conditions for safe storage including any incompatibilities	Store in original container in cool well-ventilated area. Keep product dry.
7.3 Specific end uses	No further information.

SECTION 8– EXPOSURE CONTROLS / PERSONAL PROTECTION ****8.1 Control parameters**

8.1.1 Occupational exposure limits

Inhalable dust: 10 mg/m³, 8 h EH40 WEL, Time Weighted Average
Respirable dust: 4 mg/m³, 8 h EH40 WEL, Time Weighted Average

Derived No Effect Level (DNEL) Workers		Long term exposure (prolonged)		Acute/short term exposure	
Substance		Systemic	Local	Systemic	Local
Zinc sulfate	Oral	1 mg/m ³	-	-	-
	Dermal	8.3 mg/kg bw/day	-	-	-
	Inhalation	-	-	-	-
Derived No Effect Level (DNEL) General Population		Long term exposure (prolonged)		Acute/short term exposure	
Substance		Systemic	Local	Systemic	Local
Zinc sulfate	Oral	0.83 mg/kg bw/day	-	-	-
	Dermal	8.3 mg/kg bw/day	-	-	-
	inhalation	1.25 mg/m ³	-	-	-
Predicted No Effect Concentration (PNEC)					
Zinc sulfate	STP	100 µg/L		Fresh water	20.6 µg/L
	Soil	35.6 mg/kg soil dw		Marine water	6.1 µg/L
	Intermittent	-		Freshwater sediment	117.8 mg/kg sediment dw
	Acute Toxicity	-		Marine water Sediment	56.5 µg mg/kg sediment dw
	Acute Toxicity	-		Marine water sediment	-

8.2 Exposure controls

8.2.1 Appropriate engineering controls

Provide adequate ventilation, including appropriate exhaust ventilation to prevent dust formation.

8.2.2 Personal Protective equipment

Respiratory protection:

Use NIOSH/CEN approved respiratory protection if engineering controls are not sufficient.

Eye contact:

Tightly fitting chemical safety goggles.

Hand protection:

Wear appropriate protective gloves to prevent skin exposure. The glove material must be impermeable and resistant to the product. Consult the manufacturing concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact). Replace gloves at the first sign of wear.

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Specific engineering controls: Ensure eye wash stations are close to the working area.
8.2.3 Environmental exposure controls
Do not allow product to enter the environment

SECTION 9– PHYSICAL & CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties (mixture)

Chemical Family:	Antimicrobial
Physical state:	Powder
Appearance:	Light brown free-flowing powder
Odour:	No data available
Specific gravity:	No data available.
Vapour pressure:	No data available
Vapour density:	No data available
Evaporation rate:	No data available.
Boiling point:	No data available.
Freezing point:	No data available.
Melting point:	No data available
pH:	No data available.
Partition coefficient:	No data available.
Viscosity:	No data available
Solubility in water:	Soluble
Explosive properties	Not applicable
Oxidising properties	Not applicable
9.2 Other information	No further data

SECTION 10 – STABILITY AND REACTIVITY

10.1 Reactivity	No further information.
10.2 Chemical stability:	No further information.
10.3 Possibility of hazardous reactions	No further information.
10.4 Conditions to avoid:	Avoid dust formation, incompatible products, moisture.
10.5 Incompatible materials	Oxidizing agents, Acids, Heavy metal salts.
10.6 Hazardous decomposition products:	Carbon monoxide, carbon dioxide, Nitrogen oxides, Sulfur oxides and Sodium oxides.
10.7 Hazardous reactions	No further information.

SECTION 11– TOXICOLOGICAL INFORMATION **

11.1 Information on toxicological effects

Zinc sulfate: LD50 Dermal >2000 mg/kg bw (rat)

Acute toxicity

Skin corrosion/irritation	May cause skin irritation.
Serious eye damage/irritation	Causes serious eye damage.
Respiratory or skin sensitisation	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.

Mutagenicity No further information.

Carcinogenicity No further information.

Reproductive toxicity No further information.

STOT single exposure No further information.

STOT repeated exposure No further information.

11.2 Other information

Oral ingestion may provoke the following symptoms: irritant effects, vomiting, diarrhea, nausea, abdominal cramps.

SECTION 12– ECOLOGICAL INFORMATION **

12.1 Toxicity

Zinc sulfate	CAS No. 7733-02-0, EC No. 231-793-3
Short term toxicity to fish	Key data (lowest LC50 values) are: -for <i>Oncorhynchus Mykiss</i> : 0.169 mg Zn/l (single value) at neutral/high pH and low hardness -for <i>Pimephales promelas</i> (single values) : 0.780 mg Zn/l at low pH (high hardness) and 0.330 mg Zn/l at neutral/high pH, high hardness -for <i>Pimephales promelas</i> : LC50 0.780 mg Zn/l (at low pH); 0.33mg Zn/l at neutral/high pH

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Long term toxicity to fish	freshwater: Data on 7 species available. Species NOECs range between 0.044 and 0.530 mg Zn/l (dissolved concentrations). Marine: Data on 1 species available. NOEC = 0.025 mg Zn/l (dissolved concentrations) Species NOECs have been put into the respective species sensitivity distributions.
Short term toxicity to aquatic invertebrates	Key data (lowest EC50 values) are: -for Ceriodapnia dubia: 0.413 mg Zn/l (single value) at low pH / low hardness -for Ceriodapnia dubia: >0.53 mg Zn/l (single value) at low pH / high hardness -for Ceriodapnia dubia: 0.147 mg Zn/l (geomean value) at neutral/high pH / low hardness -for Ceriodapnia dubia: 0.228 mg Zn/l (geomean value) at neutral/high pH / high hardness
Long term toxicity to aquatic invertebrates	freshwater: Data on 13 species available. Species NOECs range between 0.037 and 0.400 mg Zn/l (dissolved concentrations). Marine: Data on 26 species available. Species NOECs range between 0.0056 and 0.9 mg Zn/l (dissolved concentrations) Species NOECs have been put into their respective species sensitivity distributions.
Toxicity to algae and cyanobacteria	acute toxicity to freshwater algae: lowest IC50 0.136 mg Zn/l (Selenastrum capricornutum; single value) (neutral/high pH) chronic toxicity to freshwater algae: lowest NOEC 0.019 mg Zn/l (Pseudokirchneriella subcapitata =Selenastrum capricornutum; geomean of 27 data) chronic toxicity to marine algae: 12 species available which NOECs range between 0.0078 and 0.67 mg/l (dissolved concentrations).
Toxicity to aquatic plants other than algae	Chronic NOEC for one multicellular algae species available (0.06mg Zn/l). Additional supportive information on 4 higher aquatic plant species available; chronic NOEC >650µg Zn/l on all 4 species tested.
Toxicity to other aquatic organisms	Freshwater: Extensive field data showed that standards for dissolved zinc in freshwater should be in the range 20-27 µg Zn/l (Crane et al. 2007). Saltwater: Field studies on phytoplankton assemblages dominated by diatoms and dinoflagellates have shown that the lowest observed effect levels are in the range 10-15 µg/L according to an experiment conducted in the English Channel (Davies and Sleep, 1979) and up to >100 µg/L according to another experiment conducted in Kiel Fjord and in the Baltic Sea (Wolter et al. 1984).
Source	REACH registration dossier Zinc sulphate - Registration Dossier - ECHA (europa.eu)
12.2 Persistence and degradability	No further information.
12.3 Bioaccumulation potential	No further information.
12.4 Mobility in soil	No further information.
12.5 Results of PBT and vPvB assessment	Based on information on the components, this product does not meet the criteria for PBT / vPvB.
12.6 Other adverse effects	No further information.
SECTION 13 – DISPOSAL CONSIDERATIONS **	
13.1 Product / packaging disposal	Dispose of product as hazardous waste in accordance with local regulations. Do not let product enter water course or sewage system. Contact waste disposal service.
13.2 Waste treatment information	No further information.
13.3 Sewage disposal	No further information.
13.4 Additional information Contaminated packaging	Empty contaminated packaging thoroughly. Packaging that cannot be cleaned are to be disposed of in the same manner as the product.

SECTION 14 – TRANSPORT INFORMATION **

14.1 UN number	Not classified as hazardous for transport.
14.2 UN Proper shipping name	-
14.3 Transport hazard class(es)	-
14.4 Packing group	-
14.5 Environmental hazards	-
14.6 Special precautions for user	-
14.7 Maritime transport in bulk according to IMO instructions	-

SECTION 15– REGULATORY INFORMATION **

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture	
15.1.1 European Union Regulations	(EC) No. 1907/2006 on the Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (REACH); (EC) No. 1272/2008 on Classification, Labelling and Packaging of Substances and Mixtures Regulation.
15.1.2 National Regulations	No further information.
15.2 Chemical Safety Assessment	Not required for the product mixture.

SECTION 16– OTHER INFORMATION **

A ** in the section indicates a revision from the previous version.

Abbreviations and acronyms

CAS number	Chemical Abstracts Service Number
CLP	Classification, Labelling and Packaging
DNEL	Derived No Effect Level
EC number	European Inventory of Existing Commercial Chemical Substances or European List of Notified Chemical Substances number
IMO	International Maritime Dangerous Goods
PBT	Persistent, bioaccumulative and toxic
PNEC	Predicted no effect concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
STOT	Specific target organ toxicity
UN	United Nations
vPvB	Very persistent and very bioaccumulative

Hazard statements

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

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

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

H412 Harmful to aquatic life with long-lasting effects.

Date of Preparation: June 2021.

The mixture has been classified in accordance with Regulation (EC) No 1272/2008, transposed as The Chemicals (Health and Safety) and Genetically Modified Organisms (Contained Use) (Amendment etc.) (EU Exit) Regulations 2019 in the United Kingdom. The information herein is based on current available data and is believed to be correct. No warranty, express or implied, is made regarding data accuracy, merchantability or hazards associated with product use. The user is responsible for determining product suitability, conditions of use and all associated hazards. Values listed in this document are not product specifications.