

**LudgerZyme PNGase L Kit -
LZ-PNGaseL-50-KIT**

Version: 2.1
Date written: 25th July 2018
Date reviewed: 3rd March 2021

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

Product Name	Denaturation Solution (5% SDS, 400 mM Dithiothreitol)
Product Catalogue Name	10X Glycoprotein Denaturing Buffer, LZ-10X-DENAT-01, LZ-10X-DENAT-50
Company:	Ludger Ltd Culham Science Centre Abingdon Oxford OX14 3EB
Telephone:	01865 408554
Emergency Telephone:	01865 408554
Email:	info@ludger.com

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Chronic aquatic toxicity (Category 3), H412

2.2 Label elements

Product identifier

Hazard statements

H412 - Harmful to aquatic life with long-lasting effects

2.3 Other hazard information

Other hazards Harmful to aquatic life

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

Not applicable

3.2 Mixtures

Full text of H- and EUH-phrases: see section 16

SECTION 4. FIRST-AID MEASURES

4.1 Description of First Aid Measures

General advice

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, and lie down. Do not breathe dust/fumes/gas/mist/vapours/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean your mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

No information available

4.3 Indication of immediate medical attention and special treatment needed**Note to physicians**

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient

5.2 Special hazards arising from the substance or mixture

No information available

5.3 Advice for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****Personal precautions**

Ensure adequate ventilation, especially in confined areas.

For emergency responders

Use personal protection recommended in Section 8.

6.2 Environmental Precautions

See Section 12 for additional Ecological Information.

6.3 Methods and material for containment and cleaning up**Methods for containment**

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. This material and its container must be disposed of as hazardous waste.

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Handle following good industrial hygiene and safety practices.

7.2 Conditions for safe storage, including any incompatibilities**Storage temperature**

Refer to www.ludger.com for specific information.

Storage Conditions

Keep/store only in the original container.

Incompatible materials

None known based on the information supplied

7.3 Specific end uses**Risk management methods [RMM]**

The information required is contained in this Safety Data Sheet.

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

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2 Exposure controls**Engineering controls**

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well-ventilated areas.

General hygiene considerations

Handle following good industrial hygiene and safety practices.

Environmental exposure controls

See Section 12: ECOLOGICAL INFORMATION.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Appearance	Liquid
Colour	Colourless
Odour	Mild
Odour Threshold	No data available
pH	Refer to www.ludger.com for specific information
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other information

No further relevant information is available.

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity

No data available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

Can react briskly with oxidizers - the danger of explosion.

10.4 Conditions to avoid

Incompatible materials. Ignition sources. Heat.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Thermal decomposition can lead to the release of irritating and toxic gases and vapours. Carbon monoxide. Carbon dioxide (CO₂).

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Product information

The product does not present an acute toxicity hazard based on known or supplied information.

Inhalation

Avoid breathing vapours or mists. May irritate the respiratory tract.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Symptoms include a burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Unknown acute toxicity

11.2 % of the mixture consists of ingredient(s) of unknown toxicity

The following values are calculated based on Chapter 3.1 of the GHS document

ATEmix (oral)	25,760.00 mg/kg
ATEmix (dermal)	11,600.00 mg/kg
ATEmix (inhalation-dust/mist)	19.50 mg/l
ATEmix (inhalation-vapour)	78,000.00 mg/l

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
Sodium Dodecyl Sulfate	= 1288 mg/kg (Rat)	= 580 mg/kg (Rabbit)	> 3900 mg/m ³ (Rat) 1 h

Skin corrosion/irritation

Mild

Serious eye damage/eye irritation	Mild
Sensitization	Not applicable
Germ cell mutagenicity	Not applicable
Carcinogenicity	No information available
Reproductive toxicity	No information available
Developmental toxicity	No information available
Teratogenicity	No information available
STOT - single exposure	No information available
STOT - repeated exposure	No information available
Neurological effects	No information available
Target organ effects	Kidneys, Respiratory system, Eyes, and Skin.
Other adverse effects	No information available
Symptoms	No information available
Aspiration hazard	No information available

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

Ecotoxicity

Harmful to aquatic life with long-lasting effects

6.2 % of the mixture consists of component(s) of unknown hazards to the aquatic environment

12.2 Persistence and Degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Relevant Information

Keep out of drains, sewers, ditches and waterways.

Waste from Residues/Unused Products

Disposal should follow applicable regional, national and local laws and regulations. Send to a licensed recycler, reclaimer, or incinerator.

Contaminated packaging

Empty containers must be tripled and rinsed before disposal.

SECTION 14. TRANSPORT INFORMATION

IMDG

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated

14.4 Packing group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ICAO (air)

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

SECTION 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific to the substance or mixture

National Regulations

Occupational Illnesses (R-463-3, France)

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

International Inventories

All of the components in the product are on the following Inventory lists TSCA (United States), Canada (DSL/NDSL), Europe (EINECS/ELINCS), Australia (AICS), China (IECSC), Philippines (PICCS).

TSCA	Complies
EINECS	Complies
ELINCS	-
DSL	Complies
NDSL	Complies

PICCS
ENCS
IECSC
AICS
KECL

Complies
-
Complies
Complies
-

15.2 Chemical Safety Assessment

No information available

SECTION 16. OTHER INFORMATION

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The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used following our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since the conditions of use of the product are not under the control of Ludger, the buyer/user must determine the necessary conditions for the safe use of the product. Ludger will not be liable for any damages resulting from handling or contact with the product.

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

Product Name(s) **10X Glyco Buffer (500mM sodium phosphate pH 7.5)
10X Reaction Buffer (500mM sodium phosphate pH 7.5)**

Product Catalogue Name **10X Glyco Buffer 2, LZ-10X-REACT-01, LZ-10X-REACT-50**

Company: Ludger Ltd
Culham Science Centre
Abingdon
Oxford OX14 3EB

Telephone: 01865 408554
Emergency Telephone: 01865 408554
Email: info@ludger.com

SECTION 2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Regulation (EC) No 1272/2008**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS].

2.2 Label elements**Product identifier**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS]

Signal word

None

2.3 Other hazard information:

None

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances**

Not applicable

3.2 Mixtures

Full text of H- and EUH-phrases: see section 16

SECTION 4. FIRST-AID MEASURES**4.1 Description of First Aid Measures****General advice**

Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, and lie down. Do not breathe dust/fumes/gas/mist/vapours/spray.

Eye contact

Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin contact

Wash skin with soap and water.

Inhalation

Remove to fresh air.

Ingestion

Clean your mouth with water and drink afterwards plenty of water.

4.2 Most important symptoms and effects, both acute and delayed

No information available

4.3 Indication of immediate medical attention and special treatment needed**Note to physicians**

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

CAUTION: Use of water spray when fighting fire may be inefficient.

5.2 Special hazards arising from the substance or mixture

No information available

5.3 Advice for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****Personal precautions**

Ensure adequate ventilation, especially in confined areas.

For emergency responders

Use personal protection recommended in Section 8.

6.2 Environmental Precautions

See Section 12 for additional Ecological Information.

6.3 Methods and material for containment and cleaning up**Methods for containment**

Prevent further leakage or spillage if safe to do so.

Methods for cleaning up

Soak up with inert absorbent material. Pick up and transfer to properly labelled containers. This material and its container must be disposed of as hazardous waste.

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Handle following good industrial hygiene and safety practices.

7.2 Conditions for safe storage, including any incompatibilities**Storage temperature**

Refer to www.ludger.com for specific information.

Storage Conditions

Keep/store only in the original container.

Incompatible materials

None is known based on the information supplied.

7.3 Specific end uses**Risk management methods [RMM]**

The information required is contained in this Safety Data Sheet.

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

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2 Exposure controls**Engineering controls**

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Use in well-ventilated areas.

General hygiene considerations

Handle following good industrial hygiene and safety practices.

Environmental exposure controls

See Section 12: ECOLOGICAL INFORMATION.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Appearance	Liquid
Colour	Colourless
Odour	Mild
pH	Refer to www.ludger.com for specific information
Odour threshold	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other information

No further relevant information is available.

SECTION 10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

Can react briskly with oxidizers - the danger of explosion.

10.4 Conditions to avoid

Incompatible materials. Ignition sources. Heat.

10.5 Incompatible materials

Strong oxidizing agents.

10.6 Hazardous decomposition products

Thermal decomposition can lead to the release of irritating and toxic gases and vapours. Carbon monoxide. Carbon dioxide (CO₂).

SECTION 11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Acute toxicity****Product information**

The product does not present an acute toxicity hazard based on known or supplied information.

Inhalation

Avoid breathing vapours or mists. May irritate the respiratory tract.

Eye contact

Redness. May cause slight irritation.

Skin contact

Prolonged contact may cause redness and irritation. Repeated exposure may cause skin dryness or cracking.

Ingestion

May cause drowsiness or dizziness. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. Symptoms include a burning sensation, coughing, wheezing, shortness of breath, headache, nausea, and vomiting.

Unknown acute toxicity

7.1 % of the mixture consists of ingredient(s) of unknown toxicity.

The following values are calculated based on Chapter 3.1 of the GHS document mg/kg

Skin corrosion/irritation

Mild

Serious eye damage/eye irritation

Mild

Sensitization

Not applicable

Germ cell mutagenicity

Not applicable

Carcinogenicity

No information available

Reproductive toxicity

No information available

Developmental toxicity

No information available

Teratogenicity

No information available

STOT - single exposure

No information available

STOT - repeated exposure

No information available

Neurological effects	No information available
Target organ effects	Kidneys, Respiratory system, Eyes, and Skin.
Other adverse effects	No information available
Symptoms	No information available
Aspiration hazard	No information available

SECTION 12. ECOLOGICAL INFORMATION

12.1 Toxicity

7.1 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

12.2 Persistence and Degradability

No data available.

12.3 Bioaccumulative potential

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment is not available as chemical safety assessment is not required/not conducted.

12.6 Other adverse effects

No further relevant information is available.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Relevant Information

Keep out of drains, sewers, ditches and waterways.

Waste from Residues/Unused Products

Disposal should follow applicable regional, national and local laws and regulations. Send to a licensed recycler, reclaimer or incinerator.

Contaminated packaging

Empty containers must be triple-rinsed before disposal.

SECTION 14. TRANSPORT INFORMATION

IMDG

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable

14.6 Special Provisions

None

ADR

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ICAO (air)

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

SECTION 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific to the substance or mixture

National Regulations

Occupational Illnesses (R-463-3, France)

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at Work

International Inventories

All of the components in the product are on the following Inventory lists TSCA (United States), Canada (DSL/NDSL), Europe (EINECS/ELINCS), Australia (AICS), South Korea (KECL), China (IECSC), Philippines (PICCS).

TSCA	Complies
EINECS	Complies
ELINCS	-
DSL	Complies
NDSL	Complies
PICCS	Complies
ENCS	-
IECSC	Complies
AICS	Complies
KECL	Complies

15.2 Chemical Safety Assessment

No information available.

SECTION 16. OTHER INFORMATION

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The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind, and we make no warranties for merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used following our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since the conditions of use of the product are not under the control of Ludger, the buyer/user must determine the necessary conditions for the safe use of the product. Ludger will not be liable for any damages resulting from handling or contact with the product.

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

Product Name **NP-40 10% solution**

Product Catalogue Name **NP-40 10% solution, LZ-NP40SOL-01, LZ-NP40SOL-50**

Company: Ludger Ltd
Culham Science Centre
Abingdon
Oxford OX14 3EB

Telephone: 01865 408554

Emergency Telephone: 01865 408554

Email: info@ludger.com

SECTION 2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture****Regulation (EC) No 1272/2008**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS].

2.2 Label elements**Product identifier**

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [GHS].

Signal word

None

2.3 Other hazard information**SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS****3.1 Substances**

Not applicable

3.2 Mixtures

Full text of H- and EUH-phrases: see section 16.

SECTION 4. FIRST-AID MEASURES**4.1 Description of First Aid Measures****General advice**

No hazards which require special first aid measures.

Eye contact

None under normal use conditions.

Skin contact

None under normal use conditions.

Inhalation

None under normal use conditions.

Ingestion

None under normal use conditions.

4.2 Most important symptoms and effects, both acute and delayed

None known

4.3 Indication of immediate medical attention and special treatment needed**Note to physicians**

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

None in particular.

5.3 Advice for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures****Personal precautions**

No information available.

For emergency responders

Use personal protection recommended in Section 8.

6.2 Environmental Precautions

See Section 12 for additional Ecological Information.

6.3 Methods and material for containment and cleaning up**Methods for containment**

Not applicable.

Methods for cleaning up

Collect spillage.

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Handle following good industrial hygiene and safety practices.

7.2 Conditions for safe storage, including any incompatibilities**Storage temperature**

No information available.

Storage Conditions

Keep/store only in the original container.

Incompatible materials

None known based on the information supplied.

7.3 Specific end uses**Risk management methods [RMM]**

The information required is contained in this Safety Data Sheet.

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

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region-specific regulatory bodies

Derived No Effect Level (DNEL) No information available

Predicted No Effect Concentration (PNEC) No information available

8.2 Exposure controls**Engineering controls**

Showers. Eyewash stations.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Wear safety glasses with side shields (or goggles).

Skin and body protection

Wear suitable protective clothing and gloves.

Respiratory protection

Not applicable.

General hygiene considerations

Handle following good industrial hygiene and safety practices.

Environmental exposure controls

See Section 12: ECOLOGICAL INFORMATION.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Appearance	Liquid
Colour	Colourless
Odour	Mild
Odour Threshold	No data available
pH	Not applicable
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	No data available
Water solubility	Soluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other information

No further relevant information available.

SECTION 10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available.

10.2 Chemical stability

Stable under normal conditions.

10.3 Possibility of Hazardous Reactions

None under normal processing.

10.4 Conditions to avoid

None known based on the information supplied.

10.5 Incompatible materials

None known based on the information supplied.

10.6 Hazardous decomposition products

None known based on the information supplied.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Product information

The product does not present an acute toxicity hazard based on known or supplied information.

Inhalation

No known effect

Eye contact

No known effect based on the information supplied

Skin contact

No known hazard in contact with skin

Ingestion

No known effect based on the information supplied

Unknown acute toxicity

10 % of the mixture consists of ingredient(s) of unknown toxicity

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Water	> 90 mL/kg (Rat)	-	-
4-Nonylphenyl-polyethylene glycol	= 1310 mg/kg (Rat) = 2590 mg/kg (Rat)	= 1780 µL/kg (Rabbit) = 2 mL/kg (Rabbit)	-

Skin corrosion/irritation

Not applicable

Serious eye damage/eye irritation

Not applicable

Sensitization

Not applicable

Germ cell mutagenicity

Not applicable

Carcinogenicity

No information available

Reproductive toxicity

No information available

Developmental toxicity

No information available

Teratogenicity

No information available

STOT - single exposure

No information available

STOT - repeated exposure

No information available

Neurological effects

No information available

Target organ effects

None known

Other adverse effects

No information available

Symptoms

No information available

Aspiration hazard

No information available

SECTION 12. ECOLOGICAL INFORMATION**12.1 Toxicity**

10 % of the mixture consists of component(s) of unknown hazards to the aquatic environment.

12.2 Persistence and Degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

No data available

12.6 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**13.1 Waste Treatment Methods****Waste from Residues/Unused Products**

Disposal should follow applicable regional, national and local laws and regulations. Send to a licensed recycler, reclaimer, or incinerator.

Contaminated packaging

Empty containers must be tripled and rinsed before disposal.

SECTION 14. TRANSPORT INFORMATION**IMDG**

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Marine pollutant	Not applicable
14.6 Special Provisions	None
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available

RID

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

ADR

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable

14.6 Special Provisions

Done

ICAO (air)

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

IATA

14.1 UN/ID No	Not regulated
14.2 Proper shipping name	Not regulated
14.3 Hazard class	Not regulated
14.4 Packing group	Not regulated
14.5 Environmental hazard	Not applicable
14.6 Special Provisions	None

SECTION 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific to the substance or mixture

National Regulations

Occupational Illnesses (R-463-3, France)

European Union

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

International Inventories

All of the components in the product are on the following Inventory lists TSCA (United States), Canada (DSL/NDSL), Europe (EINECS/ELINCS), Australia (AICS), South Korea (KECL);, China (IECSC), Philippines (PICCS).

TSCA	Complies
EINECS	-
ELINCS	-
DSL	Complies
NDSL	Complies
PICCS	Complies
ENCS	-
IECSC	Complies
AICS	Complies
KECL	Complies

15.2 Chemical Safety Assessment

For this product, a chemical safety assessment was not carried out.

SECTION 16. OTHER INFORMATION

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The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind, and we make no warranties for merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used following our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since the conditions of use of the product are not under the control of Ludger, the buyer/user must

determine the necessary conditions for the safe use of the product. Ludger will not be liable for any damages resulting from handling or contact with the product.

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

Product Name **LudgerZyme Peptide N-glycosidase L
(Flavobacterium akiainvivens) supplied in 20mM Citrate-Phosphate Buffer pH 6.0 with 100mM NaCl**

Product Catalogue Name **LZ-PNGFaseL-Bulk, LZ-PNGaseL-50**

Company: Ludger Ltd
Culham Science Centre
Abingdon
Oxfordshire
OX14 3EB

Telephone: 01865 408554
Emergency Telephone: 01865 408554
Email: info@ludger.com

SECTION 2. HAZARDS IDENTIFICATION**2.1 Classification of the substance or mixture**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

2.2 Label elements

Not a hazardous substance or mixture.

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**3.1 Substances**

Synonyms Disodium phosphate (anhydrous)
Disodium hydrogen phosphate

Formula: Na2HPO4

Molecular weight: 141.96 g/mol

CAS-No.: 7558-79-4

EC-No.: 231-448-7

Synonyms Citric Acid

Formula: HOC(COOH)(CH2COOH)2

Molecular weight: 192.12 g/mol

CAS-No.: 77-92-9

EC-No.: 201-069-1

Synonyms Sodium chloride

Formula: NaCl

Molecular weight: 58.44 g/mol

CAS-No.: 7647-14-5

EC-No.: 231-598-3

Synonyms Peptide N-glycosidase L (Flavobacterium akiainvivens)
 Molecular weight: 50kDal
 CAS-No.: -
 EC-No.: -

Component	Concentration
Name: disodium hydrogen phosphate	<1%
CAS-No. 7558-79-4	
EC-No. 231-448-7	
2 nd Name: citric acid	<1%
CAS-No. 77-92-9	
EC-No. 201-069-1	
Index-No.	
3 rd Name: sodium chloride	<1%
CAS-No. 7647-14-5	
EC-No. 231-598-3	
Index-No.	
4 th Name: Peptide N-glycosidase L (Flavobacterium akiainvivens)	<0.1%
CAS-No. 7647-14-5	
EC-No. 231-598-3	
Index-No.	

No components need to be disclosed according to the applicable regulations.

SECTION 4. FIRST-AID MEASURES

4.1 Description of First Aid Measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

If breathed in, move the person into fresh air. If not breathing, give artificial respiration.

In case of skin contact

Wash off with soap and plenty of water.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5. FIRE-FIGHTING MEASURES**5.1 Extinguishing media****Suitable extinguishing media**

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture

Carbon oxides, Hydrogen chloride gas, Sodium oxides

5.3 Advice for Firefighters

Wear a self-contained breathing apparatus for firefighting if necessary.

5.4 Further information

No data available

SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Avoid dust formation. Avoid breathing vapours, mist or gas.

For personal protection see section 8.

6.2 Environmental precautions

No special environmental precautions are required.

6.3 Methods and materials for containment and cleaning up

Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe handling**

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Store in a cool place. Keep the container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2, no other specific uses are stipulated

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

8.2 Exposure controls**Appropriate engineering controls**

General industrial hygiene practice.

Personal protective equipment**Eye/face protection**

Safety glasses with side shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected before use. Use proper glove removal technique (without touching the gloves' outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use following applicable laws and good laboratory practices.

Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: Dermatrill® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail

sales@kcl.de, test method: EN374

Contact the supplier of the EC-approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering approval for any specific use scenario.

Body Protection

Choose body protection based on its type, the concentration and amount of dangerous substances, and the specific work-place. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Respiratory protection is not required. Where protection from nuisance levels of dust is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

No special environmental precautions are required.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**9.1 Information on basic physical and chemical properties**

Appearance Form	Liquid, clear
Odour	No data available
Odour Threshold	No data available
pH	6.0 at 25 °C
Melting point/freezing point	No data available
Initial boiling point and boiling range	No data available
Flash point	No data available

Evaporation rate
Flammability (solid, gas)
Upper/lower flammability or explosive limits
Vapour pressure
Vapour density
Relative density
Water solubility
Partition coefficient: n-octanol/water
Auto-ignition temperature
Decomposition temperature
Viscosity
Explosive properties
Oxidizing properties

No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available
No data available

9.2 Other safety information

No data available

SECTION 10. STABILITY AND REACTIVITY**10.1 Reactivity**

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions

No data available

10.4 Conditions to avoid

No data available

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas, Sodium oxides

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11. TOXICOLOGICAL INFORMATION**11.1 Information on toxicological effects****Acute toxicity**

No data available

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

RTECS: Not available

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12. ECOLOGICAL INFORMATION**12.1 Toxicity**

No data available

12.2 Persistence and Degradability

No data available

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS**13.1 Waste Treatment Methods****Product**

Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product

SECTION 14. TRANSPORT INFORMATION**14.1 UN Number**

ADR/RID: -

IMDG: -

IATA: -

14.2 UN Proper Shipping Name

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es)

ADR/RID: - IMDG: - IATA: -

14.4 Packing group

ADR/RID: - IMDG: - IATA: -

14.5 Environmental hazards

ADR/RID: No IMDG Marine pollutant: No IATA: No

14.6 Special precautions for user

No data available.

SECTION 15. REGULATORY INFORMATION

This safety datasheet complies with the requirements of Regulation (EC) No. 1907/2006.

15.1 Safety, health and environmental regulations/legislation specific to the substance or mixture

No data available

15.2 Chemical Safety Assessment

For this product, a chemical safety assessment was not carried out

SECTION 16. OTHER INFORMATION

The advice offered is derived from the currently available information on the hazardous materials in this product and its component(s). Consideration has been made regarding the quantities offered in the pre-dispensed container. The advice offered is, therefore not all-inclusive nor should it be taken as the descriptive of the compound generally.