

SAFETY DATA SHEET



AdvanceBio N-glycan sample preparation kit (96 samples), Part Number 5190-8005

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name	: AdvanceBio N-glycan sample preparation kit (96 samples), Part Number 5190-8005
Part no. (chemical kit)	: 5190-8005
Part no.	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) Not available.
	5X Tris Reaction Buffer Not available.
	5X Phosphate Reaction Buffer Not available.
	Denaturation Solution Not available.
	Detergent Solution Not available.
	Reductant solution Not available.
	2-AB solution Not available.

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

Material uses	: Reagents and Standards for Analytical Chemistry Laboratory Use Research and Development
	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 0.04 ml
	5X Tris Reaction Buffer 1 ml
	5X Phosphate Reaction Buffer 1 ml
	Denaturation Solution 0.2 ml
	Detergent Solution 0.2 ml
	Reductant solution 0.375 ml
	2-AB solution 0.375 ml

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) Mixture
	5X Tris Reaction Buffer Mixture
	5X Phosphate Reaction Buffer Mixture
	Denaturation Solution Mixture
	Detergent Solution Mixture

Date of issue/Date of revision : 20/11/2018

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Reductant solution Mixture
2-AB solution Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Denaturation Solution

H318 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H317 SKIN SENSITISATION - Category 1
H412 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Detergent Solution

H315 SKIN CORROSION/IRRITATION - Category 2
H319 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
H411 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

Reductant solution

H300 ACUTE TOXICITY (oral) - Category 2
H311 ACUTE TOXICITY (dermal) - Category 3
H330 ACUTE TOXICITY (inhalation) - Category 2
H314 SKIN CORROSION/IRRITATION - Category 1B
H411 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2

2-AB solution

H314 SKIN CORROSION/IRRITATION - Category 1B

Ingredients of unknown toxicity : Phosphate Reaction Buffer Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
Denaturation Solution Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
Detergent Solution Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%
2-AB solution Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms

: Denaturation Solution



Detergent Solution



Reductant solution



2-AB solution



SECTION 2: Hazards identification

Signal word	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No signal word. No signal word. No signal word. Danger Warning Danger Danger
Hazard statements	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. H318 - Causes serious eye damage. H317 - May cause an allergic skin reaction. H412 - Harmful to aquatic life with long lasting effects. H319 - Causes serious eye irritation. H315 - Causes skin irritation. H411 - Toxic to aquatic life with long lasting effects. H300 + H330 - Fatal if swallowed or if inhaled. H311 - Toxic in contact with skin. H314 - Causes severe skin burns and eye damage. H411 - Toxic to aquatic life with long lasting effects. H314 - Causes severe skin burns and eye damage.
Precautionary statements		
Prevention	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Not applicable. Not applicable. Not applicable. P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection. P273 - Avoid release to the environment. P260 - Do not breathe vapour. P280 - Wear protective gloves. Wear protective clothing. Wear eye or face protection.
Response	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution	Not applicable. Not applicable. Not applicable. P305 + P351 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTER or physician. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.

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	2-AB solution	P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or physician. P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician. P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. P303 + P361 + P353 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Immediately call a POISON CENTER or physician. P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.
Storage	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P405 - Store locked up. P405 - Store locked up.
Disposal	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	: Denaturation Solution Detergent Solution Reductant solution 2-AB solution	- 2-Mercaptoethanol Not applicable. - sodium cyanotrihydroborate - acetic acid - anthranilamide
Supplemental label elements	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

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Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles :

Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
5X Tris Reaction Buffer	Not applicable.
5X Phosphate Reaction Buffer	Not applicable.
Denaturation Solution	Not applicable.
Detergent Solution	Not applicable.
Reductant solution	Not applicable.
2-AB solution	Not applicable.

Special packaging requirements

Tactile warning of danger :

Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
5X Tris Reaction Buffer	Not applicable.
5X Phosphate Reaction Buffer	Not applicable.
Denaturation Solution	Not applicable.
Detergent Solution	Not applicable.
Reductant solution	Not applicable.
2-AB solution	Not applicable.

2.3 Other hazards

Other hazards which do not result in classification :

Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	None known.
5X Tris Reaction Buffer	None known.
5X Phosphate Reaction Buffer	None known.
Denaturation Solution	None known.
Detergent Solution	None known.
Reductant solution	Causes digestive tract burns.
2-AB solution	Causes digestive tract burns.

SECTION 3: Composition/information on ingredients

3.1 Substances :

Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Mixture
5X Tris Reaction Buffer	Mixture
5X Phosphate Reaction Buffer	Mixture
Denaturation Solution	Mixture
Detergent Solution	Mixture
Reductant solution	Mixture
2-AB solution	Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Denaturation Solution 2-Mercaptoethanol	EC: 200-464-6 CAS: 60-24-2	≤7.7	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411	[1]
Sodium dodecyl sulphate	EC: 205-788-1 CAS: 151-21-3	≤2.2	Flam. Sol. 2, H228 Acute Tox. 4, H302 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Dam. 1, H318	[1]

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SECTION 3: Composition/information on ingredients

Detergent Solution Nonylphenol, ethoxylated	EC: 500-024-6 CAS: 9016-45-9	≥10 - <25	STOT SE 3, H335 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411 Acute Tox. 4, H302 Acute Tox. 4, H312 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	[1] [5]
Reductant solution sodium cyanotrihydroborate	EC: 247-317-2 CAS: 25895-60-7	≥10 - <25	Flam. Sol. 1, H228 Acute Tox. 2, H300 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Corr. 1B, H314 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1) EUH032	[1]
2-AB solution acetic acid	EC: 200-580-7 CAS: 64-19-7 Index: 607-002-00-6	≥25 - ≤50	Flam. Liq. 3, H226 Skin Corr. 1A, H314	[1] [2]
anthranilamide	EC: 201-851-2 CAS: 88-68-6	≥10 - <25	Acute Tox. 4, H302 Eye Dam. 1, H318 See Section 16 for the full text of the H statements declared above.	[1]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs. Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Immediately flush eyes with plenty of water, occasionally
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		lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
	Reductant solution	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
	2-AB solution	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
Inhalation	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	5X Phosphate Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	Denaturation Solution	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Detergent Solution	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Reductant solution	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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	2-AB solution	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	5X Tris Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	5X Phosphate Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Denaturation Solution	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Detergent Solution	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Reductant solution	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	2-AB solution	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	5X Tris Reaction Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is

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	conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
5X Phosphate Reaction Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Denaturation Solution	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Detergent Solution	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Reductant solution	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
2-AB solution	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not

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		enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Protection of first-aiders	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No action shall be taken involving any personal risk or without suitable training.
	5X Tris Reaction Buffer	No action shall be taken involving any personal risk or without suitable training.
	5X Phosphate Reaction Buffer	No action shall be taken involving any personal risk or without suitable training.
	Denaturation Solution	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	Detergent Solution	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	Reductant solution	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	2-AB solution	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No known significant effects or critical hazards.
	5X Tris Reaction Buffer	No known significant effects or critical hazards.
	5X Phosphate Reaction Buffer	No known significant effects or critical hazards.
	Denaturation Solution	Causes serious eye damage.
	Detergent Solution	Causes serious eye irritation.
	Reductant solution	Causes serious eye damage.
	2-AB solution	Causes serious eye damage.
Inhalation	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No known significant effects or critical hazards.
	5X Tris Reaction Buffer	No known significant effects or critical hazards.
	5X Phosphate Reaction Buffer	No known significant effects or critical hazards.
	Denaturation Solution	No known significant effects or critical hazards.
	Detergent Solution	No known significant effects or critical hazards.
	Reductant solution	Fatal if inhaled.
	2-AB solution	No known significant effects or critical hazards.

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Skin contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause an allergic skin reaction. Causes skin irritation. Causes severe burns. Toxic in contact with skin. Causes severe burns.
Ingestion	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Fatal if swallowed. Corrosive to the digestive tract. Causes burns. Corrosive to the digestive tract. Causes burns.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness
Inhalation	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

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Skin contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
	5X Tris Reaction Buffer	No specific data.
	5X Phosphate Reaction Buffer	No specific data.
	Denaturation Solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Detergent Solution	Adverse symptoms may include the following: irritation redness
Ingestion	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
	5X Tris Reaction Buffer	No specific data.
	5X Phosphate Reaction Buffer	No specific data.
	Denaturation Solution	Adverse symptoms may include the following: stomach pains
	Detergent Solution	No specific data.
	Reductant solution	Adverse symptoms may include the following: stomach pains
	2-AB solution	Adverse symptoms may include the following: stomach pains

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X Tris Reaction Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X Phosphate Reaction Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Denaturation Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Detergent Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Reductant solution	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	2-AB solution	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific treatment.
	5X Tris Reaction Buffer	No specific treatment.
	5X Phosphate Reaction Buffer	No specific treatment.
	Denaturation Solution	No specific treatment.

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Detergent Solution	No specific treatment.
Reductant solution	No specific treatment.
2-AB solution	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Use an extinguishing agent suitable for the surrounding fire.
	5X Tris Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
	5X Phosphate Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Denaturation Solution	Use an extinguishing agent suitable for the surrounding fire.
	Detergent Solution	Use an extinguishing agent suitable for the surrounding fire.
	Reductant solution	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	2-AB solution	Use an extinguishing agent suitable for the surrounding fire.
	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	None known.
	5X Tris Reaction Buffer	None known.
	5X Phosphate Reaction Buffer	None known.
	Denaturation Solution	None known.
	Detergent Solution	None known.
	Reductant solution	None known.
	2-AB solution	None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	In a fire or if heated, a pressure increase will occur and the container may burst.
	5X Tris Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	5X Phosphate Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	Denaturation Solution	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Detergent Solution	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Reductant solution	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	2-AB solution	In a fire or if heated, a pressure increase will occur and the container may burst.
	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
	5X Tris Reaction Buffer	No specific data.
	5X Phosphate Reaction Buffer	Decomposition products may include the following materials: phosphorus oxides metal oxide/oxides

SECTION 5: Firefighting measures

Denaturation Solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides metal oxide/oxides
Detergent Solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Reductant solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
2-AB solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides

5.3 Advice for firefighters

Special precautions for fire-fighters

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
5X Phosphate Reaction Buffer	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Denaturation Solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Detergent Solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Reductant solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
2-AB solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
5X Phosphate Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Denaturation Solution	Fire-fighters should wear appropriate protective equipment

SECTION 5: Firefighting measures

Detergent Solution	and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Reductant solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
2-AB solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	5X Tris Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	5X Phosphate Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Denaturation Solution	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Detergent Solution	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Reductant solution	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put

SECTION 6: Accidental release measures

	2-AB solution	on appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	5X Tris Reaction Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	5X Phosphate Reaction Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Denaturation Solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Detergent Solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Reductant solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	2-AB solution	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	5X Tris Reaction Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	5X Phosphate Reaction Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Denaturation Solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
	Detergent Solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

SECTION 6: Accidental release measures

Reductant solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
2-AB solution	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		5X Tris Reaction Buffer	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		5X Phosphate Reaction Buffer	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		Denaturation Solution	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		Detergent Solution	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		Reductant solution	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
		2-AB solution	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Put on appropriate personal protective equipment (see Section 8).
	5X Tris Reaction Buffer	Put on appropriate personal protective equipment (see Section 8).
	5X Phosphate Reaction Buffer	Put on appropriate personal protective equipment (see Section 8).
	Denaturation Solution	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Detergent Solution	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Reductant solution	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	2-AB solution	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	5X Tris Reaction Buffer	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
	5X Phosphate Reaction Buffer	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating,

SECTION 7: Handling and storage

Denaturation Solution	drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Detergent Solution	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Reductant solution	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
2-AB solution	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
5X Tris Reaction Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
5X Phosphate Reaction Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
Denaturation Solution	Store in accordance with local regulations. Store in original

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SECTION 7: Handling and storage

Detergent Solution	<p>container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>
Reductant solution	<p>Store between the following temperatures: 2 to 8°C (35.6 to 46.4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>
2-AB solution	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</p>

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
Detergent Solution E2	200	500
Reductant solution H2 E2	50 200	200 500

7.3 Specific end use(s)

Recommendations	<ul style="list-style-type: none"> : Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution 	<ul style="list-style-type: none"> Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
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SECTION 7: Handling and storage

	Detergent Solution	Industrial applications, Professional applications.
	Reductant solution	Industrial applications, Professional applications.
	2-AB solution	Industrial applications, Professional applications.
Industrial sector specific solutions	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
	5X Tris Reaction Buffer	Not applicable.
	5X Phosphate Reaction Buffer	Not applicable.
	Denaturation Solution	Not applicable.
	Detergent Solution	Not applicable.
	Reductant solution	Not applicable.
	2-AB solution	Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
2-AB solution acetic acid	EU OEL (Europe, 2/2017). Notes: list of indicative occupational exposure limit values STEL: 20 ppm 15 minutes. STEL: 50 mg/m ³ 15 minutes.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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SECTION 8: Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Liquid. [Clear.]	
	5X Tris Reaction Buffer	Liquid.	
	5X Phosphate Reaction Buffer	Liquid.	
	Denaturation Solution	Liquid. [Clear.]	
	Detergent Solution	Liquid.	
	Reductant solution	Liquid.	
	2-AB solution	Liquid.	
	Colour	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
5X Phosphate Reaction Buffer		Colourless.	
Denaturation Solution		Not available.	
Detergent Solution		Not available.	
Reductant solution		Colourless. Liquid.	
2-AB solution		Clear.	
Odour		: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.	
	Denaturation Solution	Stench.	

SECTION 9: Physical and chemical properties

	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Odour threshold	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
pH	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	7.5
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	7.5
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	7.5
	2-AB solution	8.8
Melting point/freezing point	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	0°C
	5X Tris Reaction Buffer	0°C
	5X Phosphate Reaction Buffer	0°C
	Denaturation Solution	0°C
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Initial boiling point and boiling range	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	100°C
	5X Tris Reaction Buffer	100°C
	5X Phosphate Reaction Buffer	100°C
	Denaturation Solution	100°C
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Flash point	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Closed cup: >93.3°C

SECTION 9: Physical and chemical properties

Evaporation rate	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
		5X Phosphate Reaction Buffer	Not available.
		Denaturation Solution	Not available.
		Detergent Solution	Not available.
		Reductant solution	Not available.
		2-AB solution	Not available.
Flammability (solid, gas)	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
		5X Tris Reaction Buffer	Not applicable.
		5X Phosphate Reaction Buffer	Not applicable.
		Denaturation Solution	Not applicable.
		Detergent Solution	Not applicable.
		Reductant solution	Not applicable.
		2-AB solution	Not applicable.
Upper/lower flammability or explosive limits	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
		5X Phosphate Reaction Buffer	Not available.
		Denaturation Solution	Not available.
		Detergent Solution	Not available.
		Reductant solution	Not available.
		2-AB solution	Not available.
Vapour pressure	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
		5X Phosphate Reaction Buffer	Not available.
		Denaturation Solution	Not available.
		Detergent Solution	Not available.
		Reductant solution	Not available.
		2-AB solution	Not available.
Vapour density	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
		5X Phosphate Reaction Buffer	Not available.
		Denaturation Solution	Not available.
		Detergent Solution	Not available.
		Reductant solution	Not available.
		2-AB solution	Not available.
Relative density	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
		5X Tris Reaction Buffer	Not available.
		5X Phosphate Reaction Buffer	Not available.
		Denaturation Solution	Not available.
		Detergent Solution	Not available.
		Reductant solution	Not available.

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	2-AB solution	Not available.
Solubility(ies)	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Easily soluble in the following materials: cold water and hot water.
	5X Tris Reaction Buffer	Easily soluble in the following materials: cold water and hot water.
	5X Phosphate Reaction Buffer	Easily soluble in the following materials: cold water and hot water.
	Denaturation Solution	Easily soluble in the following materials: cold water and hot water.
	Detergent Solution	Easily soluble in the following materials: cold water and hot water.
	Reductant solution	Soluble in the following materials: cold water and hot water.
	2-AB solution	Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Auto-ignition temperature	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Decomposition temperature	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Viscosity	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.

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SECTION 9: Physical and chemical properties

Explosive properties	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
	Oxidising properties	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)
5X Tris Reaction Buffer		Not available.
5X Phosphate Reaction Buffer		Not available.
Denaturation Solution		Not available.
Detergent Solution		Not available.
Reductant solution		Not available.
2-AB solution		Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific test data related to reactivity available for this product or its ingredients.
	5X Tris Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
	5X Phosphate Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
	Denaturation Solution	No specific test data related to reactivity available for this product or its ingredients.
	Detergent Solution	No specific test data related to reactivity available for this product or its ingredients.
	Reductant solution	No specific test data related to reactivity available for this product or its ingredients.
	2-AB solution	No specific test data related to reactivity available for this product or its ingredients.
	10.2 Chemical stability	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)
5X Tris Reaction Buffer		The product is stable.
5X Phosphate Reaction Buffer		The product is stable.
Denaturation Solution		The product is stable.
Detergent Solution		The product is stable.
Reductant solution		The product is stable.
2-AB solution		The product is stable.
10.3 Possibility of hazardous reactions	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Under normal conditions of storage and use, hazardous reactions will not occur.
	5X Tris Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	5X Phosphate Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.

SECTION 10: Stability and reactivity

Denaturation Solution	Under normal conditions of storage and use, hazardous reactions will not occur.
Detergent Solution	Under normal conditions of storage and use, hazardous reactions will not occur.
Reductant solution	Under normal conditions of storage and use, hazardous reactions will not occur.
2-AB solution	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
		5X Tris Reaction Buffer	No specific data.
		5X Phosphate Reaction Buffer	No specific data.
		Denaturation Solution	No specific data.
		Detergent Solution	No specific data.
		Reductant solution	No specific data.
		2-AB solution	No specific data.

10.5 Incompatible materials	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	May react or be incompatible with oxidising materials.
		5X Tris Reaction Buffer	May react or be incompatible with oxidising materials.
		5X Phosphate Reaction Buffer	May react or be incompatible with oxidising materials.
		Denaturation Solution	May react or be incompatible with oxidising materials.
		Detergent Solution	May react or be incompatible with oxidising materials.
		Reductant solution	May react or be incompatible with oxidising materials.
		2-AB solution	May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products	:	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		5X Tris Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		5X Phosphate Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Denaturation Solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Detergent Solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		Reductant solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		2-AB solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
Denaturation Solution 2-Mercaptoethanol	LD50 Dermal	Rabbit	167.1 mg/kg	-
	LD50 Oral	Rat	244 mg/kg	-
Sodium dodecyl sulphate	LD50 Oral	Rat	1288 mg/kg	-
Detergent Solution Nonylphenol, ethoxylated	LD50 Dermal	Rabbit	2000 mg/kg	-
	LD50 Oral	Rat	1310 mg/kg	-
2-AB solution acetic acid	LC50 Inhalation Vapour	Rat	11000 mg/m ³	4 hours
	LD50 Dermal	Rabbit	1060 mg/kg	-
	LD50 Oral	Rat	3310 mg/kg	-

Acute toxicity estimates

Route	ATE value
5X Phosphate Reaction Buffer Oral	26946.1 mg/kg
Denaturation Solution Oral	3300.8 mg/kg
Dermal	2382.9 mg/kg
Inhalation (vapours)	28.52 mg/l
Inhalation (dusts and mists)	74.85 mg/l
Detergent Solution Oral	8717.7 mg/kg
Dermal	13309.5 mg/kg
Reductant solution Oral	25 mg/kg
Dermal	250 mg/kg
Inhalation (dusts and mists)	0.25 mg/l
2-AB solution Oral	5000 mg/kg

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Denaturation Solution 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-
Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 milligrams	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-
Detergent Solution Nonylphenol, ethoxylated	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	500	-

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SECTION 11: Toxicological information

2-AB solution acetic acid	Eyes - Severe irritant Eyes - Severe irritant	Guinea pig Mouse	- -	milligrams 20 milligrams 20 milligrams	- -
	Skin - Severe irritant	Rabbit	-	525 milligrams	-

Sensitiser

Conclusion/Summary : Not available.

Skin : **N-Glycanase® (EDTA - Free)** - May cause sensitisation by skin contact.

Respiratory : **N-Glycanase® (EDTA - Free)** - May cause sensitisation by inhalation.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
Denaturation Solution 2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation
Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Routes of entry anticipated: Oral, Dermal, Inhalation.
	Detergent Solution	Routes of entry anticipated: Oral, Dermal, Inhalation.
	Reductant solution	Routes of entry anticipated: Oral, Dermal, Inhalation.
	2-AB solution	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No known significant effects or critical hazards.
	5X Tris Reaction Buffer	No known significant effects or critical hazards.
	5X Phosphate Reaction Buffer	No known significant effects or critical hazards.
	Denaturation Solution	No known significant effects or critical hazards.
	Detergent Solution	No known significant effects or critical hazards.
	Reductant solution	Fatal if inhaled.
	2-AB solution	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Ingestion	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Fatal if swallowed. Corrosive to the digestive tract. Causes burns. Corrosive to the digestive tract. Causes burns.
Skin contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. May cause an allergic skin reaction. Causes skin irritation. Causes severe burns. Toxic in contact with skin. Causes severe burns.
Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye damage. Causes serious eye irritation. Causes serious eye damage. Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
Ingestion	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No specific data. No specific data. No specific data. Adverse symptoms may include the following: stomach pains No specific data. Adverse symptoms may include the following: stomach pains Adverse symptoms may include the following: stomach pains

SECTION 11: Toxicological information

Skin contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
	5X Tris Reaction Buffer	No specific data.
	5X Phosphate Reaction Buffer	No specific data.
	Denaturation Solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Detergent Solution	Adverse symptoms may include the following: irritation redness
Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No specific data.
	5X Tris Reaction Buffer	No specific data.
	5X Phosphate Reaction Buffer	No specific data.
	Denaturation Solution	Adverse symptoms may include the following: pain watering redness
	Detergent Solution	Adverse symptoms may include the following: pain or irritation watering redness
	: Reductant solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	2-AB solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	: Reductant solution	Adverse symptoms may include the following: pain watering redness
	2-AB solution	Adverse symptoms may include the following: pain watering redness

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

SECTION 11: Toxicological information

General	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

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SECTION 11: Toxicological information

2-AB solution

No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Denaturation Solution Sodium dodecyl sulphate	Acute EC50 1200 µg/l Marine water Acute LC50 900 µg/l Marine water Acute LC50 1400 µg/l Fresh water Acute LC50 590 µg/l Fresh water Chronic NOEC 1.25 mg/l Marine water Chronic NOEC 1 mg/l Fresh water Chronic NOEC 3.2 mg/l Fresh water Chronic NOEC >1357 µg/l Fresh water	Algae - Skeletonema costatum Crustaceans - Artemia salina - Adult Daphnia - Daphnia pulex - Neonate Fish - Cirrhinus mrigala - Larvae Algae - Ulva fasciata - Zoea Crustaceans - Pseudosida ramosa - Neonate Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas	96 hours 48 hours 48 hours 96 hours 96 hours 21 days 21 days 42 days
Detergent Solution Nonylphenol, ethoxylated	Acute EC50 12 mg/l Fresh water Acute LC50 1.23 mg/l Marine water Acute LC50 0.148 mg/l Fresh water Acute LC50 1300 µg/l Fresh water Chronic NOEC 8 mg/l Fresh water Chronic NOEC 35 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata Crustaceans - Americamysis bahia Daphnia - Daphnia magna - Neonate Fish - Lepomis macrochirus Algae - Pseudokirchneriella subcapitata Fish - Oryzias latipes - Fry	96 hours 48 hours 48 hours 96 hours 96 hours 100 days
2-AB solution acetic acid	Acute EC50 73400 µg/l Fresh water Acute EC50 65000 µg/l Fresh water Acute LC50 32 mg/l Marine water Acute LC50 75000 µg/l Fresh water Acute LC50 395000 µg/l Fresh water	Algae - Navicula seminulum Daphnia - Daphnia magna - Neonate Crustaceans - Artemia salina Fish - Lepomis macrochirus Fish - Pimephales promelas	96 hours 48 hours 48 hours 96 hours 96 hours
anthranilamide			

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Denaturation Solution 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)	69 % - Inherent - 60 days	20 mg/l	-
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability	
2-AB solution acetic acid	-	-	Readily	

12.3 Bioaccumulative potential

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SECTION 12: Ecological information

Product/ingredient name	LogP _{ow}	BCF	Potential
Denaturation Solution			
2-Mercaptoethanol	-0.056	-	low
Sodium dodecyl sulphate	-2.03	-	low
2-AB solution			
acetic acid	-0.17	3.16	low
anthranilamide	0.35	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

12.6 Other adverse effects : No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : The classification of the product may meet the criteria for a hazardous waste.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

ADR/RID / IMDG / IATA : Not regulated.

Additional information

Remarks : De minimis quantities

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

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SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Detergent Solution Nonylphenol, ethoxylated	Substance of equivalent concern for environment	Listed	43	6/13/2017

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
Detergent Solution Nonylphenol, ethoxylated	Substance of equivalent concern for environment	Candidate	ED/169/2012	12/19/2012

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
	5X Tris Reaction Buffer	Not applicable.
	5X Phosphate Reaction Buffer	Not applicable.
	Denaturation Solution	Not applicable.
	Detergent Solution	Not applicable.
	Reductant solution	Not applicable.
	2-AB solution	Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Ingredient name	Annex	Status
Detergent Solution Nonylphenol ethoxylates (C ₂ H ₄ O) _n C ₁₅ H ₂₄ O	Annex I - Part 1	Listed
-	Annex I - Part 2	Listed

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
Detergent Solution E2
Reductant solution H2 E2

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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SECTION 15: Regulatory information

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Europe	: Not determined.
Japan	: Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined.
Malaysia	: Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
<input checked="" type="checkbox"/> Denaturation Solution Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	Calculation method Calculation method Calculation method
Detergent Solution Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 2, H411	Calculation method Calculation method Calculation method
Reductant solution	

Date of issue/Date of revision : 20/11/2018

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SECTION 16: Other information

Acute Tox. 2, H300 Acute Tox. 3, H311 Acute Tox. 2, H330 Skin Corr. 1B, H314 Aquatic Chronic 2, H411	Calculation method Calculation method Calculation method Calculation method Calculation method
2-AB solution Skin Corr. 1B, H314	Calculation method

[Full text of abbreviated H statements](#)

<p>Denaturation Solution H228 H301 H302 H310 H315 H317 H318 H330 H332 H335 H400 H411 H412</p> <p>Detergent Solution H302 H312 H315 H319 H400 H410 H411</p> <p>Reductant solution H228 H300 H310 H311 H314 H330 H400 H410 H411</p> <p>2-AB solution H226 H302 H314 H318</p>	<p>Flammable solid. Toxic if swallowed. Harmful if swallowed. Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. Harmful if inhaled. May cause respiratory irritation. Very toxic to aquatic life. Toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.</p> <p>Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects.</p> <p>Flammable solid. Fatal if swallowed. Fatal in contact with skin. Toxic in contact with skin. Causes severe skin burns and eye damage. Fatal if inhaled. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects. Toxic to aquatic life with long lasting effects.</p> <p>Flammable liquid and vapour. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage.</p>
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[Full text of classifications \[CLP/GHS\]](#)

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SECTION 16: Other information

Denaturation Solution

Acute Tox. 2, H310
 Acute Tox. 2, H330
 Acute Tox. 3, H301
 Acute Tox. 4, H302
 Acute Tox. 4, H332
 Aquatic Acute 1, H400
 Aquatic Chronic 2, H411
 Aquatic Chronic 3, H412
 Eye Dam. 1, H318
 Flam. Sol. 2, H228
 Skin Irrit. 2, H315
 Skin Sens. 1, H317
 STOT SE 3, H335

ACUTE TOXICITY (dermal) - Category 2
 ACUTE TOXICITY (inhalation) - Category 2
 ACUTE TOXICITY (oral) - Category 3
 ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
 FLAMMABLE SOLIDS - Category 2
 SKIN CORROSION/IRRITATION - Category 2
 SKIN SENSITISATION - Category 1
 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
 (Respiratory tract irritation) - Category 3

Detergent Solution

Acute Tox. 4, H302
 Acute Tox. 4, H312
 Aquatic Acute 1, H400
 Aquatic Chronic 1, H410
 Aquatic Chronic 2, H411
 Eye Irrit. 2, H319
 Skin Irrit. 2, H315

ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (dermal) - Category 4
 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
 SKIN CORROSION/IRRITATION - Category 2

Reductant solution

Acute Tox. 2, H300
 Acute Tox. 2, H310
 Acute Tox. 2, H330
 Acute Tox. 3, H311
 Aquatic Acute 1, H400
 Aquatic Chronic 1, H410
 Aquatic Chronic 2, H411
 EUH032
 Flam. Sol. 1, H228
 Skin Corr. 1B, H314

ACUTE TOXICITY (oral) - Category 2
 ACUTE TOXICITY (dermal) - Category 2
 ACUTE TOXICITY (inhalation) - Category 2
 ACUTE TOXICITY (dermal) - Category 3
 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
 Contact with acids liberates very toxic gas.
 FLAMMABLE SOLIDS - Category 1
 SKIN CORROSION/IRRITATION - Category 1B

2-AB solution

Acute Tox. 4, H302
 Eye Dam. 1, H318
 Flam. Liq. 3, H226
 Skin Corr. 1A, H314
 Skin Corr. 1B, H314

ACUTE TOXICITY (oral) - Category 4
 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
 FLAMMABLE LIQUIDS - Category 3
 SKIN CORROSION/IRRITATION - Category 1A
 SKIN CORROSION/IRRITATION - Category 1B

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