

SAFETY DATA SHEET



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

Section 1. Identification

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) Not available.
 (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.
Validation date : 12/9/2016

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

Material uses : Analytical chemistry.
 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

Supplier/Manufacturer : Agilent Technologies, Inc.
 5301 Stevens Creek Blvd
 Santa Clara, CA 95051, USA
 800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
 5X Tris Reaction Buffer While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
 5X Phosphate Reaction Buffer While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.

Section 2. Hazards identification

1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Denaturation Solution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Detergent Solution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Reductant solution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
2-AB solution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Denaturation Solution

H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1

Detergent Solution

H315	SKIN IRRITATION - Category 2
H319	EYE IRRITATION - Category 2A

Reductant solution

H300	ACUTE TOXICITY (oral) - Category 2
H311	ACUTE TOXICITY (dermal) - Category 3
H330	ACUTE TOXICITY (inhalation) - Category 2
H314	SKIN CORROSION - Category 1B
H318	SERIOUS EYE DAMAGE - Category 1

2-AB solution

H314	SKIN CORROSION - Category 1B
H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1

2.2 GHS label elements

Hazard pictograms



Signal word

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	No signal word.
5X Tris Reaction Buffer	No signal word.
5X Phosphate Reaction Buffer	No signal word.
Denaturation Solution	Danger
Detergent Solution	Warning
Reductant solution	Danger
2-AB solution	Danger

Hazard statements

: 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	GHS SYMBOL - Corrosion - Exclamation mark - H318 - Causes serious eye damage.
	H317 - May cause an allergic skin reaction.
Detergent Solution	GHS SYMBOL - Exclamation mark - H319 - Causes serious eye irritation.
	H315 - Causes skin irritation.

Section 2. Hazards identification

	Reductant solution	GHS SYMBOL - Skull and crossbones - Corrosion - H300 + H330 - Fatal if swallowed or if inhaled. H311 - Toxic in contact with skin. H314 - Causes severe skin burns and eye damage.
	2-AB solution	GHS SYMBOL - Corrosion - Exclamation mark - H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction.
Precautionary statements		
Prevention		
	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution	Not applicable. Not applicable. Not applicable. P280 - Wear protective gloves. Wear eye or face protection. P261 - Avoid breathing vapor. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace. P280 - Wear protective gloves. Wear eye or face protection. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P284 - Wear respiratory protection. P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P261 - Avoid breathing vapor. P264 - Wash hands thoroughly after handling. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
	Detergent Solution	P280 - Wear protective gloves. Wear eye or face protection. P264 - Wash hands thoroughly after handling.
	Reductant solution	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P284 - Wear respiratory protection. P271 - Use only outdoors or in a well-ventilated area. P260 - Do not breathe vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash hands thoroughly after handling. P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P261 - Avoid breathing vapor. P264 - Wash hands thoroughly after handling. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
	2-AB solution	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P261 - Avoid breathing vapor. P264 - Wash hands thoroughly after handling. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
Response		
	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution	Not applicable. Not applicable. Not applicable. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.
	Detergent Solution	P302 + P352 + P362+P364 - IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. P332 + P313 - If skin irritation occurs: Get medical attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue

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Reductant solution	<p>rinsing. P337 + P313 - If eye irritation persists: Get medical attention. P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. P302 + P361+P364 + P352 + P312 - IF ON SKIN: Take off immediately all contaminated clothing and wash it before reuse. Wash with plenty of soap and water. Call a POISON CENTER or physician if you feel unwell. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.</p>
2-AB solution	<p>P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention. P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.</p>
Storage	<p>Not applicable.</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>Not applicable.</p> <p>P405 - Store locked up.</p> <p>P405 - Store locked up.</p>

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

Disposal

:

Section 2. Hazards identification

	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
	5X Tris Reaction Buffer	Not applicable.
	5X Phosphate Reaction Buffer	Not applicable.
	Denaturation Solution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Detergent Solution	Not applicable.
	Reductant solution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	2-AB solution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements	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	Do not taste or swallow. Wash thoroughly after handling.
	2-AB solution	Do not taste or swallow. Wash thoroughly after handling.
2.3 Other hazards		
Hazards not otherwise classified	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 severe digestive tract burns.

Section 3. Composition/information on ingredients

Substance/mixture	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

Ingredient name	%	CAS number
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	≤3	7558-79-4
Denaturation Solution 2-Mercaptoethanol	≤7.7	60-24-2
Sodium dodecyl sulphate	≤2.2	151-21-3
Detergent Solution Nonylphenol, ethoxylated	≥10 - <20	9016-45-9
Reductant solution		

Section 3. Composition/information on ingredients

Dimethyl sulfoxide	≥75 - ≤90	67-68-5
sodium cyanotrihydroborate	≥10 - <25	25895-60-7
2-AB solution		
Dimethyl sulfoxide	≥50 - ≤75	67-68-5
Acetic acid	≥25 - ≤50	64-19-7
anthranilamide	≥10 - ≤15	88-68-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

4.1 Description of necessary first aid measures

<p>Eye contact</p>	<p>: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)</p>	<p>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.</p>
	<p>5X Tris Reaction Buffer</p>	<p>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.</p>
	<p>5X Phosphate Reaction Buffer</p>	<p>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.</p>
	<p>Denaturation Solution</p>	<p>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.</p>
	<p>Detergent Solution</p>	<p>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. Get medical attention.</p>
	<p>Reductant solution</p>	<p>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.</p>
	<p>2-AB solution</p>	<p>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.</p>

Section 4. First aid measures

Inhalation	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	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.
	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

Section 4. First aid measures

Skin contact

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	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. 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. 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.

Section 4. First aid measures

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 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

Section 4. First aid measures

2-AB solution

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. 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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

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.
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 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 inhaled. No known significant effects or critical hazards.
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. May cause an allergic skin reaction.

Section 4. First aid measures

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. Severely corrosive to the digestive tract. Causes severe burns.
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Over-exposure signs/symptoms

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
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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) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	No specific data. No specific data. Adverse symptoms may include the following: pain or irritation redness blistering may occur Adverse symptoms may include the following: irritation redness Adverse symptoms may include the following: pain or irritation redness blistering may occur Adverse symptoms may include the following: pain or irritation redness blistering may occur
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Section 4. First aid measures

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
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4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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. 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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Specific treatments	: 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 treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
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Protection of first-aiders	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution	No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. 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.
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Section 4. First aid measures

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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 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.
2-AB solution	Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	None known. None known. None known. None known. None known. None known.
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5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 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.

Section 5. Fire-fighting measures

Hazardous thermal decomposition products

Detergent Solution	In a fire or if heated, a pressure increase will occur and the container may burst.
Reductant solution	In a fire or if heated, a pressure increase will occur and the container may burst.
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) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer	No specific data. No specific data. Decomposition products may include the following materials: phosphorus oxides metal oxide/oxides
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 protective actions for fire-fighters

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	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 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.
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.

Section 5. Fire-fighting measures

	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)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	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.
	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.
	Denaturation Solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Detergent Solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	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.
	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.

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 spilled 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 spilled 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 spilled material. Put on appropriate personal protective equipment.
	Denaturation Solution	No action shall be taken involving any personal

Section 6. Accidental release measures

risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor 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 spilled material. Avoid breathing vapor 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 spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

2-AB 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 spilled material. Do not breathe vapor 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 specialized 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 specialized 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 specialized 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 specialized 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 specialized 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 specialized 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".

Section 6. Accidental release measures

2-AB solution

If specialized 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 spilled 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 spilled 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 spilled 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 spilled 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).

Detergent Solution

Avoid dispersal of spilled 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).

Reductant solution

Avoid dispersal of spilled 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).

2-AB solution

Avoid dispersal of spilled 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 materials 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.

Section 6. Accidental release measures

Denaturation Solution	disposal container. Dispose of via a licensed waste disposal contractor. 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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). 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 vapor 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.
Detergent Solution		Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. 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

Section 7. Handling and storage

clothing. Do not breathe vapor or mist. Do not ingest. 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. 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 vapor 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.

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.

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.

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.

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.

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.

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

Advice on general occupational hygiene

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)

2-AB solution

5X Tris Reaction Buffer

5X Phosphate Reaction Buffer

Denaturation Solution

Detergent Solution

Reductant solution

Section 7. Handling and storage

	2-AB solution	<p>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. 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.</p>
<p>7.2 Conditions for safe storage, including any incompatibilities</p>	<p>: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)</p>	<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. 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
	5X Tris Reaction Buffer	<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 unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
	5X Phosphate Reaction Buffer	<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 unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
	Denaturation 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 unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
	Detergent 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. Keep container tightly closed and sealed</p>

Section 7. Handling and storage

Reductant solution

until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

2-AB solution

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 unlabeled containers. Use appropriate containment to avoid environmental contamination.

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 Detergent Solution Reductant solution 2-AB solution 	<ul style="list-style-type: none"> Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
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Industrial sector specific solutions

<ul style="list-style-type: none"> : Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution 	<ul style="list-style-type: none"> Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
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Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	None.
Denaturation Solution 2-Mercaptoethanol Sodium dodecyl sulphate	AIHA WEEL (United States, 10/2011). Absorbed through skin. TWA: 0.2 ppm 8 hours. None.
Detergent Solution Nonylphenol, ethoxylated	None.
Reductant solution Dimethyl sulfoxide sodium cyanotrihydroborate	AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours. None.
2-AB solution Dimethyl sulfoxide Acetic acid	AIHA WEEL (United States, 10/2011). TWA: 250 ppm 8 hours. ACGIH TLV (United States, 3/2016). TWA: 10 ppm 8 hours. TWA: 25 mg/m ³ 8 hours. STEL: 15 ppm 15 minutes. STEL: 37 mg/m ³ 15 minutes. OSHA PEL 1989 (United States, 3/1989). TWA: 10 ppm 8 hours. TWA: 25 mg/m ³ 8 hours. NIOSH REL (United States, 10/2013). TWA: 10 ppm 10 hours. TWA: 25 mg/m ³ 10 hours. STEL: 15 ppm 15 minutes. STEL: 37 mg/m ³ 15 minutes. OSHA PEL (United States, 6/2016). TWA: 10 ppm 8 hours. TWA: 25 mg/m ³ 8 hours.
anthranilamide	None.

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.

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.

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.

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.

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.
Color	2-AB solution	Liquid.
	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Colorless.
	Denaturation Solution	Not available.
	Detergent Solution	Not available.
Odor	Reductant solution	Colorless. Liquid.
	2-AB solution	Clear.
	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not available.
	5X Tris Reaction Buffer	Not available.
	5X Phosphate Reaction Buffer	Not available.
	Denaturation Solution	Stench.
Detergent Solution	Not available.	
Reductant solution	Not available.	
2-AB solution	Not available.	

Section 9. Physical and chemical properties

Odor 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	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	0°C (32°F)
	5X Tris Reaction Buffer	0°C (32°F)
	5X Phosphate Reaction Buffer	0°C (32°F)
	Denaturation Solution	0°C (32°F)
	Detergent Solution	Not available.
	Reductant solution	Not available.
	2-AB solution	Not available.
Boiling point	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	100°C (212°F)
	5X Tris Reaction Buffer	100°C (212°F)
	5X Phosphate Reaction Buffer	100°C (212°F)
	Denaturation Solution	100°C (212°F)
	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 (>199.9°F)
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.

Section 9. Physical and chemical properties

Lower and upper explosive (flammable) 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.
Vapor 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.
Vapor 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.
	2-AB solution	Not available.
Solubility	: 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	Not available.
	2-AB solution	Not available.
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.

Section 9. Physical and chemical properties

Auto-ignition temperature	: 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 available. Not available. Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	: 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 available. Not available. Not available. Not available. Not available. Not available. Not available.
Viscosity	: 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 available. Not available. Not available. Not available. Not available. Not available. Not available.

Section 10. Stability and reactivity

10.1 Reactivity	: 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 test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. 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 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.

Section 10. Stability and reactivity

10.3 Possibility of hazardous reactions	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: 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.
10.5 Incompatible materials	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 10. Stability and reactivity

hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	LD50 Oral	Rat	17000 mg/kg	-
Denaturation Solution 2-Mercaptoethanol	LD50 Dermal LD50 Oral	Rabbit Rat	200 mg/kg 244 mg/kg	- -
Sodium dodecyl sulphate	LD50 Dermal LD50 Oral	Rabbit Rat	580 mg/kg 1288 mg/kg	- -
Detergent Solution Nonylphenol, ethoxylated	LD50 Dermal LD50 Oral	Rabbit Rat	2000 mg/kg 1310 mg/kg	- -
Reductant solution Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
2-AB solution Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
Acetic acid	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	11000 mg/m ³ 1060 mg/kg 3310 mg/kg	4 hours - -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	24 hours 500 milligrams 24 hours 500 milligrams	- -
Denaturation Solution 2-Mercaptoethanol Sodium dodecyl sulphate	Eyes - Severe irritant Eyes - Mild irritant	Rabbit Rabbit	- -	2 milligrams 250 Micrograms	- -
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Guinea pig	- -	10 milligrams 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	-

Section 11. Toxicological information

Detergent Solution Nonylphenol, ethoxylated	Eyes - Severe irritant	Rabbit	-	20 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-
	Eyes - Severe irritant	Guinea pig	-	20 milligrams	-
	Eyes - Severe irritant	Mouse	-	20 milligrams	-
Reductant solution Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
2-AB solution Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
Acetic acid	Skin - Severe irritant	Rabbit	-	525 milligrams	-

Sensitization

Not available.

Conclusion/Summary

Skin

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

Respiratory

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

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

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
Detergent Solution Nonylphenol, ethoxylated	Category 3	Not applicable.	Respiratory tract irritation
2-AB solution anthranilamide	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the 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

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.

Section 11. Toxicological information

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. May cause an allergic skin reaction.
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. Severely corrosive to the digestive tract. Causes severe burns.

Symptoms related to the physical, chemical and toxicological characteristics

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

Section 11. Toxicological information

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

Delayed and immediate effects and also 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

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

Section 11. Toxicological information

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.
Fertility 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.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Denaturation Solution	
Oral	3300.8 mg/kg
Dermal	2596.2 mg/kg
Inhalation (vapors)	28.52 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	3116.8 mg/kg
Dermal	2650 mg/kg
Inhalation (vapors)	27.5 mg/l

Section 11. Toxicological information

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	Acute LC50 3580000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
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
Reductant solution Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 ul/L Marine water	Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas Algae - Ulva lactuca	48 hours 96 hours 72 hours
2-AB solution Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 ul/L Marine water	Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas Algae - Ulva lactuca	48 hours 96 hours 72 hours
Acetic acid	Acute EC50 73400 µg/l Fresh water Acute EC50 65000 µg/l Fresh water	Algae - Navicula seminulum Daphnia - Daphnia magna - Neonate	96 hours 48 hours
anthranilamide	Acute LC50 32 mg/l Marine water Acute LC50 75000 µg/l Fresh water Acute LC50 395000 µg/l Fresh water	Crustaceans - Artemia salina Fish - Lepomis macrochirus Fish - Pimephales promelas	48 hours 96 hours 96 hours

12.2 Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Denaturation Solution Sodium dodecyl sulphate	-	-	Readily
2-AB solution Acetic acid	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	-5.8	-	low
Denaturation Solution 2-Mercaptoethanol	-0.056	-	low
Sodium dodecyl sulphate	-2.03	-	low
Reductant solution Dimethyl sulfoxide	-1.35	3.16	low
2-AB solution Dimethyl sulfoxide	-1.35	3.16	low
Acetic acid	-0.17	3.16	low
anthranilamide	0.35	-	low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Section 13. Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information

Additional information : **Remarks**
De minimis quantities

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

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

U.S. Federal regulations : TSCA 8(a) PAIR: Nonylphenol, ethoxylated
 TSCA 12(b) one-time export: Nonylphenol, ethoxylated
 United States inventory (TSCA 8b): Not determined.
 Clean Water Act (CWA) 311: Acetic acid; Disodium hydrogenorthophosphate

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

Name	%	EHS	SARA 302 TPQ		SARA 304 RQ	
			(lbs)	(gallons)	(lbs)	(gallons)
5X Phosphate Reaction Buffer Sodium azide	≤0.3	Yes.	500	-	1000	-

SARA 304 RQ : 6986027.9 lbs / 3171656.7 kg

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard

Section 15. Regulatory information

5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	≤3	No.	No.	No.	Yes.	No.
Denaturation Solution 2-Mercaptoethanol	≤7.7	Yes.	No.	No.	Yes.	No.
Sodium dodecyl sulphate	≤2.2	Yes.	No.	No.	Yes.	No.
Detergent Solution Nonylphenol, ethoxylated	≥10 - <20	No.	No.	No.	Yes.	No.
Reductant solution Dimethyl sulfoxide	≥75 - ≤90	Yes.	No.	No.	Yes.	No.
sodium cyanotrihydroborate	≥10 - <25	Yes.	No.	No.	Yes.	No.
2-AB solution Dimethyl sulfoxide	≥50 - ≤75	Yes.	No.	No.	Yes.	No.
Acetic acid	≥25 - ≤50	Yes.	No.	No.	Yes.	No.
anthranilamide	≥10 - ≤15	Yes.	No.	No.	No.	No.

State regulations

Massachusetts

: The following components are listed: ACETIC ACID; ACETIC ACID GLACIAL; 2-MERCAPTOETHANOL

New York

: The following components are listed: Acetic acid

New Jersey

: The following components are listed: ACETIC ACID; ETHANOIC ACID; DIMETHYL SULFOXIDE; METHANE, SULFINYLBI-; THIOGLYCOL; 2-MERCAPTOETHANOL

Pennsylvania

: The following components are listed: ACETIC ACID; ACETIC ACID, WATER SOLUTIONS; ETHANOL, 2-MERCAPTO-

California Prop. 65

No products were found.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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 inventory

: 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.

Section 15. Regulatory information

Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: Not determined.
Turkey	: <input checked="" type="checkbox"/> Not determined.

Section 16. Other information

History

Date of issue	: 12/09/2016
Date of previous issue	: 10/31/2014.
Version	: 2

Indicates information that has changed from previously issued version.

Notice to reader

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