

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) (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.

Validation date : 11/20/2018

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

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 1910.1200), 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.

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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
H402	AQUATIC HAZARD (ACUTE) - Category 3
H412	AQUATIC HAZARD (LONG-TERM) - Category 3

Detergent Solution

H315	SKIN IRRITATION - Category 2
H319	EYE IRRITATION - Category 2A
H401	AQUATIC HAZARD (ACUTE) - Category 2
H411	AQUATIC HAZARD (LONG-TERM) - 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 - Category 1B
H318	SERIOUS EYE DAMAGE - Category 1
H401	AQUATIC HAZARD (ACUTE) - Category 2
H411	AQUATIC HAZARD (LONG-TERM) - Category 2

2-AB solution

H315	SKIN IRRITATION - Category 2
H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1
H402	AQUATIC HAZARD (ACUTE) - Category 3

Ingredients of unknown toxicity

<input checked="" type="checkbox"/> X 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%

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms

: Denaturation Solution



Detergent Solution



Reductant solution



2-AB solution



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

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.

H318 - Causes serious eye damage.

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H402 - Harmful to aquatic life.

Detergent Solution

Reductant solution

2-AB solution

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.

P273 - Avoid release to the environment.

P261 - Avoid breathing vapor.

P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.

Section 2. Hazards identification

	Detergent Solution	P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. 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. P273 - Avoid release to the environment. P260 - Do not breathe vapor. P270 - Do not eat, drink or smoke when using this product. P264 - Wash hands thoroughly after handling.
	2-AB solution	P280 - Wear protective gloves. Wear eye or face protection. P273 - Avoid release to the environment. P261 - Avoid breathing vapor. P264 - Wash hands thoroughly after handling. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
Response	<p>Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution</p>	<p>Not applicable.</p> <p>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.</p>
	Detergent Solution	<p>P391 - Collect spillage. 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 rinsing. P337 + P313 - If eye irritation persists: Get medical attention.</p>
	Reductant solution	<p>P391 - Collect spillage. 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</p>

Section 2. Hazards identification

	2-AB solution	<p>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. 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>: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution</p>	<p>Not applicable. Not applicable. Not applicable. Not applicable. P405 - Store locked up. Not applicable.</p>
Disposal	<p>: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution</p> <p>Detergent Solution</p> <p>Reductant solution</p> <p>2-AB solution</p>	<p>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.</p>
Supplemental label elements	<p>: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution</p> <p>2-AB solution</p>	<p>None known. None known. None known. None known. None known. Do not taste or swallow. Wash thoroughly after handling. Do not taste or swallow. Wash thoroughly after handling.</p>

2.3 Other hazards

Section 2. Hazards identification

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 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 Sodium azide	≤3 <0.25	7558-79-4 26628-22-8
Denaturation Solution 2-Mercaptoethanol Sodium dodecyl sulphate	≤7.7 ≤2.2	60-24-2 151-21-3
Detergent Solution Nonylphenol, ethoxylated	≥10 - <20	9016-45-9
Reductant solution Dimethyl sulfoxide sodium cyanotrihydroborate	≥75 - ≤90 ≥10 - <25	67-68-5 25895-60-7
2-AB solution Dimethyl sulfoxide Acetic acid anthranilamide	≥50 - ≤75 ≥25 - <50 ≥10 - ≤15	67-68-5 64-19-7 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

Eye contact	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	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.
	5X Tris Reaction Buffer	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.

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	5X Phosphate Reaction Buffer	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.
	Denaturation 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.
	Detergent Solution	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.
	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)	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

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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 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

Section 4. First aid measures

		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.
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

Section 4. First aid measures

Detergent Solution

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. 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 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](#)

Section 4. First aid measures

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 skin irritation. 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. Corrosive to the digestive tract. Causes burns.

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.
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. 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
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

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	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
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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.

No specific treatment.

No specific treatment.

No specific treatment.

No specific treatment.

No specific treatment.

No specific treatment.

No specific treatment.

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.

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.

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.

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.

Specific treatments

2-AB solution

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

Protection of first-aiders

: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)
5X Tris Reaction Buffer

5X Phosphate Reaction Buffer

Denaturation Solution

Detergent Solution

Reductant solution

2-AB solution

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 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. 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. None known.

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 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. 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. 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. 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. In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
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Section 5. Fire-fighting measures

Hazardous thermal decomposition products	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer	No specific data.
	Denaturation Solution	No specific data. Decomposition products may include the following materials: phosphorus oxides metal oxide/oxides
	Detergent Solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides metal oxide/oxides
	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.
	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

Section 5. Fire-fighting measures

Special protective equipment for fire-fighters	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	action shall be taken involving any personal risk or without suitable training.
	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 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

Section 6. Accidental release measures

Detergent Solution	ventilation is inadequate. Put 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 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".
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".

Section 6. Accidental release measures

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). Water polluting material. May be harmful to the environment if released in large quantities.
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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
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). Water polluting material. May be harmful to the environment if released in large quantities.

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

Section 6. Accidental release measures

Denaturation Solution	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)	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 vapor 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 vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly

Section 7. Handling and storage

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 vapor 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). 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. 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.

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, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Denaturation 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.

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

Section 7. Handling and storage

Reductant solution

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.

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

: 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 unlabeled containers.

5X Tris Reaction Buffer

Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. 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. 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 unlabeled 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 container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food

Section 7. Handling and storage

Detergent Solution	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. See Section 10 for incompatible materials before handling or use. 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. See Section 10 for incompatible materials before handling or use.
Reductant solution	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. See Section 10 for incompatible materials before handling or use.
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. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations

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

Section 7. Handling and storage

Industrial sector specific solutions	: 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. Not applicable.
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Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate Sodium azide	None. ACGIH TLV (United States, 3/2018). C: 0.29 mg/m ³ , (as Sodium azide) C: 0.11 ppm, (as Hydrazoic acid vapor) OSHA PEL 1989 (United States, 3/1989). Absorbed through skin. CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m ³ , (as NaN3) NIOSH REL (United States, 10/2016). Absorbed through skin. CEIL: 0.1 ppm, (as HN3) CEIL: 0.3 mg/m ³ , (NAN3)
Denaturation Solution 2-Mercaptoethanol	AIHA WEEL (United States, 5/2018). Absorbed through skin. TWA: 0.2 ppm 8 hours.
Sodium dodecyl sulphate	None.
Detergent Solution Nonylphenol, ethoxylated	None.
Reductant solution Dimethyl sulfoxide	AIHA WEEL (United States, 5/2018). TWA: 250 ppm 8 hours.
sodium cyanotrihydroborate	None.
2-AB solution Dimethyl sulfoxide	AIHA WEEL (United States, 5/2018). TWA: 250 ppm 8 hours.
Acetic acid	ACGIH TLV (United States, 3/2018). 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, 10/2016). TWA: 10 ppm 10 hours. TWA: 25 mg/m ³ 10 hours. STEL: 15 ppm 15 minutes.

Section 8. Exposure controls/personal protection

anthranilamide	STEL: 37 mg/m ³ 15 minutes. OSHA PEL (United States, 5/2018). TWA: 10 ppm 8 hours. TWA: 25 mg/m ³ 8 hours. None.
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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.

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.
	2-AB solution	Liquid.
Color	: 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.
	Reductant solution	Colorless. Liquid.
	2-AB solution	Clear.
Odor	: 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.
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.

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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.
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.

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Relative density	: 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.
Solubility	: Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free) 5X Tris Reaction Buffer 5X Phosphate Reaction Buffer Denaturation Solution Detergent Solution Reductant solution 2-AB solution	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: 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.
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	<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 	<p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p>
10.2 Chemical stability	<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 	<p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p>
10.3 Possibility of hazardous reactions	<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 	<p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p>
10.4 Conditions to avoid	<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 	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
10.5 Incompatible materials	<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 	<p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>

Section 10. Stability and reactivity

	Reductant solution	materials. May react or be incompatible with oxidizing materials.
	2-AB solution	May react or be incompatible with oxidizing 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

Product/ingredient name	Result	Species	Dose	Exposure
5X Phosphate Reaction Buffer				
Disodium hydrogenorthophosphate	LD50 Oral	Rat	17000 mg/kg	-
Sodium azide	LD50 Dermal	Rabbit	20 mg/kg	-
	LD50 Dermal	Rat	50 mg/kg	-
	LD50 Oral	Rat	27 mg/kg	-
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	-
Reductant solution				
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
2-AB solution				
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-

Section 11. Toxicological information

Acetic acid	LC50 Inhalation Vapor LD50 Dermal LD50 Oral	Rat Rabbit Rat	11000 mg/m ³ 1060 mg/kg 3310 mg/kg	4 hours - -
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Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
5X Phosphate Reaction Buffer					
Disodium hydrogenorthophosphate	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
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 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

Section 11. Toxicological information

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

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)

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)

Name	Category	Route of exposure	Target organs
5X Phosphate Reaction Buffer Sodium azide	Category 2	Not determined	cardiovascular system, central nervous system (CNS) and lungs

Aspiration hazard

Not available.

Information on the likely routes of exposure	: 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. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation. Routes of entry anticipated: Oral, Dermal, Inhalation.
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Section 11. Toxicological information

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	Inhalation. 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. May cause an allergic skin reaction. Causes skin irritation. Causes severe burns. Toxic in contact with skin. Causes skin irritation. 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. Corrosive to the digestive tract. Causes 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
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Section 11. Toxicological information

		redness
Inhalation	: 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.
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
	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)	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

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

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. 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. 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. 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 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.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Route	ATE value
Denaturation Solution	
Oral	3300.8 mg/kg
Dermal	2382.9 mg/kg
Inhalation (vapors)	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	3116.8 mg/kg
Dermal	2650 mg/kg
Inhalation (vapors)	27.5 mg/l

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
Sodium azide	Acute EC50 0.348 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute EC50 6.4 mg/l Fresh water	Crustaceans - Simocephalus serrulatus - Larvae	48 hours
	Acute EC50 4.2 mg/l Fresh water	Daphnia - Daphnia pulex - Larvae	48 hours
	Acute LC50 0.68 mg/l Fresh water	Fish - Lepomis macrochirus	96 hours
	Chronic NOEC 5600 µg/l Marine water	Algae - Macrocystis pyrifera	96 hours
Denaturation Solution			
Sodium dodecyl sulphate	Acute EC50 1200 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - Artemia salina - Adult	48 hours
	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Chronic NOEC 1 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	21 days
	Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
	Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days
Detergent Solution			
Nonylphenol, ethoxylated	Acute EC50 12 mg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours
	Acute LC50 1.23 mg/l Marine water	Crustaceans - Americamysis	48 hours

Section 12. Ecological information

Reductant solution Dimethyl sulfoxide	Acute LC50 0.148 mg/l Fresh water	bahia Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 1300 µg/l Fresh water Chronic NOEC 8 mg/l Fresh water	Fish - Lepomis macrochirus Algae - Pseudokirchneriella subcapitata	96 hours 96 hours
	Chronic NOEC 35 µg/l Fresh water	Fish - Oryzias latipes - Fry	100 days
2-AB solution Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water Chronic NOEC 3323 µg/l Marine water	Fish - Pimephales promelas Algae - Nitzschia pungens	96 hours 96 hours
	Acetic acid	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate
Acute LC50 34000000 µg/l Fresh water Chronic NOEC 3323 µg/l Marine water		Fish - Pimephales promelas Algae - Nitzschia pungens	96 hours 96 hours
Acute EC50 73400 µg/l Fresh water		Algae - Navicula seminulum	96 hours
Acute EC50 65000 µg/l Fresh water		Daphnia - Daphnia magna - Neonate	48 hours
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

Product/ingredient name	Test	Result	Dose	Inoculum
Denaturation Solution 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO ₂ 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

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			

Section 12. Ecological information

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.

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

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Additional information

Remarks : De minimis quantities

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.

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

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 5(a)2 final significant new use rules**: Nonylphenol, ethoxylated
TSCA 8(a) PAIR: Nonylphenol, ethoxylated
TSCA 8(a) CDR Exempt/Partial exemption: Not determined
TSCA 12(b) one-time export: Nonylphenol, ethoxylated
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	<0.25	Yes.	500	-	1000	-

SARA 304 RQ : 6986027.9 lbs / 3171656.7 kg

SARA 311/312

Classification	Peptide -N-Glycosidase F (PNGaseF) (EDTA - Free)	Not applicable.
	5X Tris Reaction Buffer	Not applicable.
	5X Phosphate Reaction Buffer	Not applicable.
	Denaturation Solution	SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 SKIN IRRITATION - Category 2
	Detergent Solution	EYE IRRITATION - Category 2A ACUTE TOXICITY (oral) - Category 2
	Reductant solution	EYE IRRITATION - Category 2A ACUTE TOXICITY (dermal) - Category 3 ACUTE TOXICITY (inhalation) - Category 2
	2-AB solution	SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 HNOC - Corrosive to digestive tract

Composition/information on ingredients

Section 15. Regulatory information

Name	%	Classification
5X Phosphate Reaction Buffer Disodium hydrogenorthophosphate	≤3	EYE IRRITATION - Category 2A
Denaturation Solution 2-Mercaptoethanol	≤7.7	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Sodium dodecyl sulphate	≤2.2	FLAMMABLE SOLIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Detergent Solution Nonylphenol, ethoxylated	≥10 - <20	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
Reductant solution Dimethyl sulfoxide	≥75 - ≤90	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
sodium cyanotrihydroborate	≥10 - <25	FLAMMABLE SOLIDS - Category 1 ACUTE TOXICITY (oral) - Category 2 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 2 SKIN CORROSION - Category 1B SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract
2-AB solution Dimethyl sulfoxide	≥50 - ≤75	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2A
Acetic acid	≥25 - <50	FLAMMABLE LIQUIDS - Category 3 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN CORROSION - Category 1A SERIOUS EYE DAMAGE - Category 1 HNOC - Corrosive to digestive tract [severe]
anthranilamide	≥10 - ≤15	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SKIN SENSITIZATION - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

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-

Section 15. Regulatory information

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	: 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.

Section 16. Other information

History

Date of issue	: 11/20/2018
Date of previous issue	: 12/09/2016
Version	: 3

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> Denaturation Solution SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 AQUATIC HAZARD (ACUTE) - Category 3 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method
Detergent Solution SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A AQUATIC HAZARD (ACUTE) - Category 2	Calculation method Calculation method Calculation method

Section 16. Other information

AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method
Reductant solution	
ACUTE TOXICITY (oral) - Category 2	Calculation method
ACUTE TOXICITY (dermal) - Category 3	Calculation method
ACUTE TOXICITY (inhalation) - Category 2	Calculation method
SKIN CORROSION - Category 1B	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
AQUATIC HAZARD (ACUTE) - Category 2	Calculation method
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method
2-AB solution	
SKIN IRRITATION - Category 2	Calculation method
SERIOUS EYE DAMAGE - Category 1	Calculation method
SKIN SENSITIZATION - Category 1	Calculation method
AQUATIC HAZARD (ACUTE) - Category 3	Calculation method

✔ Indicates information that has changed from previously issued version.

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