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The following MSDS included following products;

Cat. No	Product description
307-150	Ribospin™ Plant [mini, 50preps]
307-106	Ribospin™ Plant sample [mini, 6preps]

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RPL

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Buffer RPL

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Acute oral toxicity Category 4
 Acute inhalation toxicity Category 4
 Skin corrosion/irritation Category 1
 Serious eye damage/eye irritation Category 1
 Chronic aquatic toxicity Category 3

2.2 Label elements

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

Hazard pictograms



Signal word

Danger

Hazardous statements

H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H318 Causes serious eye damage.
 H332 Harmful if inhaled.
 H412 Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 Wash skin/hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Handle it only outdoors or in a well-ventilated area.
 P273 Avoid release into the environment.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician, if you feel unwell.
 P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304+P340 IF INHALED: Move patients into fresh air and help them to get rest.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if possible. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor/physician.
 P330 Rinse mouth.
 P363 Wash contaminated clothing before reuse.

Storage

P405 Store locked up.

Disposal

P501 Dispose containers in accordance with all applicable environmental laws and regulations.

2.3 Other Non-GHS Classification

No data available

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RPL		
3. COMPOSITION/INFORMATION ON INGREDIENTS			
Substance name	CAS No.	Concentration (%)	
Guanidine thiocyanate	593-84-0	40-50	

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations	Notify doctor/physician about the substance to take necessary actions.
Following eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if possible. Get medical advice/attention.
Following skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention, if you feel unwell. Wash contaminated clothing before reuse.
Following inhalation	IF INHALED: Move patients into fresh air and help them to get rest. Get medical advice/attention, if you feel unwell.
Following ingestion	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Do NOT give artificial respiration. If exposed or concerned: Get medical advice/attention.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	dry powder
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5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	No data available
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5.3 Precautions for fire-fighters

Special protective equipment for firefighters	Wear self-contained breathing apparatus for firefighting if necessary.
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5.4 Further information

No information available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Wear respiratory protection. Avoid dust formation. Ensure adequate ventilation. Avoid breathing vapours, mist or gas. Evacuate personnel to safe areas.
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6.2 Environmental precautions

Environmental precautions	Avoid dispersal of spill material and runoff into waterway, sewers, drainage, or contained areas. Discharge into the environment must be avoided.
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6.3 Methods and material for containment and cleaning up

Method for cleaning up	Pick up and arrange disposal without creating dust. Sweep and remove with a shovel. Keep in suitable, closed containers for disposal.
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MATERIAL SAFETY DATA SHEET

Product Name	Buffer RPL
7. HANDLING AND STORAGE	
7.1 Precautions for safe handling	
Advice on safe handling	Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
7.2 Conditions for safe storage, including any incompatibilities	
Requirements for storage rooms and vessels	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Do not store near acids.
7.3 Specific end use(s)	
Specific end use(s)	Laboratory chemicals.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION	
8.1 Control parameters	
KOSHA exposure limits	No data available
ACGIH exposure limits	No data available
Biological Exposure Indices (BEIs)	No data available
8.2 Exposure controls	
	No data available
8.3 Personal protective equipment	
Respiratory protection	Wear respiratory protection according to the physical and chemical properties of the exposed material tested and approved under appropriate government standard such as KOSHA.
Suitable eye protection	Wear chemical-resistant eye and face protection, chemical safety goggles tested and approved under appropriate government standards such as KOSHA.
Hand protection	Wear suitable gloves tested and approved under appropriate government standards such as KOSHA. Check gloves before use. Dispose of gloves after use according to relevant regulations and GLP standards. Wash and dry hands.
Skin and body protection	Wear suitable chemical-resistant clothing. Choose types of protections according to the concentration and amount of material in the work area. Wear chemical-protective and non-static shoes.
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	
Physical state	liquid
Color	No data available
Odor	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RPL
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable under recommended storage conditions.

10.2 Conditions to avoid

Contact with acids and toxic gas.

10.3 Materials to avoid

Strong acids, Strong oxidizing agents, Cyanides

10.4 Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Nitrogen oxides (NOx), Sulphur oxides

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

Harmful if inhaled, swallowed or absorbed through skin.
Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Causes eye burns.

11.2 Information on toxicological effects

Acute toxicity

Oral

LD50 Oral - Rat - 593 mg/kg

Dermal

Guanidine thiocyanate

No data available

Inhalation

LD50 Intraperitoneal - Mouse - 300 mg/kg

Skin corrosion/irritation

No data available

Serious eye damage/eye irritation

No data available

Respiratory sensitisation

No data available

Skin sensitisation

No data available

Carcinogenicity

IARC

According to IARC, none of the components present in this product at concentrations of 0.1% or more have been identified as probable, possible, or confirmed human carcinogens.

Genotoxicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RPL
	No data available
<u>Other harmful effects</u>	No data available
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
<u>Toxicity to Fish</u>	No data available
<u>Toxicity to Crustacean</u>	EC50 - Daphnia (water flea) - 42.4 mg/l - 48 h
<u>Toxicity to Algae</u>	No data available
12.2 Persistence and degradability	
<u>Persistence</u>	No data available
<u>Degradability</u>	No data available
12.3 Bioaccumulative potential	
<u>Bioaccumulation</u>	No data available
<u>Biodegradability</u>	No data available
12.4 Mobility in soil	No data available
12.5 Other adverse effects	Harmful to aquatic life with long lasting effects.
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Dispose of in accordance with all applicable environmental laws and regulations.	
13.2 Disposal considerations	
Dispose of in accordance with all applicable environmental laws and regulations.	
14. TRANSPORT INFORMATION	
14.1 UN number	
Not regulated as a dangerous goods	
14.2 UN Proper shipping name	
Not applicable	
14.3 Transport hazard class(es)	
Not applicable	
14.4 Packing group	
Not applicable	
14.5 Environmental hazards	
Not applicable	
14.6 Special precautions for user	
Not applicable	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
Not applicable for product as supplied.	
15. REGULATORY INFORMATION	
15.1 Industrial Safety and Health Act	
Not applicable	
15.2 Toxic Chemicals Control Act	
Not applicable	

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RPL

15.3 Safety Control of Dangerous Substances Act

Not applicable

15.4 Wastes Control Act

In accordance with Waste Control Act

15.5 Other requirements in domestic and other countries

Not applicable

16. OTHER INFORMATION**Issued date**

2016-05-17

Revision number

2

Revision date

2023-08-22

Reference

Sigma-Aldrich

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- END OF SAFETY DATA SHEET-

MATERIAL SAFETY DATA SHEET

Product Name

Buffer REL

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Buffer REL

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Acute oral toxicity Category 4
 Acute inhalation toxicity Category 4
 Skin corrosion/irritation Category 2
 Serious eye damage/eye irritation Category 2

2.2 Label elements

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

Hazard pictograms



Signal word

Warning

Hazardous statements

H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.

Precautionary statements

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 Wash skin/hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Handle it only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician, if you feel unwell.
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.
 P304+P340 IF INHALED: Move patients into fresh air and help them to get rest.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes.
 Remove contact lenses, if possible. Continue rinsing.
 P330 Rinse mouth.
 P332+P313 If skin irritation occurs, get medical advice/attention.
 P337+P313 If eye irritation persists, get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.

Storage

Disposal

P501 Dispose containers in accordance with all applicable environmental laws and regulations.

2.3 Other Non-GHS Classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	CAS No.	Concentration (%)
Guanidinium chloride	50-01-1	55 - 65

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations Notify doctor/physician about the substance to take necessary actions.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer REL
Following eye contact	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if possible. Get medical advice/attention.
Following skin contact	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Get medical advice/attention, if you feel unwell. Wash contaminated clothing before reuse.
Following inhalation	Move patients into fresh air and help them to get rest.
Following ingestion	Do not give any food to an unconscious person. Rinse mouth with water.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting No data available

5.3 Precautions for fire-fighters

Special protective equipment for firefighters Wear self-contained breathing apparatus for firefighting, if necessary.

5.4 Further information

No information available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions Use personal protective equipment.
Ensure adequate ventilation.
Avoid breathing mist or gas.
Evacuate personnel to safe areas.

6.2 Environmental precautions

Environmental precautions Avoid dispersal of spill material and runoff into waterway, sewers, drainage, or contained areas.

6.3 Methods and material for containment and cleaning up

Method for cleaning up Pick up and arrange disposal without creating dust.
Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling Avoid contact with skin and eyes.
Avoid breathing vapours or mist.
Avoid formation of dust and aerosols.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels Store in cool place.
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)

Specific end use(s) Laboratory chemicals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

No materials with exposure controls are contained.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer REL
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8.2 Exposure controls

No data available

8.3 Personal protective equipment

Respiratory protection	Wear respiratory protection according to the physical and chemical properties of the exposed material tested and approved under appropriate government standard such as KOSHA.
Suitable eye protection	Wear chemical-resistant eye and face protection, chemical safety goggles tested and approved under appropriate government standards such as KOSHA.
Hand protection	Wear suitable gloves tested and approved under appropriate government standards such as KOSHA. Check gloves before use. Dispose of gloves after use according to relevant regulations and GLP standards. Wash and dry hands.
Skin and body protection	Wear suitable chemical-resistant clothing. Choose types of protections according to the concentration and amount of material in the work area. Wear chemical-protective and non-static shoes.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid
Color	No data available
Odor	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable under recommended storage conditions

10.2 Conditions to avoid

No data available

10.3 Materials to avoid

Strong oxidizing agents

10.4 Hazardous decomposition products

MATERIAL SAFETY DATA SHEET

Product Name

Buffer REL

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Hydrogen chloride gas, Nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

Harmful if inhaled, swallowed or absorbed through skin.
Causes skin irritation and serious eye irritation.

11.2 Information on toxicological effects

Acute toxicity

Oral

LD50 Oral - Rat - 475 mg/kg
LD50 Oral - Mouse - 571 mg/kg

Dermal

No data available

Inhalation

LD50 inhalation - Rat - female - 4h - 3,181 mg/l

Skin corrosion/irritation

Skin - Rabbit - Skin irritation

Serious eye damage/eye irritation

Eyes - Rabbit - Irritating to eyes.

Respiratory sensitisation

No data available

Skin sensitisation

No data available

Carcinogenicity

IARC

According to IARC, none of the components present in this product at concentrations of 0.1% or more have been identified as probable, possible, or confirmed human carcinogens.

Genotoxicity

No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Other harmful effects

No data available

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to Fish

LC50 - Leuciscus idus (Golden orfe) - 1,759 mg/l

Toxicity to Crustacean

No data available

Toxicity to Algae

No data available

12.2 Persistence and degradability

Persistence

No data available

Degradability

Result: - Not readily biodegradable.

12.3 Bioaccumulative potential

MATERIAL SAFETY DATA SHEET

Product Name	Buffer REL
<u>Bioaccumulation</u>	No data available
<u>Biodegradability</u>	No data available
12.4 Mobility in soil	No data available
12.5 Other adverse effects	No data available
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Dispose of residues and non-recyclable solutions through a government-approved waste disposal company.	
13.2 Disposal considerations	
Dispose of in accordance with all applicable environmental laws and regulations.	
14. TRANSPORT INFORMATION	
14.1 UN number	This product is Not categorized as dangerous goods
14.2 UN Proper shipping name	Not applicable
14.3 Transport hazard class(es)	Not applicable
14.4 Packing group	Not applicable
14.5 Environmental hazards	Not applicable
14.6 Special precautions for user	Not applicable
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
Not applicable for product as supplied.	
15. REGULATORY INFORMATION	
15.1 Industrial Safety and Health Act	
Not applicable	
15.2 Toxic Chemicals Control Act	
Not applicable	
15.3 Safety Control of Dangerous Substances Act	
Not applicable	
15.4 Wastes Control Act	
In accordance with wastes control act	
15.5 Other requirements in domestic and other countries	
Not applicable	
16. OTHER INFORMATION	
Issued date	
2016-03-29	
Revision number	
2	
Revision date	
2023-08-22	
Reference	
Sigma-Aldrich	

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RBW

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Buffer RBW

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Acute oral toxicity Category 4
 Skin corrosion/irritation Category 2
 Serious eye damage/eye irritation Category 2
 Specific Target Organ toxicity (single exposure) Category 3

2.2 Label elements

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

Hazard pictograms



Signal word

Warning

Hazardous statements

H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

Precautionary statements

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 Wash skin/hands thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Handle it only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
 P302+P352 IF ON SKIN: Wash with soap and water.
 P304+P340 IF INHALED: Move patients into fresh air and help them to get rest.
 P305+P351+P338 IF IN EYES: Rinse with water attentively for several minutes. Remove contact lenses, if possible. Keep washing.
 P312 Call a POISON CENTER or doctor/physician if you feel unwell.
 P330 Rinse mouth.
 P332+P313 If skin irritation occurs: Get medical advice/attention.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P362 Take off contaminated clothing and wash before reuse.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store it being locked up.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RBW
Disposal	P501 Dispose of contents/container to in accordance with all applicable environmental laws and regulations.

2.3 Other Non-GHS Classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	CAS No.	Concentration (%)
Guanidinium chloride	50-01-01	70-80

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations	Notify doctor/physician about the substance to take necessary actions.
Following eye contact	Immediately flush the eyes with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Following skin contact	In case of contact with affected area, immediately flush skin or eyes with water for at least 20 minutes. If skin irritation occurs, get medical advice/attention. Take off contaminated clothing and wash before reuse.
Following inhalation	If exposed to large amounts of dust or fume, remove with clean air. In case of coughing or other symptoms, get medical advice/attention.
Following ingestion	Rinse mouth. Call a POISON CENTER or doctor/physician if you feel unwell. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled. Use proper respiratory medical device.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms	No information available.
Risks	Harmful if swallowed. Causes serious eye damage. Causes severe burns.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Use powder fire extinguisher, dry sand or dirt.
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5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	No data available
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5.3 Precautions for fire-fighters

Special protective equipment for firefighters	Wear appropriate protective apparatus. Extinguish while maintaining safe distance away from fire areas.
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5.4 Further information

No information available.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Immediately clean spills and see section 5.3. Stop leak if safe to do so. Note the substances and conditions to avoid.
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6.2 Environmental precautions

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RBW
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Environmental precautions

Avoid dispersal of spill material and runoff into waterway, sewers, drainage, or contained areas.

6.3 Methods and material for containment and cleaning up

Method for cleaning up

Soak up with inert absorbent material and place into the containers for chemical waste.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Do not eat, drink or smoke when using this product.
 Empty containers may retain product residue and can be hazardous.
 Observe all precautionary measures on SDS and product labels.
 Take caution in handling and storage.
 Take caution in opening the container.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store in a well-ventilated area. Keep the container tightly sealed.

7.3 Specific end use(s)

Specific end use(s)

Laboratory chemicals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

KOSHA exposure limits

No data available

ACGIH exposure limits

No data available

Biological Exposure Indices (BEIs)

No data available

8.2 Exposure controls

Use appropriate engineering controls such as process enclosure, local exhaust ventilation, or maintaining airborne concentrations below recommended exposure limits.
 Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use/handling.

8.3 Personal protective equipment

Respiratory protection

Wear suitable protection tested and approved under appropriate government standards such as KOSHA. Select protective gear according to the physical and chemical properties of the exposed material.

Suitable eye protection

Wear chemical-resistant eye and face protection tested and approved under appropriate government standards such as KOSHA.

Hand protection

Wear suitable gloves tested and approved under appropriate government standards such as KOSHA.
 Check gloves before use.
 Dispose of gloves after use according to relevant regulations and GLP standards.
 Wash and dry hands.

Skin and body protection

Wear suitable chemical-resistant clothing.
 Choose according to the concentration and amount of material in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state

liquid

Color

colorless

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RBW
Odor	No data available
Odour Threshold	No data available
pH	7.0-8.0
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	Not determined
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable under recommended storage conditions

10.2 Conditions to avoid

Heat, spark, reducing substance.

10.3 Materials to avoid

Strong oxidizing agents, strong bases, strong acids, metals

10.4 Hazardous decomposition products

Can burn in fire, releasing irritating and toxic gases due to thermal decomposition or combustion.

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

May cause irritation.

11.2 Information on toxicological effects

Acute toxicity

Oral

No data available.

Dermal

No data available.

Inhalation

No data available.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RBW
<u>Skin corrosion/irritation</u>	No data available.
<u>Serious eye damage/eye irritation</u>	No data available.
<u>Respiratory sensitisation</u>	No data available.
<u>Skin sensitisation</u>	No data available.
<u>Carcinogenicity</u>	No data available.
<u>Genotoxicity</u>	No data available.
<u>Reproductive toxicity</u>	No data available.
<u>Specific target organ toxicity - single exposure</u>	Produces irritation to the respiratory system.
<u>Specific target organ toxicity - repeated exposure</u>	No data available.
<u>Other harmful effects</u>	Produces irritation to the respiratory system.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to Fish

No data available.

Toxicity to Crustacean

No data available.

Toxicity to Algae

No data available.

12.2 Persistence and degradability

Persistence

No data available.

Degradability

No data available

12.3 Bioaccumulative potential

Bioaccumulation

No data available.

Biodegradability

No data available.

12.4 Mobility in soil

No data available

12.5 Other adverse effects

No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of in accordance with all applicable environmental laws and regulations.

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RBW

13.2 Disposal considerations

Dispose of in accordance with all applicable environmental laws and regulations.

14. TRANSPORT INFORMATION

14.1 UN number

Not regulated as a dangerous good

14.2 UN Proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

No data available

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

15. REGULATORY INFORMATION

15.1 Industrial Safety and Health Act

No data available

15.2 Toxic Chemicals Control Act

No data available

15.3 Safety Control of Dangerous Substances Act

No data available

15.4 Wastes Control Act

No data available

15.5 Other requirements in domestic and other countries

In accordance with international laws and regulations of country.

16. OTHER INFORMATION

Issued date

2015-01-07

Revision number

3

Revision date

2023-05-27

Reference

Corporate Solution From Thomson Micromedex

ECB-ESIS (European Chemical Substances Information System)

ECOTOX Database, EPA

IUCLID Chemical Data Sheet

International Chemical Safety Cards (ICSC)

TOXNET, U.S. National Library of Medicine

The Chemical Database, The Department of Chemistry at the University of Akron

Industrial poisoning handbook, Shin Kwang Publishing Co.

Hazardous materials information management system, National Emergency Management

Chemicals information system, National Institute of Environmental Research

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RBW

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- END OF SAFETY DATA SHEET -

MATERIAL SAFETY DATA SHEET

Product Name

Buffer RNW

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Buffer RNW

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

This product is NOT classified as regulated substance and NOT subject to label elements.

2.2 Label elements

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

Hazard pictograms No data available
 Signal word No data available
 Hazardous statements No data available
 Precautionary statements
 Prevention No data available
 Response No data available
 Storage No data available
 Disposal No data available

2.3 Other Non-GHS Classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	CAS No.	Concentration (%)
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No hazardous substance

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations Notify doctor/physician about the substance to take necessary actions.
 Following eye contact In case of contact with substance, flush the eyes immediately with water for at least 20 minutes. Immediately seek medical advice/attention.
 Following skin contact In case of contact with substance, flush the skin immediately with water for at least 20 minutes. Remove contaminated clothing and footwear and isolate contaminated areas.
 Following inhalation Remove the victim into fresh air. If experiencing symptoms, get medical advice/attention.
 Following ingestion In case of ingestion, rinse mouth. Do NOT induce vomiting. If exposed or concerned, get medical advice/attention.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media Small fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, carbon dioxide (suitable extinguishing media)

5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting Inhalation or vapor or contact with substance may cause contamination and result in hazardous effects. Inhalation of substance may be hazardous.

5.3 Precautions for fire-fighters

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RNW
Special protective equipment for firefighters	Wear self-contained breathing apparatus when fighting fire. Spills may cause contamination. If safe to do, remove container from fire area.

5.4 Further information

No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions Do NOT handle damaged containers or spill without appropriate protection.
Avoid contact with the eyes, skin, and clothing.

6.2 Environmental precautions

Environmental precautions Do NOT directly release into the environment.

6.3 Methods and material for containment and cleaning up

Method for cleaning up Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling Avoid prolonged or repeated contact with skin.
Avoid contact with the eyes, skin, and clothing.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels Keep cool. Protect from sunlight.
Keep container tightly closed.

7.3 Specific end use(s)

Specific end use(s) Laboratory chemicals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

KOSHA exposure limits No data available

ACGIH exposure limits No data available

Biological Exposure Indices (BEIs) No data available

8.2 Exposure controls

No data available

8.3 Personal protective equipment

Respiratory protection No data available

Suitable eye protection Wear chemical-resistant eye and face protection.

Hand protection Wear suitable chemical-resistant gloves.

Skin and body protection Wear suitable chemical-resistant clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state liquid

Color colorless

Odor No data available

Odour Threshold No data available

pH 7-8

Melting point/freezing point No data available

Boiling point/boiling range No data available

Flash point No data available

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RNW
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	-/-
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

No reactivity if stored and applied as directed.
Stable at ambient conditions.

10.2 Conditions to avoid

Non-flammable : this material does not burn but may evolve corrosive/toxic fumes when heated.

10.3 Materials to avoid

May evolve corrosive/toxic fumes when heated.

10.4 Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

No data available

11.2 Information on toxicological effects

Acute toxicity

Oral

No data available.

Dermal

No data available.

Inhalation

No data available.

Skin corrosion/irritation

No data available.

Serious eye damage/eye irritation

No data available.

Respiratory sensitisation

No data available.

Skin sensitisation

No data available.

Carcinogenicity

No data available.

Genotoxicity

No data available.

Reproductive toxicity

No data available.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RNW
	No data available.
<u>Specific target organ toxicity - single exposure</u>	No data available.
<u>Specific target organ toxicity - repeated exposure</u>	No data available.
<u>Other harmful effects</u>	No data available.
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
<u>Toxicity to Fish</u>	No data available.
<u>Toxicity to Crustacean</u>	No data available.
<u>Toxicity to Algae</u>	No data available.
12.2 Persistence and degradability	
<u>Persistence</u>	No data available.
<u>Degradability</u>	No data available.
12.3 Bioaccumulative potential	
<u>Bioaccumulation</u>	No data available.
<u>Biodegradability</u>	No data available.
12.4 Mobility in soil	No data available.
12.5 Other adverse effects	No data available.
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Dispose of in accordance with all applicable environmental laws and regulations.	
13.2 Disposal considerations	
Dispose of in accordance with all applicable environmental laws and regulations.	
14. TRANSPORT INFORMATION	
14.1 UN number	
This product is NOT categorized under UN number	
14.2 UN Proper shipping name	
Not applicable	
14.3 Transport hazard class(es)	
Not applicable	
14.4 Packing group	
Not applicable	
14.5 Environmental hazards	
No data available	
14.6 Special precautions for user	
For personal protection see section 8.	
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	
Not applicable for product as supplied.	
15. REGULATORY INFORMATION	
15.1 Industrial Safety and Health Act	
No data available	

MATERIAL SAFETY DATA SHEET

Product Name	Buffer RNW
15.2 Toxic Chemicals Control Act	No data available
15.3 Safety Control of Dangerous Substances Act	No data available
15.4 Wastes Control Act	Dispose of as hazardous waste in compliance with local and national regulations.
15.5 Other requirements in domestic and other countries	Not applicable

16. OTHER INFORMATION

Issued date

2016-10-28

Revision number

2

Revision date

2023-05-28

Reference

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- END OF SAFETY DATA SHEET-

MATERIAL SAFETY DATA SHEET

Product Name

Nuclease Free Water

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Nuclease Free Water

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

This product is NOT classified as regulated substance and NOT subject to label elements.

2.2 Label elements

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

Hazard pictograms No data available
 Signal word No data available
 Hazardous statements No data available
 Precautionary statements
 Prevention No data available
 Response No data available
 Storage No data available
 Disposal No data available

2.3 Other Non-GHS Classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name

CAS No.

Concentration (%)

No hazardous substance

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations Notify doctor/physician about the substance to take necessary actions.
 Following eye contact In case of contact with substance, flush the eyes immediately with water for at least 20 minutes. Immediately seek medical advice/attention.
 Following skin contact In case of contact with substance, flush the skin immediately with water for at least 20 minutes. Remove contaminated clothing and footwear and isolate contaminated areas.
 Following inhalation Remove the person into fresh air.
 Following ingestion If exposed or concerned, get medical advice/attention.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

MATERIAL SAFETY DATA SHEET

Product Name	Nuclease Free Water
Suitable extinguishing media	Small fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, carbon dioxide (suitable extinguishing media)
5.2 Special hazards arising from the substance or mixture	
Specific hazards during firefighting	Inhalation of substance may be hazardous.
5.3 Precautions for fire-fighters	
Special protective equipment for firefighters	Wear self-contained breathing apparatus when fighting fire.
5.4 Further information	
No information available.	
6. ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures	
Personal precautions	Avoid dust formation and inhalation. Avoid contact with the eyes, skin, and clothing.
6.2 Environmental precautions	
Environmental precautions	No information available.
6.3 Methods and material for containment and cleaning up	
Method for cleaning up	Keep cool. Keep container tightly closed. Store in a dry and well-ventilated place. Store in a closed container for disposal. For personal protection, see Section 8 of the SDS.
7. HANDLING AND STORAGE	
7.1 Precautions for safe handling	
Advice on safe handling	Install a suitable exhaust system where dust may accumulate. Take precautionary measures for fire prevention.
7.2 Conditions for safe storage, including any incompatibilities	
Requirements for storage rooms and vessels	Keep container tightly closed. Store in a dry and well-ventilated place. Keep cool. Protect from sunlight.
7.3 Specific end use(s)	
Specific end use(s)	Laboratory chemicals.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION	
8.1 Control parameters	
KOSHA exposure limits	No data available
ACGIH exposure limits	No data available
Biological Exposure Indices (BEIs)	No data available
8.2 Exposure controls	
No information available.	
8.3 Personal protective equipment	
Respiratory protection	No information available.
Suitable eye protection	Wear chemical-resistant eye and face protection.
Hand protection	Wear suitable chemical-resistant gloves.
Skin and body protection	Wear suitable chemical-resistant clothing.
9. PHYSICAL AND CHEMICAL PROPERTIES	
9.1 Information on basic physical and chemical properties	

MATERIAL SAFETY DATA SHEET

Product Name	Nuclease Free Water
Physical state	liquid
Color	colorless
Odor	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	-/-
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable under recommended storage conditions.

10.2 Conditions to avoid

No data available

10.3 Materials to avoid

No data available

10.4 Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

No data available

11.2 Information on toxicological effects

Acute toxicity

Oral
No data available.

Dermal
No data available.

Inhalation
No data available.

Skin corrosion/irritation
No data available.

MATERIAL SAFETY DATA SHEET

Product Name	Nuclease Free Water
<u>Serious eye damage/eye irritation</u>	
	No data available
<u>Respiratory sensitisation</u>	
	No data available
<u>Skin sensitisation</u>	
	No data available
<u>Carcinogenicity</u>	
IARC	No data available
OSHA	No data available
ACGIH	No data available
NTP	No data available
EU CLP	No data available
<u>Genotoxicity</u>	No data available
<u>Reproductive toxicity</u>	No data available
<u>Specific target organ toxicity - single exposure</u>	No data available
<u>Specific target organ toxicity - repeated exposure</u>	No data available
<u>Other harmful effects</u>	No data available
	No data available
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
<u>Toxicity to Fish</u>	No data available.
<u>Toxicity to Crustacean</u>	No data available.
<u>Toxicity to Algae</u>	No data available.
12.2 Persistnece and degradability	
<u>Persistence</u>	No data available.
<u>Degradability</u>	No data available
12.3 Bioaccumulative potential	
<u>Bioaccumulation</u>	No data available
<u>Biodegradability</u>	No data available
12.4 Mobility in soil	No data available
12.5 Other adverse effects	No data available
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	
Dispose of in accordance with all applicable environmental laws and regulations.	
13.2 Disposal considerations	
Dispose of in accordance with all applicable environmental laws and regulations.	
14. TRANSPORT INFORMATION	
14.1 UN number	
	This product is NOT categorized under UN number
14.2 UN Proper shipping name	
	Not applicable

MATERIAL SAFETY DATA SHEET

Product Name	Nuclease Free Water
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14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

For personal protection see section 8.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

15. REGULATORY INFORMATION
15.1 Industrial Safety and Health Act

No data available

15.2 Toxic Chemicals Control Act

No data available

15.3 Safety Control of Dangerous Substances Act

No data available

15.4 Wastes Control Act

Dispose of as hazardous waste in compliance with local and national regulations.

15.5 Other requirements in domestic and other countries

Not applicable

16. OTHER INFORMATION
Issued date

2016-10-31

Revision number

1

Revision date

2023-05-29

Reference

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- END OF SAFETY DATA SHEET -

MATERIAL SAFETY DATA SHEET

Product Name

DNase I

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name DNase I

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address Geneall B/D, 303-7, Dongnam-ro, Songpa-gu, Seoul, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

Skin corrosion/irritation Category 2
 Serious eye damage/eye irritation Category 2
 Specific Target Organ toxicity (single exposure) Category 3 (respiratory irritation)

2.2 Label elements

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

Hazard pictograms



Signal word

Warning

Hazardous statements

H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.

Precautionary statements

Prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
 P264 Wash skin/hands thoroughly after handling.
 P271 Handle it only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

Response

P302+P352 IF ON SKIN: Wash with soap and water.
 P304+P340 IF INHALED: Move patients into fresh air and help them to get rest.
 P305+P351+P338 IF IN EYES: Rinse with water attentively for several minutes.
 Remove contact lenses, if possible. Keep washing.
 P312 Consult with doctor if you feel unwell.
 P332+P313 If skin irritation occurs: Get medical advice/attention.
 P337+P313 If eye irritation persists: Get medical advice/attention.
 P362+P364 Take off contaminated clothing and wash before reuse.

Storage

P403 + P233 Keep container tightly closed and store in a well-ventilated place.
 P405 Store it being locked up.

Disposal

P501 Dispose of contents/container to in accordance with all applicable environmental laws and regulations.

2.3 Other Non-GHS Classification

Health=1, Flammability=1, Reactivity=0

MATERIAL SAFETY DATA SHEET

Product Name	DNase I		
3. COMPOSITION/INFORMATION ON INGREDIENTS			
Substance name	CAS No.	Concentration (%)	
DEOXYRIBONUCLEASE I	9003-98-9	50-90	

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations	Notify doctor/physician about the substance to take necessary actions.
Following eye contact	Immediately flush the eyes with water for minutes. Remove contact lenses, if possible. Keep washing. Get medical advice/attention, if symptom persists.
Following skin contact	If the substance is hot, immerse or rinse the affected area in a large amount of cold water to remove the heat. Get medical advice/attention. Remove contaminated clothes and shoes and isolate contaminated areas. Immediately flush the skin with water over 20 minutes. Prevent the spread of contamination in case of minor skin contact. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Following inhalation	Seek medical attention, if you experience coughing or other symptoms. If breathing has stopped, perform artificial respiration. If breathing is difficult, provide oxygen.
Following ingestion	Get medical advice/attention, immediately.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media	Use Alcohol foam, carbon dioxide or water spray. Use dry sand or soil for smothering fires.
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5.2 Special hazards arising from the substance or mixture

Specific hazards during firefighting	Highly toxic and irritative gases can be generated by pyrolysis or combustion during burning. If heated, containers may explode. Some may combust but does not ignite easily. It's not flammability, but if heated, it may decompose to cause corrosive/toxic fumes.
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5.3 Precautions for fire-fighters

Special protective equipment for firefighters	Wear appropriate protective apparatus. Extinguish while maintaining safe distance away from fire areas. Be aware that it may be transported in a melted form. Dig a ditch for the disposal of the fire fighting water and keep the material from dispersing. If it is not dangerous, move the container from the fire area. In case of tank fire: Extinguish it away from maximum distance or use unmanned fire extinguisher. Keep cooling the container with a large amount of water even after the fire is out. If there's a high pitched noise or change of color, keep away immediately. Keep away from the tank covered in flames. (large fire) Use unmanned fire extinguishing equipment, and if it's unavailable, just let it burn.
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5.4 Further information

MATERIAL SAFETY DATA SHEET

Product Name	DNase I
No information available.	

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions

Immediately clean spills and see section 5.3.
Remove all ignition sources.
If it's not dangerous, stop the leak.
Avoid contact without proper protective apparatus.
Cover with plastic sheet to prevent spread.
Note the substances and conditions to avoid.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.

6.2 Environmental precautions

Environmental precautions

Avoid dispersal of spill material and runoff into waterway, sewers, drainage, or contained areas.

6.3 Methods and material for containment and cleaning up

Method for cleaning up

Soak up with inert absorbent material and place into the containers for chemical waste.
Absorb the liquid and wash off the contaminated area with detergent and water.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Advice on safe handling

Empty containers may retain product residue.
Observe all precautionary measures on SDS and product labels.
Take caution in handling and storage.
Carefully open the cap.
Avoid prolonged or repeated contact with skin.
Note the substances and conditions to avoid.
See section 8 for exposure controls and protective equipment.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash the handling area thoroughly after work.
Handle only outdoors or in a well-ventilated area.

7.2 Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Completely drain empty drums and seal them properly before placing them.
Store containers tightly sealed in a well-ventilated area.

7.3 Specific end use(s)

Specific end use(s)

Laboratory chemicals.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

KOSHA exposure limits

No data available

ACGIH exposure limits

No data available

Biological Exposure Indices (BEIs)

No data available

8.2 Exposure controls

If driving generates dust, fumes, or mist, ensure adequate ventilation to keep air pollution levels below exposure limits.
Install facilities for wash and shower to use the material.

MATERIAL SAFETY DATA SHEET

Product Name

DNase I

8.3 Personal protective equipment

Respiratory protection	Wear respiratory protection, according to the physical and chemical properties of the exposed material which has been tested and approved under appropriate government standard.
Suitable eye protection	No data available
Hand protection	No data available
Skin and body protection	No data available

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	solid
Color	white
Odor	No data available
Odour Threshold	No data available
pH	No data available
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	-/-
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	31000-40000

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable in the recommended storage conditions.
 Some may combust but does not ignite easily.
 Non- flammable: This material does not burn but may cause corrosive/toxic fumes when heated.
 Highly toxic, corrosive and irritative gases can be generated during burning.

10.2 Conditions to avoid

ignition sources such as heat, spark and flame

MATERIAL SAFETY DATA SHEET

Product Name

DNase I

10.3 Materials to avoid

Flammable substances and reducing agents

10.4 Hazardous decomposition products

Highly toxic gases can be generated by pyrolysis or combustion during burning.

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

May be harmful and cause irritation, If inhaled, ingested or contact with skin.

11.2 Information on toxicological effects

Acute toxicity

Oral

No data available.

Dermal

No data available.

Inhalation

No data available.

Skin corrosion/irritation

Cause skin irritation.

Serious eye damage/eye irritation

Cause eyes irritation.

Respiratory sensitisation

No data available.

Skin sensitisation

No data available.

Carcinogenicity

No data available.

Genotoxicity

No data available.

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

Exposure to the respiratory system may cause irritation of the airways.

Specific target organ toxicity - repeated exposure

No data available.

Other harmful effects

No data available.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Toxicity to Fish

No data available.

Toxicity to Crustacean

No data available.

Toxicity to Algae

MATERIAL SAFETY DATA SHEET

Product Name	DNase I
	No data available.
12.2 Persistence and degradability	
<u>Persistence</u>	No data available.
<u>Degradability</u>	No data available.
12.3 Bioaccumulative potential	
<u>Bioaccumulation</u>	No data available.
<u>Biodegradability</u>	No data available.
12.4 Mobility in soil	No data available.
12.5 Other adverse effects	No data available.
13. DISPOSAL CONSIDERATIONS	
13.1 Waste treatment methods	Dispose of in accordance with all applicable environmental laws and regulations.
13.2 Disposal considerations	Dispose of contents/container in accordance with all applicable environmental laws and regulations.
14. TRANSPORT INFORMATION	
14.1 UN number	This product is NOT categorized under UN number
14.2 UN Proper shipping name	Not applicable
14.3 Transport hazard class(es)	Not applicable
14.4 Packing group	Not applicable
14.5 Environmental hazards	No data available
14.6 Special precautions for user	Not applicable
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable for product as supplied.
15. REGULATORY INFORMATION	
15.1 Industrial Safety and Health Act	Not applicable
15.2 Toxic Chemicals Control Act	Not applicable
15.3 Safety Control of Dangerous Substances Act	Not applicable
15.4 Wastes Control Act	

MATERIAL SAFETY DATA SHEET

Product Name	DNase I
In accordance with international laws and regulations of country.	
15.5 Other requirements in domesitc and other countires	
Not applicable	
16. OTHER INFORMATION	
Issued date	
2011-01-20	
Revision number	
2	
Revision date	
2023-08-26	
Reference	
Seton compliance resource center(http://www.setonresourcecenter.com)	
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.	
- END OF SAFETY DATA SHEET-	

MATERIAL SAFETY DATA SHEET

Product Name

Buffer DRB

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name Buffer DRB

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

Use of the substance or mixture Laboratory chemicals

1.3 Details of the supplier of the safety data sheet

Name GENEALL BIOTECHNOLOGY CO., LTD
 Address GeneAll Bldg., 303-7, Dongnam-ro, Songpa-gu, Seoul, 05729, Korea
 Information contact <+82-2-407-0096
 E-Mail (competent person) sales@geneall.com
 Emergency Telephone Number <+82-2-407-0096

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

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

This product is NOT classified as regulated substance and NOT subject to label elements.

2.2 Label elements

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

Hazard pictograms No data available
 Signal word No data available
 Hazardous statements No data available
 Precautionary statements
 Prevention No data available
 Response No data available
 Storage No data available
 Disposal No data available

2.3 Other Non-GHS Classification

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name	CAS No.	Concentration (%)
No hazard substance		

4. FIRST AID MEASURES

4.1 Description of first aid measures

General informations Notify doctor/physician about the substance to take necessary actions.
 Following eye contact In case of contact with substance, flush the eyes immediately with water for at least 20 minutes. Immediately seek medical advice/attention.
 Following skin contact In case of contact with substance, flush the skin immediately with water for at least 20 minutes. Take off contaminated clothing and separate it.
 Following inhalation Move to an area with fresh air. Get medical advice/attention, if you feel unwell.
 Following ingestion Rinse the mouth. Do not try vomiting. If exposed or concerned: Get medical advice/attention.

5. FIRE FIGHTING MEASURES

MATERIAL SAFETY DATA SHEET

Product Name	Buffer DRB
5.1 Extinguishing media	
Suitable extinguishing media	Small fire: dry sand, dry chemical, alcohol-resistant foam, water spray, regular foam, carbon dioxide (suitable extinguishing media)
5.2 Special hazards arising from the substance or mixture	
Specific hazards during firefighting	Inhalation of vapor or contact with substance may be hazardous.
5.3 Precautions for fire-fighters	
Special protective equipment for firefighters	Wear self-contained breathing apparatus when fighting fire. Leaks may cause contamination. Move the containers from fire, if not dangerous.
5.4 Further information	
No information available.	
6. ACCIDENTAL RELEASE MEASURES	
6.1 Personal precautions, protective equipment and emergency procedures	
Personal precautions	Avoid contact without proper protective apparatus. Avoid contact with eyes, skin and clothing.
6.2 Environmental precautions	
Environmental precautions	Avoid release into the environment.
6.3 Methods and material for containment and cleaning up	
Method for cleaning up	Keep in suitable, sealed containers for disposal.
7. HANDLING AND STORAGE	
7.1 Precautions for safe handling	
Advice on safe handling	Avoid prolonged or repeated contact with skin. Avoid contact with eyes, skin and clothing.
7.2 Conditions for safe storage, including any incompatibilities	
Requirements for storage rooms and vessels	Keep cool. Protect from sunlight. Keep container tightly closed.
7.3 Specific end use(s)	
Specific end use(s)	Laboratory chemicals.
8. EXPOSURE CONTROLS/PERSONAL PROTECTION	
8.1 Control parameters	
KOSHA exposure limits	No data available
ACGIH exposure limits	No data available
Biological Exposure Indices (BEIs)	No data available
8.2 Exposure controls	
	No data available
8.3 Personal protective equipment	
Respiratory protection	No data available
Suitable eye protection	Wear chemical-resistant eye and face protection.
Hand protection	Wear suitable chemical-resistant gloves.

MATERIAL SAFETY DATA SHEET

Product Name	Buffer DRB
Skin and body protection	Wear suitable chemical-resistant clothing.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Physical state	liquid
Color	colorless
Odor	distinctive odor
Odour Threshold	No data available
pH	8-9
Melting point/freezing point	No data available
Boiling point/boiling range	No data available
Flash point	No data available
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	-/-
Vapour pressure	No data available
Solubility (ies)	No data available
Vapour density	No data available
Specific gravity	No data available
Partial coefficient n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Molecular weight	No data available

9.2 Other information

No data available

10. STABILITY AND REACTIVITY

10.1 Chemical stability and possibility of hazardous reactions

Stable under ambient temperature and pressure conditions.
Stable in the recommended storage conditions.
It's not flammability, but if heated, it may decompose to cause corrosive/toxic fumes.

10.2 Conditions to avoid

No data available

10.3 Materials to avoid

No data available

10.4 Hazardous decomposition products

No data available

11. TOXICOLOGICAL INFORMATION

11.1 Routes of exposure

No data available

11.2 Information on toxicological effects

Acute toxicity

MATERIAL SAFETY DATA SHEET

Product Name	Buffer DRB
Oral	No data available.
Dermal	No data available.
Inhalation	No data available.
<u>Skin corrosion/irritation</u>	No data available.
<u>Serious eye damage/eye irritation</u>	No data available.
<u>Respiratory sensitisation</u>	No data available.
<u>Skin sensitisation</u>	No data available.
<u>Carcinogenicity</u>	No data available.
<u>Genotoxicity</u>	No data available.
<u>Reproductive toxicity</u>	No data available.
<u>Specific target organ toxicity - single exposure</u>	No data available.
<u>Specific target organ toxicity - repeated exposure</u>	No data available.
<u>Other harmful effects</u>	No data available.
12. ECOLOGICAL INFORMATION	
12.1 Toxicity	
<u>Toxicity to Fish</u>	No data available.
<u>Toxicity to Crustacean</u>	No data available.
<u>Toxicity to Algae</u>	No data available.
12.2 Persistence and degradability	
<u>Persistence</u>	No data available.
<u>Degradability</u>	No data available.
12.3 Bioaccumulative potential	
<u>Bioaccumulation</u>	No data available.
<u>Biodegradability</u>	No data available.
12.4 Mobility in soil	No data available.
12.5 Other adverse effects	No data available.

MATERIAL SAFETY DATA SHEET

Product Name

Buffer DRB

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of in accordance with all applicable environmental laws and regulations.

13.2 Disposal considerations

Dispose of in accordance with all applicable environmental laws and regulations.

14. TRANSPORT INFORMATION

14.1 UN number

This product is NOT categorized under UN number

14.2 UN Proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

No data available

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

15. REGULATORY INFORMATION

15.1 Industrial Safety and Health Act

Not applicable

15.2 Toxic Chemicals Control Act

Not applicable

15.3 Safety Control of Dangerous Substances Act

Not applicable

15.4 Wastes Control Act

Designated waste

15.5 Other requirements in domestic and other countries

Not applicable

16. OTHER INFORMATION

Issued date

2017-01-10

Revision number

1

Revision date

2023-05-27

Reference

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.