

Section 2. Hazard(s) identification

Response	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Not applicable. Not applicable. P362 + P364 - Take off contaminated clothing and wash it before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of water. P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
Storage	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Not applicable. Not applicable. Not applicable.
Disposal	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Supplemental label elements		
Additional warning phrases	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Not applicable. Not applicable. Not applicable.
Other hazards which do not result in classification	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	None known. None known. None known.

Section 3. Composition and ingredient information

Substance/mixture	: RNase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Substance Mixture Mixture
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CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
RNase Free Water		
water	100	7732-18-5
Cas9 Nuclease		
Glycerol	≥30 - ≤60	56-81-5
2-Mercaptoethanol	≤0.3	60-24-2

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

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

Section 4. First aid measures

Description of necessary first aid measures

Section 4. First aid measures

Eye contact	: RNase Free Water	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.
	10X Cas9 Digestion 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.
	Cas9 Nuclease	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. If irritation persists, get medical attention.
Inhalation	: RNase Free Water	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10X Cas9 Digestion Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.
	Cas9 Nuclease	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	: RNase Free Water	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10X Cas9 Digestion Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Cas9 Nuclease	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. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: RNase Free Water	Wash out mouth with water. 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.
	10X Cas9 Digestion Buffer	Wash out mouth with water. 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.
	Cas9 Nuclease	Wash out mouth with water. Remove dentures if any. 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

Section 4. First aid measures

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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation.
Inhalation	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. May cause an allergic skin reaction.
Ingestion	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.


Over-exposure signs/symptoms

Eye contact	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness
Inhalation	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific data. No specific data. No specific data.
Skin contact	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific data. No specific data. Adverse symptoms may include the following: irritation redness
Ingestion	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific data. No specific data. No specific data.

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

Notes to physician	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific treatment. No specific treatment. No specific treatment.



Section 4. First aid measures

Protection of first-aiders	:  Nase Free Water	No action shall be taken involving any personal risk or without suitable training.
	10X Cas9 Digestion Buffer	No action shall be taken involving any personal risk or without suitable training.
	Cas9 Nuclease	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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.


See toxicological information (Section 11)

Section 5. Firefighting measures


Extinguishing media

Suitable extinguishing media	:  Nase Free Water	Use an extinguishing agent suitable for the surrounding fire.
	10X Cas9 Digestion Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Cas9 Nuclease	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:  Nase Free Water	None known.
	10X Cas9 Digestion Buffer	None known.
	Cas9 Nuclease	None known.


Specific hazards arising from the chemical

:  Nase Free Water	In a fire or if heated, a pressure increase will occur and the container may burst.
10X Cas9 Digestion Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
Cas9 Nuclease	In a fire or if heated, a pressure increase will occur and the container may burst.


Hazardous thermal decomposition products

:  Nase Free Water	No specific data.
10X Cas9 Digestion Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
Cas9 Nuclease	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides

Special protective actions for fire-fighters

:  Nase Free Water	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.
10X Cas9 Digestion 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.
Cas9 Nuclease	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Section 5. Firefighting measures

Special protective equipment for fire-fighters	:  RNase Free Water	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10X Cas9 Digestion Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Cas9 Nuclease	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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:  RNase Free Water	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	10X Cas9 Digestion Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Cas9 Nuclease	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	:  RNase Free Water	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	10X Cas9 Digestion Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Cas9 Nuclease	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	:  RNase Free Water	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	10X Cas9 Digestion Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Cas9 Nuclease	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways,

Section 6. Accidental release measures

soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up	: RNase Free Water	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.
	10X Cas9 Digestion 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.
	Cas9 Nuclease	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

Precautions for safe handling

Protective measures	: RNase Free Water	Put on appropriate personal protective equipment (see Section 8).
	10X Cas9 Digestion Buffer	Put on appropriate personal protective equipment (see Section 8).
	Cas9 Nuclease	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 ingest. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	: RNase Free Water	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.
	10X Cas9 Digestion 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.
	Cas9 Nuclease	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.

Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities : RNase Free Water

10X Cas9 Digestion Buffer

Cas9 Nuclease

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Cas9 Nuclease Glycerol	Safe Work Australia (Australia, 10/2022). TWA: 10 mg/m ³ 8 hours.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls and personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.
- 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 and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : RNase Free Water Liquid.
10X Cas9 Digestion Buffer Liquid.
Cas9 Nuclease Liquid.
- Colour** : RNase Free Water Colourless.
10X Cas9 Digestion Buffer Not available.
Cas9 Nuclease Not available.
- Odour** : RNase Free Water Odourless.
10X Cas9 Digestion Buffer Not available.
Cas9 Nuclease Not available.
- Odour threshold** : RNase Free Water Not available.
10X Cas9 Digestion Buffer Not available.
Cas9 Nuclease Not available.
- pH** : RNase Free Water 7
10X Cas9 Digestion Buffer 7
Cas9 Nuclease 7
- Melting point/freezing point** : RNase Free Water 0°C (32°F)
10X Cas9 Digestion Buffer Not available.
Cas9 Nuclease Not available.
- Boiling point, initial boiling point, and boiling range** : RNase Free Water 100°C (212°F)
10X Cas9 Digestion Buffer Not available.
Cas9 Nuclease Not available.

Flash point :

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
RNase Free Water						
Glycerol	-	-	-	177	350.6	-

Section 9. Physical and chemical properties and safety characteristics

Evaporation rate	: RNase Free Water	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.
Flammability	: RNase Free Water	Not applicable.
	10X Cas9 Digestion Buffer	Not applicable.
	Cas9 Nuclease	Not applicable.
Lower and upper explosion limit/flammability limit	: RNase Free Water	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.
Vapour pressure	: RNase Free Water	2.3 kPa (17.5 mm Hg) [room temperature] 12.3 kPa (92.258 mm Hg) [50°C (122°F)]

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
10X Cas9 Digestion Buffer						
water	17.5	2.3	-	92.258	12.3	-
Cas9 Nuclease						
water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-

Relative vapour density	: RNase Free Water	0.62 [Air = 1]
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.
Relative density	: RNase Free Water	1
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.

Solubility(ies)	Media	Result
	RNase Free Water	
	water	Soluble
	10X Cas9 Digestion Buffer	
	water	Soluble
	Cas9 Nuclease	
	water	Soluble

Partition coefficient: n-octanol/water	: RNase Free Water	-1.38
	10X Cas9 Digestion Buffer	Not applicable.
	Cas9 Nuclease	Not applicable.

Auto-ignition temperature	Ingredient name	°C	°F	Method
	Cas9 Nuclease			
	Glycerol	370	698	-

Decomposition temperature	: RNase Free Water	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.

Viscosity	: RNase Free Water	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.

Particle characteristics

Median particle size	: RNase Free Water	Not applicable.
	10X Cas9 Digestion Buffer	Not applicable.
	Cas9 Nuclease	Not applicable.

Section 10. Stability and reactivity

Reactivity	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	The product is stable. The product is stable. The product is stable.
Possibility of hazardous reactions	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No specific data. No specific data. No specific data.
Incompatible materials	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
Hazardous decomposition products	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cas9 Nuclease				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Cas9 Nuclease					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 mg	-

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Section 11. Toxicological information

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Cas9 Nuclease 2-Mercaptoethanol	Category 2	-	heart, liver

Aspiration hazard

Not available.

Information on likely routes of exposure : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

Not available.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No known significant effects or critical hazards.
No known significant effects or critical hazards.
Causes eye irritation.

Inhalation : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Skin contact : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

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

Ingestion : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No specific data.
No specific data.
Adverse symptoms may include the following:
irritation
watering
redness

Inhalation : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No specific data.
No specific data.
No specific data.

Skin contact : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No specific data.
No specific data.
Adverse symptoms may include the following:
irritation
redness

Ingestion : Nose Free Water
10X Cas9 Digestion Buffer
Cas9 Nuclease

No specific data.
No specific data.
No specific data.

Section 11. Toxicological information

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	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	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	: <input checked="" type="checkbox"/> Nase Free Water 10X Cas9 Digestion Buffer Cas9 Nuclease	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

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Cas9 Nuclease					
Glycerol	12600	N/A	N/A	N/A	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> Cas9 Nuclease			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
2-Mercaptoethanol	Acute EC50 0.4 mg/l Fresh water	Daphnia	48 hours

Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
Cas9 Nuclease				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
2-Mercaptoethanol	OECD 310 Ready Biodegradability -	69 % - Not readily - 60 days	20 mg/l	-

Section 12. Ecological information

	CO2 in Sealed Vessels (Headspace Test)			
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability	
RNase Free Water water	-	-	Readily	
Cas9 Nuclease 2-Mercaptoethanol	-	-	Not readily	

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
RNase Free Water water	-1.38	-	Low
Cas9 Nuclease Glycerol	-1.76	-	Low
2-Mercaptoethanol	-0.056	-	Low

Mobility in soil

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

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

Section 13. Disposal considerations

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

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

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 IMO instruments : Not available.

Section 15. Regulatory information

[Standard for the Uniform Scheduling of Medicines and Poisons](#)

Not regulated.

[Model Work Health and Safety Regulations - Scheduled Substances](#)

No listed substance

[International regulations](#)

[Chemical Weapon Convention List Schedules I, II & III Chemicals](#)

Not listed.

[Montreal Protocol](#)

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.
New Zealand	: Not determined.
United States	: All components are active or exempted.

Section 16. Any other relevant information

[History](#)

Date of issue/Date of revision : 29/02/2024

Date of previous issue : 26/02/2021

Version : 6

[Key to abbreviations](#)

: ADG = Australian Dangerous Goods
 : ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
 : ATE = Acute Toxicity Estimate
 : BCF = Bioconcentration Factor
 : GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 : IATA = International Air Transport Association
 : IBC = Intermediate Bulk Container
 : IMDG = International Maritime Dangerous Goods
 : LogPow = logarithm of the octanol/water partition coefficient
 : MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 : N/A = Not available
 : SUSMP = Standard Uniform Schedule of Medicine and Poisons
 : UN = United Nations

[Procedure used to derive the classification](#)

Classification	Justification
Cas9 Nuclease SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B SKIN SENSITISATION - Category 1	Calculation method Calculation method

Indicates information that has changed from previously issued version.

[Notice to reader](#)

Section 16. Any other relevant information

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