SAFETY DATA SHEET

Agilent Technologies

SureGuide Cas9 Programmable Nuclease Kit - 100 Reactions, Part Number 5190-7716

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

1.1 Product identifier

Product name : SureGuide Cas9 Programmable Nuclease Kit - 100 Reactions, Part Number 5190-7716

UK (GB) REACH Registration number

Registration number	Legal entity
RNase Free Water Exempt from REACH: According to the provisions of Article 2(7)(a) and Annex IV of REACH	-

CAS number :

RNase Free Water	7732-18-5
Control DNA Target	Not applicable.
10X Cas9 Digestion Buffer	Not applicable.
Cas9 Nuclease	Not applicable.
Control gRNA	Not applicable.

Part no. (chemical kit) : 5190-7716

Part no. :

RNase Free Water	740000-42
Control DNA Target	5190-7536
10X Cas9 Digestion Buffer	5190-7540
Cas9 Nuclease	5190-7541
Control gRNA	5190-7539

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

Identified uses : Analytical reagent.

RNase Free Water	1.5 ml
Control DNA Target	0.02 ml (20 µl 50 ng/ µl)
10X Cas9 Digestion Buffer	0.2 ml
Cas9 Nuclease	0.1 ml (100 reactions)
Control gRNA	0.01 ml (10 µl 1 µM)

Uses advised against : None known.

1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kingdom
Tel: +44 (0) 345 712 5292

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

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : RNase Free Water — Mono-constituent substance
Control DNA Target — Mixture
10X Cas9 Digestion Buffer — Mixture
Cas9 Nuclease — Mixture
Control gRNA — Mixture

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

Cas9 Nuclease

H317	SKIN SENSITISATION	Category 1

RNase Free Water — The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Control DNA Target — The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

10X Cas9 Digestion Buffer — The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Cas9 Nuclease — The product is classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Control gRNA — The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Ingredients of unknown toxicity : 10X Cas9 Digestion Buffer — Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%

Cas9 Nuclease — Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%

Ingredients of unknown ecotoxicity : 10X Cas9 Digestion Buffer — Contains 3% of components with unknown hazards to the aquatic environment

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

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

2.2 Label elements

Hazard pictograms : Cas9 Nuclease

Signal word : RNase Free Water — No signal word.
Control DNA Target — No signal word.
10X Cas9 Digestion Buffer — No signal word.
Cas9 Nuclease — Warning
Control gRNA — No signal word.

Hazard statements : RNase Free Water — No known significant effects or critical hazards.
Control DNA Target — No known significant effects or critical hazards.
10X Cas9 Digestion Buffer — No known significant effects or critical hazards.
Cas9 Nuclease — H317 - May cause an allergic skin reaction.
Control gRNA — No known significant effects or critical hazards.

Precautionary statements

Prevention : RNase Free Water — Not applicable.
Control DNA Target — Not applicable.
10X Cas9 Digestion Buffer — Not applicable.
Cas9 Nuclease — P280 - Wear protective gloves.
P261 - Avoid breathing vapour.
Control gRNA — Not applicable.

SECTION 2: Hazards identification

Response	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	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.
		Control gRNA	Not applicable.
Storage	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	Not applicable.
		Control gRNA	Not applicable.
Disposal	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		Control gRNA	Not applicable.
Hazardous ingredients	:	Cas9 Nuclease	2-mercaptoethanol
Supplemental label elements	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Contains 2,4,7,9-Tetramethyldec-5-yne-4,7-diol, ethoxylated. May produce an allergic reaction. Safety data sheet available on request.
		Cas9 Nuclease	Not applicable.
		Control gRNA	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	Not applicable.
		Control gRNA	Not applicable.
Special packaging requirements			
Containers to be fitted with child-resistant fastenings	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	Not applicable.
		Control gRNA	Not applicable.
Tactile warning of danger	:	RNase Free Water	Not applicable.
		Control DNA Target	Not applicable.
		10X Cas9 Digestion Buffer	Not applicable.
		Cas9 Nuclease	Not applicable.
		Control gRNA	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
RNase Free Water Not applicable (Inorganic)	N/A	N/A	N/A	Not applicable (Inorganic)	N/A	N/A

SECTION 2: Hazards identification

	Control DNA Target	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	10X Cas9 Digestion Buffer	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Cas9 Nuclease	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
	Control gRNA	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
Other hazards which do not result in classification :	RNase Free Water	None known.
	Control DNA Target	None known.
	10X Cas9 Digestion Buffer	None known.
	Cas9 Nuclease	None known.
	Control gRNA	None known.

SECTION 3: Composition/information on ingredients

3.1 Substances :	RNase Free Water	Mono-constituent substance
	Control DNA Target	Mixture
	10X Cas9 Digestion Buffer	Mixture
	Cas9 Nuclease	Mixture
	Control gRNA	Mixture

Product/ingredient name	Identifiers	%	Classification	Type
RNase Free Water				
water	UK (GB) REACH #: Annex IV REACH #: Annex IV EC: 231-791-2 CAS: 7732-18-5	100	Not classified.	[1]
Cas9 Nuclease				
Glycerol	UK (GB) REACH #: Annex V REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
2-Mercaptoethanol	EC: 200-464-6 CAS: 60-24-2	≤0.3	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 3, H331 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317 Repr. 2, H361f STOT RE 2, H373 (heart, liver) Aquatic Acute 1, H400 (M=1) Aquatic Chronic 2, H411	[1]
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	CAS: 9036-19-5	<0.1	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 (M=10) Aquatic Chronic 1, H410 (M=1) **See Section 16 for the full text of the H statements declared above.**	[1] [3]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

SECTION 3: Composition/information on ingredients

RNase Free Water	[1] Constituent
Cas9 Nuclease	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit [3] Substance of equivalent concern

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

SECTION 4: First aid measures

4.1 Description of 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.
	Control DNA Target	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. Get medical attention if irritation occurs.
	Control gRNA	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.
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.
	Control DNA Target	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.
	Control gRNA	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: RNase Free Water	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Control DNA Target	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.

SECTION 4: First aid measures

			Wash clothing before reuse. Clean shoes thoroughly before reuse.
		Control gRNA	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
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.
		Control DNA Target	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 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.
		Control gRNA	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.
Protection of first-aiders	:	RNase Free Water	No action shall be taken involving any personal risk or without suitable training.
		Control DNA Target	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.
		Control gRNA	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.

SECTION 4: First aid measures

Inhalation	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.
Skin contact	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	Adverse symptoms may include the following: irritation redness
		Control gRNA	No specific data.
Ingestion	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	RNase Free Water	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Control DNA Target	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		10X Cas9 Digestion Buffer	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	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Control gRNA	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	RNase Free Water	No specific treatment.
		Control DNA Target	No specific treatment.
		10X Cas9 Digestion Buffer	No specific treatment.
		Cas9 Nuclease	No specific treatment.
		Control gRNA	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

SECTION 5: Firefighting measures

Hazards from the substance or mixture	: RNase Free Water	In a fire or if heated, a pressure increase will occur and the container may burst.
	Control DNA Target	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.
	Control gRNA	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	: RNase Free Water	No specific data.
	Control DNA Target	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
	Control gRNA	No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters	: RNase 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.
	Control DNA Target	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.
	Control gRNA	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: 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.
	Control DNA Target	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.
	Control gRNA	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: 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.
	Control DNA Target	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.
	Control gRNA	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.
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".
	Control DNA Target	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".
	Control gRNA	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	: 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).
	Control DNA Target	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

SECTION 6: Accidental release measures

	authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Control gRNA	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up :

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.
Control DNA Target	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.
Control gRNA	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures :

RNase Free Water	Put on appropriate personal protective equipment (see Section 8).
Control DNA Target	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.
Control gRNA	Put on appropriate personal protective equipment (see Section 8).

SECTION 7: Handling and storage

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.
Control DNA Target	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.
Control gRNA	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage :

RNase Free Water	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.
Control DNA Target	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.
10X Cas9 Digestion Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
Cas9 Nuclease	Store in accordance with local regulations. Store in original

SECTION 7: Handling and storage

	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.
Control gRNA	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.

7.3 Specific end use(s)

Recommendations :	RNase Free Water	Industrial applications, Professional applications.
	Control DNA Target	Industrial applications, Professional applications.
	10X Cas9 Digestion Buffer	Industrial applications, Professional applications.
	Cas9 Nuclease	Industrial applications, Professional applications.
	Control gRNA	Industrial applications, Professional applications.
Industrial sector specific solutions :	RNase Free Water	Not available.
	Control DNA Target	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.
	Control gRNA	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Cas9 Nuclease Glycerol	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 10 mg/m³ 8 hours. Form: Mist

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
Cas9 Nuclease 2-Mercaptoethanol	DNEL	Short term Oral	0.025 mg/kg bw/day	General population	Systemic
	DNEL	Long term Oral	0.025 mg/kg bw/day	General population	Systemic
	DNEL	Short term Dermal	0.05 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	0.05 mg/kg bw/day	Workers	Systemic

SECTION 8: Exposure controls/personal protection

	DNEL	Short term Inhalation	0.17 mg/m³	Workers	Systemic
	DNEL	Long term Inhalation	0.17 mg/m³	Workers	Systemic

PNECs

No PNECs available

8.2 Exposure controls

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

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.

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: safety glasses with side-shields.

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.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state :	RNase Free Water	Liquid.
	Control DNA Target	Liquid.
	10X Cas9 Digestion Buffer	Liquid.
	Cas9 Nuclease	Liquid.
	Control gRNA	Liquid.
Colour :	RNase Free Water	Colourless.
	Control DNA Target	Not available.
	10X Cas9 Digestion Buffer	Not available.
	Cas9 Nuclease	Not available.
	Control gRNA	Not available.

SECTION 9: Physical and chemical properties

Odour :

RNase Free Water	Odourless.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

Odour threshold :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

Melting point/freezing point :

RNase Free Water	0°C
Control DNA Target	0°C
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	0°C

Initial boiling point and boiling range :

RNase Free Water	100°C
Control DNA Target	100°C
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	100°C

Flammability :

RNase Free Water	Not applicable.
Control DNA Target	Not applicable.
10X Cas9 Digestion Buffer	Not applicable.
Cas9 Nuclease	Not applicable.
Control gRNA	Not applicable.

Upper/lower flammability or explosive limits :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

Flash point :

Ingredient name	Closed cup °C	Closed cup Method	Open cup °C	Open cup Method
Cas9 Nuclease				
glycerol	-	-	177	-

Auto-ignition temperature :

RNase Free Water: Not applicable.

Ingredient name	°C	Method
Cas9 Nuclease		
glycerol	370	-

Decomposition temperature :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

pH :

RNase Free Water	7
Control DNA Target	8
10X Cas9 Digestion Buffer	7
Cas9 Nuclease	7
Control gRNA	7

SECTION 9: Physical and chemical properties

Viscosity :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

Solubility(ies) :

Media	Result
RNase Free Water	
water	Soluble
Control DNA Target	
water	Soluble
10X Cas9 Digestion Buffer	
water	Soluble
Cas9 Nuclease	
water	Soluble
Control gRNA	
water	Soluble

Partition coefficient: n-octanol/water :

RNase Free Water	-1.38
Control DNA Target	Not applicable.
10X Cas9 Digestion Buffer	Not applicable.
Cas9 Nuclease	Not applicable.
Control gRNA	Not applicable.

Vapour pressure :

RNase Free Water: 2.3 kPa (17.5 mm Hg) [room temperature]
12.3 kPa (92.258 mm Hg) [50°C]

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Control DNA Target						
water	17.5	2.3	-	92.258	12.3	-
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	-
Control gRNA						
water	17.5	2.3	-	92.258	12.3	-

Evaporation rate :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Not available.
Cas9 Nuclease	Not available.
Control gRNA	Not available.

SECTION 9: Physical and chemical properties

Relative density	:	RNase Free Water	1
		Control DNA Target	Not available.
		10X Cas9 Digestion Buffer	Not available.
		Cas9 Nuclease	Not available.
		Control gRNA	Not available.
Vapour density	:	RNase Free Water	0.62 [Air = 1]
		Control DNA Target	Not available.
		10X Cas9 Digestion Buffer	Not available.
		Cas9 Nuclease	Not available.
		Control gRNA	Not available.
Explosive properties	:	RNase Free Water	Not available.
		Control DNA Target	Not available.
		10X Cas9 Digestion Buffer	Not available.
		Cas9 Nuclease	Not available.
		Control gRNA	Not available.
Oxidising properties	:	RNase Free Water	Not available.
		Control DNA Target	Not available.
		10X Cas9 Digestion Buffer	Not available.
		Cas9 Nuclease	Not available.
		Control gRNA	Not available.

Particle characteristics

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

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	RNase Free Water	No specific test data related to reactivity available for this product or its ingredients.
		Control DNA Target	No specific test data related to reactivity available for this product or its ingredients.
		10X Cas9 Digestion Buffer	No specific test data related to reactivity available for this product or its ingredients.
		Cas9 Nuclease	No specific test data related to reactivity available for this product or its ingredients.
		Control gRNA	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	RNase Free Water	The product is stable.
		Control DNA Target	The product is stable.
		10X Cas9 Digestion Buffer	The product is stable.
		Cas9 Nuclease	The product is stable.
		Control gRNA	The product is stable.

SECTION 10: Stability and reactivity

10.3 Possibility of hazardous reactions

RNase Free Water	Under normal conditions of storage and use, hazardous reactions will not occur.
Control DNA Target	Under normal conditions of storage and use, hazardous reactions will not occur.
10X Cas9 Digestion Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
Cas9 Nuclease	Under normal conditions of storage and use, hazardous reactions will not occur.
Control gRNA	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

RNase Free Water	No specific data.
Control DNA Target	No specific data.
10X Cas9 Digestion Buffer	No specific data.
Cas9 Nuclease	No specific data.
Control gRNA	No specific data.

10.5 Incompatible materials

RNase Free Water	May react or be incompatible with oxidising materials.
Control DNA Target	May react or be incompatible with oxidising materials.
10X Cas9 Digestion Buffer	May react or be incompatible with oxidising materials.
Cas9 Nuclease	May react or be incompatible with oxidising materials.
Control gRNA	May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products

RNase Free Water	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Control DNA Target	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10X Cas9 Digestion Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Cas9 Nuclease	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Control gRNA	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Cas9 Nuclease				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-

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					
Cas9 Nuclease	152500.0	125000	N/A	871.1	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	500	N/A	N/A	N/A	N/A

Irritation/Corrosion

SECTION 11: Toxicological information

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	-
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 %	-

Sensitiser

Skin : **CAS9 Nuclease**: May cause skin sensitisation.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Product/ingredient 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 :

RNase Free Water	Not available.
Control DNA Target	Not available.
10X Cas9 Digestion Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Cas9 Nuclease	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Control gRNA	Not available.

Potential acute health effects

Inhalation :

RNase Free Water	No known significant effects or critical hazards.
Control DNA Target	No known significant effects or critical hazards.
10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
Cas9 Nuclease	No known significant effects or critical hazards.
Control gRNA	No known significant effects or critical hazards.

Ingestion :

RNase Free Water	No known significant effects or critical hazards.
Control DNA Target	No known significant effects or critical hazards.
10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
Cas9 Nuclease	No known significant effects or critical hazards.
Control gRNA	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Skin contact	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	May cause an allergic skin reaction.
		Control gRNA	No known significant effects or critical hazards.
Eye contact	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	No known significant effects or critical hazards.
		Control gRNA	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.
Ingestion	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.
Skin contact	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	Adverse symptoms may include the following: irritation redness
		Control gRNA	No specific data.
Eye contact	:	RNase Free Water	No specific data.
		Control DNA Target	No specific data.
		10X Cas9 Digestion Buffer	No specific data.
		Cas9 Nuclease	No specific data.
		Control gRNA	No specific data.

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

Conclusion/Summary : Not available.

General	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
		Control gRNA	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Carcinogenicity	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	No known significant effects or critical hazards.
		Control gRNA	No known significant effects or critical hazards.
Mutagenicity	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	No known significant effects or critical hazards.
		Control gRNA	No known significant effects or critical hazards.
Reproductive toxicity	:	RNase Free Water	No known significant effects or critical hazards.
		Control DNA Target	No known significant effects or critical hazards.
		10X Cas9 Digestion Buffer	No known significant effects or critical hazards.
		Cas9 Nuclease	No known significant effects or critical hazards.
		Control gRNA	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Cas9 Nuclease			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Trout - *Oncorhynchus mykiss*	96 hours
2-Mercaptoethanol	Acute EC50 0.4 mg/l Fresh water	Daphnia	48 hours
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Acute EC50 210 µg/l Fresh water	Algae - Green algae - *Selenastrum sp.*	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - Aesop shrimp - *Pandalus montagui* - Adult	48 hours
	Acute LC50 2.518 mg/l Fresh water	Daphnia - Water flea - *Daphnia magna*	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Rainbow trout,donaldson trout - *Oncorhynchus mykiss*	96 hours

Conclusion/Summary : Not available.

12.2 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 - CO2 in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-

Conclusion/Summary : Not available.

SECTION 12: Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
RNase Free Water			
water	-	-	Readily
Cas9 Nuclease			
2-Mercaptoethanol	-	-	Not readily

12.3 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
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	2.7	78.67	Low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
RNase Free Water							
water	Not applicable (Inorganic)	N/A	N/A	N/A	Not applicable (Inorganic)	N/A	N/A

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

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

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

Additional information

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

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

UK (GB)/REACH

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

Intrinsic property	Ingredient name	Status	Reference number	Date of revision
Cas9 Nuclease Substance of equivalent concern for environment	4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated covering well-defined substances and UVCB substances, polymers and homologues	Candidate	-	12/19/2012

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

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

Product / Ingredient name	Identifiers	Status
Cas9 Nuclease Cas9 Nuclease		3

SECTION 15: Regulatory information

Label :	RNase Free Water	Not applicable.
	Control DNA Target	Not applicable.
	10X Cas9 Digestion Buffer	Not applicable.
	Cas9 Nuclease	Not applicable.
	Control gRNA	Not applicable.

Seveso Directive

This product is not controlled under the Seveso Directive.

EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Not listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

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

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

United States : All components are active or exempted.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

Procedure used to derive the classification

Classification	Justification
Cas9 Nuclease Skin Sens. 1, H317	Calculation method

Full text of abbreviated H statements

SECTION 16: Other information

Cas9 Nuclease

H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H361f	Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications

Cas9 Nuclease

Acute Tox. 2	ACUTE TOXICITY - Category 2
Acute Tox. 3	ACUTE TOXICITY - Category 3
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Repr. 2	REPRODUCTIVE TOXICITY - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1	SKIN SENSITISATION - Category 1
Skin Sens. 1A	SKIN SENSITISATION - Category 1A
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2

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