

SAFETY DATA SHEET



DNA Extraction Kit, Part Number 930460

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

1.1 Product identifier

Product name : DNA Extraction Kit, Part Number 930460
Part No. (Kit) : 930460
Part No. : DNA Extraction RNase 200600-81
DNA Extraction Pronase 200600-82
DNA Extraction Solution 200600-13
1
DNA Extraction Solution 200600-14
2
DNA Extraction Solution 200600-15
3

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

Identified uses	
Analytical reagent.	
DNA Extraction RNase	1 ml (10 mg/ml)
DNA Extraction Pronase	2 ml (225 mg/ml)
DNA Extraction Solution 1	500 ml
DNA Extraction Solution 2	420 ml
DNA Extraction Solution 3	150 ml

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

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 : DNA Extraction RNase Mixture
DNA Extraction Pronase Mixture
DNA Extraction Solution Mixture
1
DNA Extraction Solution Mixture
2
DNA Extraction Solution Mixture
3

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

SECTION 2: Hazards identification

DNA Extraction Pronase

H315	SKIN CORROSION/IRRITATION - Category 2
H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
H334	RESPIRATORY SENSITIZATION - Category 1
H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

DNA Extraction Solution 1

H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
H412	LONG-TERM AQUATIC HAZARD - Category 3

DNA Extraction Solution 3

H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
------	---

Ingredients of unknown toxicity	: DNA Extraction RNase	Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 1%
	DNA Extraction Pronase	Not applicable.
	DNA Extraction Solution 1	Not applicable.
	DNA Extraction Solution 2	Not applicable.
	DNA Extraction Solution 3	Not applicable.

Ingredients of unknown ecotoxicity	: DNA Extraction RNase	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 1%
	DNA Extraction Pronase	Not applicable.
	DNA Extraction Solution 1	Not applicable.
	DNA Extraction Solution 2	Not applicable.
	DNA Extraction Solution 3	Not applicable.

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



Signal word

: DNA Extraction RNase	No signal word.
DNA Extraction Pronase	Danger
DNA Extraction Solution 1	Danger
DNA Extraction Solution 2	No signal word.
DNA Extraction Solution 3	Warning

Hazard statements

: DNA Extraction RNase	No known significant effects or critical hazards.
DNA Extraction Pronase	GHS07 - Causes skin irritation. May cause respiratory irritation. Causes serious eye irritation. GHS08 - May cause allergy or asthma symptoms or breathing difficulties if inhaled.
DNA Extraction Solution 1	GHS05 - Causes serious eye damage. Harmful to aquatic life with long lasting effects.
DNA Extraction Solution 2	No known significant effects or critical hazards.
DNA Extraction Solution 3	GHS07 - Causes serious eye irritation.

Precautionary statements

SECTION 2: Hazards identification

Prevention	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	P280 - Wear protective gloves. Wear eye or face protection. P261 - Avoid breathing vapour.
		DNA Extraction Solution 1	P280 - Wear eye or face protection. P273 - Avoid release to the environment.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	P280 - Wear eye or face protection. P264 - Wash hands thoroughly after handling.
Response	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or physician.
		DNA Extraction Solution 1	P305 + P351 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Immediately call a POISON CENTER or physician.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	P405 - Store locked up.
		DNA Extraction Solution 1	Not applicable.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	Not applicable.
Disposal	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		DNA Extraction Solution 1	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	Not applicable.
Hazardous ingredients	:	DNA Extraction Pronase	
		Proteinase, Streptomyces griseus	
Supplemental label elements		DNA Extraction Solution 1	
		Polyoxyethylene octyl phenyl ether	
	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	Not applicable.
		DNA Extraction Solution 1	Not applicable.
		DNA Extraction Solution 2	Safety data sheet available on request.
		DNA Extraction Solution 3	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	Not applicable.
		DNA Extraction Solution 1	Not applicable.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	Not applicable.

SECTION 2: Hazards identification

Special packaging requirements

Tactile warning of danger	:	DNA Extraction RNase	Not applicable.
		DNA Extraction Pronase	Not applicable.
		DNA Extraction Solution 1	Not applicable.
		DNA Extraction Solution 2	Not applicable.
		DNA Extraction Solution 3	Not applicable.

2.3 Other hazards

Other hazards which do not result in classification	:	DNA Extraction RNase	None known.
		DNA Extraction Pronase	None known.
		DNA Extraction Solution 1	None known.
		DNA Extraction Solution 2	None known.
		DNA Extraction Solution 3	None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures	:	DNA Extraction RNase	Mixture
		DNA Extraction Pronase	Mixture
		DNA Extraction Solution 1	Mixture
		DNA Extraction Solution 2	Mixture
		DNA Extraction Solution 3	Mixture

Product/ingredient name	Identifiers	%	Classification	Type
DNA Extraction Pronase Proteinase, Streptomyces griseus	EC: 232-909-5 CAS: 9036-06-0 Index: 647-014-00-9	≥10 - ≤25	Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335	[1]
DNA Extraction Solution 1 Sucrose	EC: 200-334-9 CAS: 57-50-1	≥25 - ≤50	Not classified.	[2]
Polyoxyethylene octyl phenyl ether	CAS: 9002-93-1	≤5	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 2, H411	[1] [5]
DNA Extraction Solution 2 Sodium dodecyl sulphate	EC: 205-788-1 CAS: 151-21-3	≤3	Flam. Sol. 2, H228 Acute Tox. 4, H302 Acute Tox. 3, H311 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Acute 1, H400 (M=1) Aquatic Chronic 3, H412	[1]
DNA Extraction Solution 3 Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≥25 - ≤50	Eye Irrit. 2, H319 See Section 16 for the full text of the H statements declared above.	[1]

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

SECTION 3: Composition/information on ingredientsType

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

SECTION 4: First aid measures**4.1 Description of first aid measures****Eye contact**

: DNA Extraction RNase	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.
DNA Extraction Pronase	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.
DNA Extraction Solution 1	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
DNA Extraction Solution 2	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.
DNA Extraction Solution 3	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.

Inhalation

: DNA Extraction RNase	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.
DNA Extraction Pronase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In the event of any complaints or symptoms, avoid further exposure.
DNA Extraction Solution 1	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
DNA Extraction Solution 2	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

SECTION 4: First aid measures

	DNA Extraction Solution 3	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	: DNA Extraction RNase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	DNA Extraction Pronase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	DNA Extraction Solution 1	Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	DNA Extraction Solution 2	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	DNA Extraction Solution 3	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: DNA Extraction RNase	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	DNA Extraction Pronase	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	DNA Extraction Solution 1	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery

SECTION 4: First aid measures

		position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
DNA Extraction Solution 2		Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
DNA Extraction Solution 3		Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Protection of first-aiders	: DNA Extraction RNase	No action shall be taken involving any personal risk or without suitable training.
	DNA Extraction Pronase	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	DNA Extraction Solution 1	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	DNA Extraction Solution 2	No action shall be taken involving any personal risk or without suitable training.
	DNA Extraction Solution 3	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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	: DNA Extraction RNase	No known significant effects or critical hazards.
	DNA Extraction Pronase	Causes serious eye irritation.
	DNA Extraction Solution 1	Causes serious eye damage.
	DNA Extraction Solution 2	No known significant effects or critical hazards.
	DNA Extraction Solution 3	Causes serious eye irritation.
Inhalation	: DNA Extraction RNase	No known significant effects or critical hazards.
	DNA Extraction Pronase	May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	DNA Extraction Solution 1	No known significant effects or critical hazards.
	DNA Extraction Solution 2	No known significant effects or critical hazards.
	DNA Extraction Solution 3	No known significant effects or critical hazards.

SECTION 4: First aid measures

Skin contact : DNA Extraction RNase No known significant effects or critical hazards.
 DNA Extraction Pronase Causes skin irritation.
 DNA Extraction Solution No known significant effects or critical hazards.
 1
 DNA Extraction Solution No known significant effects or critical hazards.
 2
 DNA Extraction Solution No known significant effects or critical hazards.
 3

Ingestion : DNA Extraction RNase No known significant effects or critical hazards.
 DNA Extraction Pronase No known significant effects or critical hazards.
 DNA Extraction Solution No known significant effects or critical hazards.
 1
 DNA Extraction Solution No known significant effects or critical hazards.
 2
 DNA Extraction Solution No known significant effects or critical hazards.
 3

Over-exposure signs/symptoms

Eye contact : DNA Extraction RNase No specific data.
 DNA Extraction Pronase Adverse symptoms may include the following:
 pain or irritation
 watering
 redness
 DNA Extraction Solution Adverse symptoms may include the following:
 1
 pain
 watering
 redness
 DNA Extraction Solution No specific data.
 2
 DNA Extraction Solution Adverse symptoms may include the following:
 3
 pain or irritation
 watering
 redness

Inhalation : DNA Extraction RNase No specific data.
 DNA Extraction Pronase Adverse symptoms may include the following:
 respiratory tract irritation
 coughing
 wheezing and breathing difficulties
 asthma
 DNA Extraction Solution No specific data.
 1
 DNA Extraction Solution No specific data.
 2
 DNA Extraction Solution No specific data.
 3

Skin contact : DNA Extraction RNase No specific data.
 DNA Extraction Pronase Adverse symptoms may include the following:
 irritation
 redness
 DNA Extraction Solution Adverse symptoms may include the following:
 1
 pain or irritation
 redness
 blistering may occur
 DNA Extraction Solution No specific data.
 2
 DNA Extraction Solution No specific data.
 3

SECTION 4: First aid measures

Ingestion	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	No specific data.
		DNA Extraction Solution	Adverse symptoms may include the following:
		1	stomach pains
		DNA Extraction Solution	No specific data.
		2	
		DNA Extraction Solution	No specific data.
		3	

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	DNA Extraction RNase	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.
		DNA Extraction Pronase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		DNA Extraction Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		1	
		DNA Extraction Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		2	
		DNA Extraction Solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		3	

Specific treatments	:	DNA Extraction RNase	No specific treatment.
		DNA Extraction Pronase	No specific treatment.
		DNA Extraction Solution	No specific treatment.
		1	
		DNA Extraction Solution	No specific treatment.
		2	
		DNA Extraction Solution	No specific treatment.
		3	

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	DNA Extraction RNase	Use an extinguishing agent suitable for the surrounding fire.
		DNA Extraction Pronase	Use an extinguishing agent suitable for the surrounding fire.
		DNA Extraction Solution	Use an extinguishing agent suitable for the surrounding fire.
		1	
		DNA Extraction Solution	Use an extinguishing agent suitable for the surrounding fire.
		2	
		DNA Extraction Solution	Use an extinguishing agent suitable for the surrounding fire.
		3	

Unsuitable extinguishing media	:	DNA Extraction RNase	None known.
		DNA Extraction Pronase	None known.
		DNA Extraction Solution	None known.
		1	
		DNA Extraction Solution	None known.
		2	
		DNA Extraction Solution	None known.
		3	

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	DNA Extraction RNase	In a fire or if heated, a pressure increase will occur and the container may burst.
		DNA Extraction Pronase	In a fire or if heated, a pressure increase will occur and the container may burst.
		DNA Extraction Solution	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
		1	
		DNA Extraction Solution	In a fire or if heated, a pressure increase will occur and the

SECTION 5: Firefighting measures

	2	container may burst.
	DNA Extraction Solution	In a fire or if heated, a pressure increase will occur and the
	3	container may burst.
Hazardous combustion products	: DNA Extraction RNase	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides
	DNA Extraction Pronase	No specific data.
	DNA Extraction Solution	Decomposition products may include the following materials:
	1	carbon dioxide carbon monoxide
	DNA Extraction Solution	Decomposition products may include the following materials:
	2	carbon dioxide carbon monoxide sulfur oxides metal oxide/oxides
	DNA Extraction Solution	Decomposition products may include the following materials:
	3	halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	: DNA Extraction RNase	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.
	DNA Extraction Pronase	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.
	DNA Extraction Solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	1	
	DNA Extraction Solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	2	
	DNA Extraction Solution	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	3	

Special protective equipment for fire-fighters	: DNA Extraction RNase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	DNA Extraction Pronase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	DNA Extraction Solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	1	
	DNA Extraction Solution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	2	

SECTION 5: Firefighting measures

DNA Extraction Solution 3	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
------------------------------	---

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: DNA Extraction RNase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
DNA Extraction Pronase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
DNA Extraction Solution 1	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
DNA Extraction Solution 2	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
DNA Extraction Solution 3	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders

: DNA Extraction RNase	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".
DNA Extraction Pronase	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".
DNA Extraction Solution 1	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".
DNA Extraction Solution 2	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".
DNA Extraction Solution 3	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".

SECTION 6: Accidental release measures

6.2 Environmental precautions	: DNA Extraction RNase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	DNA Extraction Pronase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	DNA Extraction Solution 1	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
	DNA Extraction Solution 2	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	DNA Extraction Solution 3	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	: DNA Extraction RNase	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.
	DNA Extraction Pronase	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.
	DNA Extraction Solution 1	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.
	DNA Extraction Solution 2	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.
	DNA Extraction Solution 3	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

SECTION 7: Handling and storage

Protective measures	: DNA Extraction RNase	Put on appropriate personal protective equipment (see Section 8).
	DNA Extraction Pronase	Put on appropriate personal protective equipment (see Section 8). Persons with a history of asthma, allergies or chronic or recurrent respiratory disease 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. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	DNA Extraction Solution 1	Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	DNA Extraction Solution 2	Put on appropriate personal protective equipment (see Section 8).
	DNA Extraction Solution 3	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. 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	: DNA Extraction RNase	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.
	DNA Extraction Pronase	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.
	DNA Extraction Solution 1	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.
	DNA Extraction Solution 2	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.
	DNA Extraction Solution 3	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

7.2 Conditions for safe storage, including any incompatibilities

: DNA Extraction RNase	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.
DNA Extraction Pronase	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
DNA Extraction Solution 1	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
DNA Extraction Solution 2	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.
DNA Extraction Solution 3	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.

7.3 Specific end use(s)

Recommendations

: DNA Extraction RNase	Industrial applications, Professional applications.
DNA Extraction Pronase	Industrial applications, Professional applications.
DNA Extraction Solution 1	Industrial applications, Professional applications.
DNA Extraction Solution 2	Industrial applications, Professional applications.
DNA Extraction Solution 3	Industrial applications, Professional applications.

Industrial sector specific solutions

: DNA Extraction RNase	Not applicable.
DNA Extraction Pronase	Not applicable.
DNA Extraction Solution 1	Not applicable.
DNA Extraction Solution 2	Not applicable.
DNA Extraction Solution 3	Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
DNA Extraction Solution 1 Sucrose	EH40/2005 WELs (United Kingdom (UK), 12/2011). STEL: 20 mg/m ³ 15 minutes. TWA: 10 mg/m ³ 8 hours.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

SECTION 8: Exposure controls/personal protection

- 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**9.1 Information on basic physical and chemical properties****Appearance**

- Physical state** : DNA Extraction RNase Liquid.
DNA Extraction Pronase Liquid.
DNA Extraction Solution 1 Liquid.
DNA Extraction Solution 2 Liquid.
DNA Extraction Solution 3 Liquid.
- Colour** : DNA Extraction RNase Not available.
DNA Extraction Pronase Not available.
DNA Extraction Solution 1 Not available.
DNA Extraction Solution 2 Not available.
DNA Extraction Solution 3 Not available.
- Odour** : DNA Extraction RNase Not available.
DNA Extraction Pronase Not available.
DNA Extraction Solution 1 Not available.
DNA Extraction Solution 2 Not available.
DNA Extraction Solution 3 Not available.
- Odour threshold** : DNA Extraction RNase Not available.
DNA Extraction Pronase Not available.
DNA Extraction Solution 1 Not available.
DNA Extraction Solution 2 Not available.
DNA Extraction Solution 3 Not available.
- pH** : DNA Extraction RNase 7.5
DNA Extraction Pronase Not available.
DNA Extraction Solution 1 7.6
DNA Extraction Solution 2 8
DNA Extraction Solution 3 Not available.
- Melting point/freezing point** : DNA Extraction RNase 0°C
DNA Extraction Pronase Not available.
DNA Extraction Solution 1 Not available.
DNA Extraction Solution 2 0°C
DNA Extraction Solution 3 Not available.

SECTION 9: Physical and chemical properties

Initial boiling point and boiling range	: DNA Extraction RNase	100°C
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	100°C
	DNA Extraction Solution 3	Not available.
Flash point	: DNA Extraction RNase	Not available.
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	Not available.
	DNA Extraction Solution 3	Not available.
Evaporation rate	: DNA Extraction RNase	Not available.
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	Not available.
	DNA Extraction Solution 3	Not available.
Flammability (solid, gas)	: DNA Extraction RNase	Not applicable.
	DNA Extraction Pronase	Not applicable.
	DNA Extraction Solution 1	Not applicable.
	DNA Extraction Solution 2	Not applicable.
	DNA Extraction Solution 3	Not applicable.
Upper/lower flammability or explosive limits	: DNA Extraction RNase	Not available.
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	Not available.
	DNA Extraction Solution 3	Not available.
Vapour pressure	: DNA Extraction RNase	Not available.
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	Not available.
	DNA Extraction Solution 3	Not available.
Vapour density	: DNA Extraction RNase	Not available.
	DNA Extraction Pronase	Not available.
	DNA Extraction Solution 1	Not available.
	DNA Extraction Solution 2	Not available.
	DNA Extraction Solution 3	Not available.

SECTION 9: Physical and chemical properties

Relative density	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.
Solubility(ies)	:	DNA Extraction RNase	Easily soluble in the following materials: cold water and hot water.
		DNA Extraction Pronase	Soluble in the following materials: cold water and hot water.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Easily soluble in the following materials: cold water and hot water.
		DNA Extraction Solution 3	Not available.
Partition coefficient: n-octanol/water	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.
Auto-ignition temperature	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.
Decomposition temperature	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.
Viscosity	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.
Explosive properties	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.

SECTION 9: Physical and chemical properties

Oxidising properties	:	DNA Extraction RNase	Not available.
		DNA Extraction Pronase	Not available.
		DNA Extraction Solution 1	Not available.
		DNA Extraction Solution 2	Not available.
		DNA Extraction Solution 3	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	DNA Extraction RNase	No specific test data related to reactivity available for this product or its ingredients.
		DNA Extraction Pronase	No specific test data related to reactivity available for this product or its ingredients.
		DNA Extraction Solution 1	No specific test data related to reactivity available for this product or its ingredients.
		DNA Extraction Solution 2	No specific test data related to reactivity available for this product or its ingredients.
		DNA Extraction Solution 3	No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability	:	DNA Extraction RNase	The product is stable.
		DNA Extraction Pronase	The product is stable.
		DNA Extraction Solution 1	The product is stable.
		DNA Extraction Solution 2	The product is stable.
		DNA Extraction Solution 3	The product is stable.

10.3 Possibility of hazardous reactions	:	DNA Extraction RNase	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNA Extraction Pronase	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNA Extraction Solution 1	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNA Extraction Solution 2	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNA Extraction Solution 3	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	No specific data.
		DNA Extraction Solution 1	No specific data.
		DNA Extraction Solution 2	No specific data.
		DNA Extraction Solution 3	No specific data.

10.5 Incompatible materials	:	DNA Extraction RNase	May react or be incompatible with oxidising materials.
		DNA Extraction Pronase	May react or be incompatible with oxidising materials.
		DNA Extraction Solution 1	May react or be incompatible with oxidising materials.
		DNA Extraction Solution 2	May react or be incompatible with oxidising materials.
		DNA Extraction Solution 3	May react or be incompatible with oxidising materials.

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
--	---	--

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
DNA Extraction Pronase Proteinase, Streptomyces griseus	LD50 Oral	Rat	3290 mg/kg	-
DNA Extraction Solution 2 Sodium dodecyl sulphate	LD50 Dermal	Rabbit	580 mg/kg	-
	LD50 Oral	Rat	1288 mg/kg	-
DNA Extraction Solution 3 Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-

Acute toxicity estimates

Route	ATE value
DNA Extraction Solution 1 Oral	16666.7 mg/kg
DNA Extraction Solution 2 Oral Dermal	64400 mg/kg 29000 mg/kg

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
DNA Extraction Solution 1 Polyoxyethylene octyl phenyl ether	Eyes - Moderate irritant	Rabbit	-	24 hours 10 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
DNA Extraction Solution 2 Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Guinea pig	-	24 hours 25 milligrams	-
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-
DNA Extraction Solution 3 Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100	-

SECTION 11: Toxicological information

	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	milligrams 10 milligrams 24 hours 500 milligrams	- -
--	--	------------------	--------	---	--------

Sensitiser

Conclusion/Summary : Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
DNA Extraction Pronase Proteinase, Streptomyces griseus	Category 3	Not applicable.	Respiratory tract irritation
DNA Extraction Solution 2 Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

: DNA Extraction RNase	Not available.
: DNA Extraction Pronase	Routes of entry anticipated: Oral, Dermal, Inhalation.
: DNA Extraction Solution 1	Routes of entry anticipated: Oral, Dermal, Inhalation.
: DNA Extraction Solution 2	Routes of entry anticipated: Oral, Dermal, Inhalation.
: DNA Extraction Solution 3	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation	: DNA Extraction RNase	No known significant effects or critical hazards.
	: DNA Extraction Pronase	May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
	: DNA Extraction Solution 1	No known significant effects or critical hazards.
	: DNA Extraction Solution 2	No known significant effects or critical hazards.
	: DNA Extraction Solution 3	No known significant effects or critical hazards.
Ingestion	: DNA Extraction RNase	No known significant effects or critical hazards.
	: DNA Extraction Pronase	No known significant effects or critical hazards.
	: DNA Extraction Solution 1	No known significant effects or critical hazards.
	: DNA Extraction Solution 2	No known significant effects or critical hazards.
	: DNA Extraction Solution 3	No known significant effects or critical hazards.
Skin contact	: DNA Extraction RNase	No known significant effects or critical hazards.
	: DNA Extraction Pronase	Causes skin irritation.
	: DNA Extraction Solution 1	No known significant effects or critical hazards.
	: DNA Extraction Solution 2	No known significant effects or critical hazards.
	: DNA Extraction Solution 3	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Eye contact	:	DNA Extraction RNase	No known significant effects or critical hazards.
		DNA Extraction Pronase	Causes serious eye irritation.
		DNA Extraction Solution	Causes serious eye damage.
		1	
		DNA Extraction Solution	No known significant effects or critical hazards.
		2	
		DNA Extraction Solution	Causes serious eye irritation.
		3	

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	Adverse symptoms may include the following: respiratory tract irritation coughing wheezing and breathing difficulties asthma
		DNA Extraction Solution	No specific data.
		1	
		DNA Extraction Solution	No specific data.
		2	
		DNA Extraction Solution	No specific data.
		3	

Ingestion	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	No specific data.
		DNA Extraction Solution	Adverse symptoms may include the following: stomach pains
		1	
		DNA Extraction Solution	No specific data.
		2	
		DNA Extraction Solution	No specific data.
		3	

Skin contact	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	Adverse symptoms may include the following: irritation redness
		DNA Extraction Solution	Adverse symptoms may include the following: pain or irritation redness blistering may occur
		1	
		DNA Extraction Solution	No specific data.
		2	
		DNA Extraction Solution	No specific data.
		3	

Eye contact	:	DNA Extraction RNase	No specific data.
		DNA Extraction Pronase	Adverse symptoms may include the following: pain or irritation watering redness
		DNA Extraction Solution	Adverse symptoms may include the following: pain watering redness
		1	
		DNA Extraction Solution	No specific data.
		2	
		DNA Extraction Solution	Adverse symptoms may include the following: pain or irritation watering redness
		3	

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

Short term exposure

SECTION 11: Toxicological information

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	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: DNA Extraction RNase DNA Extraction Pronase DNA Extraction Solution 1 DNA Extraction Solution 2 DNA Extraction Solution 3	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
DNA Extraction Solution 1 Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
DNA Extraction Solution 2 Sodium dodecyl sulphate	Acute EC50 1200 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - Artemia salina - Adult	48 hours
	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
	Chronic NOEC 1 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	21 days
	Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days
DNA Extraction Solution 3 Sodium chloride	Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days
	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 28.85 mg/dm ³ Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1661 mg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)	3 weeks
	Chronic NOEC 6 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks	

12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
DNA Extraction Solution 1 Polyoxyethylene octyl phenyl ether	-	-	Readily
DNA Extraction Solution 2 Sodium dodecyl sulphate	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
DNA Extraction Solution 1 Polyoxyethylene octyl phenyl ether	4.86	-	high
DNA Extraction Solution 2 Sodium dodecyl sulphate	-2.03	-	low

SECTION 12: Ecological information

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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 : The classification of the product may meet the criteria for a hazardous waste.

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. 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

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

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 Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

SECTION 15: Regulatory information

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
DNA Extraction Solution 1 4-(1,1,3,3-tetramethylbutyl)phenol, ethoxylated [covering well-defined substances and UVCB substances, polymers and homologues]; 4-tert-Octylphenol ethoxylates	Substance of equivalent concern for environment	Recommended	ED/169/2012	10/29/2013

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

DNA Extraction RNase	Not applicable.
DNA Extraction Pronase	Not applicable.
DNA Extraction Solution 1	Not applicable.
DNA Extraction Solution 2	Not applicable.
DNA Extraction Solution 3	Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia : Not determined.
Canada : Not determined.
China : All components are listed or exempted.
Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.
Malaysia : Not determined.
New Zealand : All components are listed or exempted.
Philippines : Not determined.
Republic of Korea : Not determined.
Taiwan : All components are listed or exempted.
Turkey : Not determined.
United States : All components are listed or exempted.

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

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]
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
DNA Extraction Pronase Skin Irrit. 2, H315 Eye Irrit. 2, H319 Resp. Sens. 1, H334 STOT SE 3, H335	Calculation method Calculation method Calculation method Calculation method
DNA Extraction Solution 1 Eye Dam. 1, H318 Aquatic Chronic 3, H412	Calculation method Calculation method
DNA Extraction Solution 3 Eye Irrit. 2, H319	Calculation method

Full text of abbreviated H statements

- : **DNA Extraction Pronase**
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 H335 May cause respiratory irritation.
- : **DNA Extraction Solution 1**
 H302 Harmful if swallowed.
 H315 Causes skin irritation.
 H318 Causes serious eye damage.
 H411 Toxic to aquatic life with long lasting effects.
 H412 Harmful to aquatic life with long lasting effects.
- : **DNA Extraction Solution 2**
 H228 Flammable solid.
 H302 Harmful if swallowed.
 H311 Toxic in contact with skin.
 H315 Causes skin irritation.
 H319 Causes serious eye irritation.
 H335 May cause respiratory irritation.
 H400 Very toxic to aquatic life.
 H412 Harmful to aquatic life with long lasting effects.
- : **DNA Extraction Solution 3**
 H319 Causes serious eye irritation.

Full text of classifications [CLP/GHS]

- : **DNA Extraction Pronase**
 Eye Irrit. 2, H319 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
 Resp. Sens. 1, H334 RESPIRATORY SENSITIZATION - Category 1
 Skin Irrit. 2, H315 SKIN CORROSION/IRRITATION - Category 2
 STOT SE 3, H335 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

DNA Extraction

SECTION 16: Other information

Solution 1

Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2

DNA Extraction

Solution 2

Acute Tox. 3, H311	ACUTE TOXICITY (dermal) - Category 3
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Aquatic Acute 1, H400	ACUTE AQUATIC HAZARD - Category 1
Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Sol. 2, H228	FLAMMABLE SOLIDS - Category 2
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

DNA Extraction

Solution 3

Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
--------------------	---

Date of issue/ Date of revision : 29/02/2016

Date of previous issue : No previous validation.

Version : 1

[Notice to reader](#)

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.