SAFETY DATA SHEET

Agilent Technologies

Absolutely miRNA Total Isolation Kit, Part Number 400814

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

1.1 Product identifier

Product name : Absolutely miRNA Total Isolation Kit, Part Number 400814

Part No. (Kit) : 400814

Part No. :

RNase-Free DNase I (Lyophilized)	400711-23
ß-Mercaptoethanol	200345-21
Lysis Buffer	400814-13
1.67x High-Salt Wash Buffer	400814-14
5X Low Salt Wash Buffer	400814-15
Elution Buffer	400814-16
DNase Reconstitution Buffer	400814-17
DNase Digestion Buffer	400814-18

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

Identified uses		
Analytical reagent.		
RNase-Free DNase I (Lyophilized)	2600 U	
ß-Mercaptoethanol	0.75 ml (750 µl	14.33 M)
Lysis Buffer	35 ml	
1.67x High-Salt Wash Buffer	24 ml	
5X Low Salt Wash Buffer	19 ml	
Elution Buffer	2.5 ml	
DNase Reconstitution Buffer	0.3 ml	
DNase Digestion Buffer	2.5 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 :

RNase-Free DNase I (Lyophilized)	UVCB
ß-Mercaptoethanol	Mono-constituent substance
Lysis Buffer	Mixture
1.67x High-Salt Wash Buffer	Mixture
5X Low Salt Wash Buffer	Mixture
Elution Buffer	Mixture

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DNase Reconstitution Buffer	Mixture
DNase Digestion Buffer	Mixture

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

ß-Mercaptoethanol

H301	ACUTE TOXICITY (oral) - Category 3
H310	ACUTE TOXICITY (dermal) - Category 2
H330	ACUTE TOXICITY (inhalation) - Category 2
H315	SKIN CORROSION/IRRITATION - Category 2
H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H317	SKIN SENSITISATION - Category 1
H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
H411	LONG-TERM AQUATIC HAZARD - Category 2

Lysis Buffer

H302	ACUTE TOXICITY (oral) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H412	LONG-TERM AQUATIC HAZARD - Category 3

1.67x High-Salt Wash Buffer

H302	ACUTE TOXICITY (oral) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H412	LONG-TERM AQUATIC HAZARD - Category 3

DNase Digestion Buffer

H226	FLAMMABLE LIQUIDS - Category 3

Ingredients of unknown toxicity	:	1.67x High-Salt Wash Buffer	Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 1.2%
Ingredients of unknown ecotoxicity	:	1.67x High-Salt Wash Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 1.2%

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	:	RNase-Free DNase I (Lyophilized)	No signal word.
		ß-Mercaptoethanol	Danger
		Lysis Buffer	Warning
		1.67x High-Salt Wash Buffer	Warning
		5X Low Salt Wash Buffer	No signal word.
		Elution Buffer	No signal word.
		DNase Reconstitution Buffer	No signal word.
		DNase Digestion Buffer	Warning
Hazard statements	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	**GHS06** - Fatal in contact with skin. Fatal if inhaled. Toxic if swallowed. **GHS05** - Causes serious eye damage. **GHS07** -

SECTION 2: Hazards identification

	Causes skin irritation. May cause respiratory irritation. May cause an allergic skin reaction. **GHS09** - Toxic to aquatic life with long lasting effects.
Lysis Buffer	**GHS07** - Harmful if swallowed. Harmful if inhaled. Harmful to aquatic life with long lasting effects.
1.67x High-Salt Wash Buffer	**GHS07** - Harmful if swallowed. Harmful if inhaled. Harmful to aquatic life with long lasting effects.
5X Low Salt Wash Buffer	No known significant effects or critical hazards.
Elution Buffer	No known significant effects or critical hazards.
DNase Reconstitution Buffer	No known significant effects or critical hazards.
DNase Digestion Buffer	**GHS02** - Flammable liquid and vapour.

Precautionary statements

Prevention	: RNase-Free DNase I (Lyophilized)	Not applicable.
	ß-Mercaptoethanol	P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing. P273 - Avoid release to the environment. P262 - Do not get in eyes, on skin, or on clothing. P260 - Do not breathe vapour.
	Lysis Buffer	P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P261 - Avoid breathing vapour.
	1.67x High-Salt Wash Buffer	P271 - Use only outdoors or in a well-ventilated area. P273 - Avoid release to the environment. P261 - Avoid breathing vapour.
	5X Low Salt Wash Buffer	Not applicable.
	Elution Buffer	Not applicable.
	DNase Reconstitution Buffer	Not applicable.
	DNase Digestion Buffer	P280 - Wear protective gloves. Wear eye or face protection. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P241 - Use explosion-proof electrical, ventilating, lighting and all material-handling equipment.
Response	: RNase-Free DNase I (Lyophilized)	Not applicable.
	ß-Mercaptoethanol	P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or physician. P302 + P310 - IF ON SKIN: Immediately call a POISON CENTER or physician. P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.
	Lysis Buffer	P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
	1.67x High-Salt Wash Buffer	P304 + P340 + P312 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.
	5X Low Salt Wash Buffer	Not applicable.
	Elution Buffer	Not applicable.

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		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
Storage	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	P405 - Store locked up.
		Lysis Buffer	Not applicable.
		1.67x High-Salt Wash Buffer	Not applicable.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	P235 - Keep cool.
Disposal	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		Lysis Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		1.67x High-Salt Wash Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazardous ingredients	:	Lysis Buffer	- Guanidinium thiocyanate
		1.67x High-Salt Wash Buffer	- Guanidinium thiocyanate
		DNase Digestion Buffer	Not applicable.
Supplemental label elements	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	Not applicable.
		Lysis Buffer	Not applicable.
		1.67x High-Salt Wash Buffer	Not applicable.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	Not applicable.
		Lysis Buffer	Not applicable.
		1.67x High-Salt Wash Buffer	Not applicable.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	Not applicable.

Special packaging requirements

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Tactile warning of danger :

RNase-Free DNase I (Lyophilized)	Not applicable.
ß-Mercaptoethanol	Not applicable.
Lysis Buffer	Not applicable.
1.67x High-Salt Wash Buffer	Not applicable.
5X Low Salt Wash Buffer	Not applicable.
Elution Buffer	Not applicable.
DNase Reconstitution Buffer	Not applicable.
DNase Digestion Buffer	Not applicable.

2.3 Other hazards

Other hazards which do not result in classification :

RNase-Free DNase I (Lyophilized)	None known.
ß-Mercaptoethanol	None known.
Lysis Buffer	None known.
1.67x High-Salt Wash Buffer	None known.
5X Low Salt Wash Buffer	None known.
Elution Buffer	None known.
DNase Reconstitution Buffer	None known.
DNase Digestion Buffer	None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures :

RNase-Free DNase I (Lyophilized)	UVCB
ß-Mercaptoethanol	Mono-constituent substance
Lysis Buffer	Mixture
1.67x High-Salt Wash Buffer	Mixture
5X Low Salt Wash Buffer	Mixture
Elution Buffer	Mixture
DNase Reconstitution Buffer	Mixture
DNase Digestion Buffer	Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
RNase-Free DNase I (Lyophilized)				
RNase-Free DNase I (Lyophilized)	-	100	Not classified.	[*]
ß-Mercaptoethanol				
2-Mercaptoethanol	EC: 200-464-6 CAS: 60-24-2	100	Acute Tox. 3, H301 Acute Tox. 2, H310 Acute Tox. 2, H330 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335 Aquatic Chronic 2, H411	[A]
Lysis Buffer				
Guanidinium thiocyanate	EC: 209-812-1 CAS: 593-84-0 Index: 615-004-00-3	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Aquatic Chronic 3, H412 EUH032	[1]
1.67x High-Salt Wash Buffer				
Guanidinium thiocyanate	EC: 209-812-1 CAS: 593-84-0	≥25 - ≤50	Acute Tox. 4, H302 Acute Tox. 4, H312	[1]

SECTION 3: Composition/information on ingredients

	Index: 615-004-00-3		Acute Tox. 4, H332 Aquatic Chronic 3, H412 EUH032	
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	EC: 214-684-5 CAS: 1185-53-1	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	[1]
DNase Reconstitution Buffer				
Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
DNase Digestion Buffer				
Ethanol	EC: 200-578-6 CAS: 64-17-5 Index: 603-002-00-5	≥25 - ≤50	Flam. Liq. 2, H225	[2]
Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≤3	Eye Irrit. 2, H319	[1]
Manganese dichloride	EC: 231-869-6 CAS: 7773-01-5	≤0.3	Acute Tox. 3, H301 Aquatic Chronic 2, H411 **See Section 16 for the full text of the H statements declared above.**	[1] [2]

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.

Type

[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
[7] Substance
[A] Constituent
[B] Impurity
[C] Stabilising additive

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact :

RNase-Free DNase I (Lyophilized)	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.
ß-Mercaptoethanol	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.
Lysis Buffer	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.
1.67x High-Salt Wash Buffer	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.
5X Low Salt Wash 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.
Elution 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.
DNase Reconstitution	Immediately flush eyes with plenty of water, occasionally

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		Buffer	lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		DNase Digestion Buffer	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.
Inhalation	:	RNase-Free DNase I (Lyophilized)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		ß-Mercaptoethanol	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.
		Lysis Buffer	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 adverse health effects persist or are severe. 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 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.
		1.67x High-Salt Wash Buffer	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 adverse health effects persist or are severe. 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 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.
		5X Low Salt Wash Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Elution Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		DNase Reconstitution Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		DNase Digestion Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is

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			irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	:	RNase-Free DNase I (Lyophilized)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		ß-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Gently wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		Lysis Buffer	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.
		1.67x High-Salt Wash Buffer	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.
		5X Low Salt Wash Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		Elution Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		DNase Reconstitution Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		DNase Digestion Buffer	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	:	RNase-Free DNase I (Lyophilized)	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.
		ß-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		Lysis Buffer	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position

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	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 necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
1.67x High-Salt Wash Buffer	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 necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
5X Low Salt Wash Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Elution Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
DNase Reconstitution Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
DNase Digestion Buffer	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.

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Protection of first-aiders	:	RNase-Free DNase I (Lyophilized)	No action shall be taken involving any personal risk or without suitable training.
		ß-Mercaptoethanol	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.
		Lysis Buffer	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.
		1.67x High-Salt Wash Buffer	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.
		5X Low Salt Wash Buffer	No action shall be taken involving any personal risk or without suitable training.
		Elution Buffer	No action shall be taken involving any personal risk or without suitable training.
		DNase Reconstitution Buffer	No action shall be taken involving any personal risk or without suitable training.
		DNase Digestion Buffer	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	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	Causes serious eye damage.
		Lysis Buffer	No known significant effects or critical hazards.
		1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
		5X Low Salt Wash Buffer	No known significant effects or critical hazards.
		Elution Buffer	No known significant effects or critical hazards.
		DNase Reconstitution Buffer	No known significant effects or critical hazards.
		DNase Digestion Buffer	No known significant effects or critical hazards.
Inhalation	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	Fatal if inhaled. May cause respiratory irritation.
		Lysis Buffer	Harmful if inhaled.
		1.67x High-Salt Wash Buffer	Harmful if inhaled.
		5X Low Salt Wash Buffer	No known significant effects or critical hazards.
		Elution Buffer	No known significant effects or critical hazards.
		DNase Reconstitution Buffer	No known significant effects or critical hazards.
		DNase Digestion Buffer	No known significant effects or critical hazards.
Skin contact	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
		Lysis Buffer	No known significant effects or critical hazards.
		1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.

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	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.
Ingestion :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	Toxic if swallowed.
	Lysis Buffer	Harmful if swallowed.
	1.67x High-Salt Wash Buffer	Harmful if swallowed.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: pain watering redness
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	No specific data.
Inhalation :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: respiratory tract irritation coughing
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	No specific data.
Skin contact :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	No specific data.

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Ingestion	:	RNase-Free DNase I (Lyophilized)	No specific data.
		ß-Mercaptoethanol	Adverse symptoms may include the following: stomach pains
		Lysis Buffer	No specific data.
		1.67x High-Salt Wash Buffer	No specific data.
		5X Low Salt Wash Buffer	No specific data.
		Elution Buffer	No specific data.
		DNase Reconstitution Buffer	No specific data.
		DNase Digestion Buffer	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	RNase-Free DNase I (Lyophilized)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		ß-Mercaptoethanol	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Lysis 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.
		1.67x High-Salt Wash 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.
		5X Low Salt Wash Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Elution Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		DNase Reconstitution Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		DNase Digestion Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	RNase-Free DNase I (Lyophilized)	No specific treatment.
		ß-Mercaptoethanol	No specific treatment.
		Lysis Buffer	No specific treatment.
		1.67x High-Salt Wash Buffer	No specific treatment.
		5X Low Salt Wash Buffer	No specific treatment.
		Elution Buffer	No specific treatment.
		DNase Reconstitution Buffer	No specific treatment.
		DNase Digestion Buffer	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	RNase-Free DNase I (Lyophilized)	Use an extinguishing agent suitable for the surrounding fire.
		ß-Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.
		Lysis Buffer	Use an extinguishing agent suitable for the surrounding fire.
		1.67x High-Salt Wash Buffer	Use an extinguishing agent suitable for the surrounding fire.
		5X Low Salt Wash Buffer	Use an extinguishing agent suitable for the surrounding fire.
		Elution Buffer	Use an extinguishing agent suitable for the surrounding fire.
		DNase Reconstitution Buffer	Use an extinguishing agent suitable for the surrounding fire.
		DNase Digestion Buffer	Use dry chemical, CO_2, water spray (fog) or foam.

SECTION 5: Firefighting measures

Unsuitable extinguishing media :	RNase-Free DNase I (Lyophilized)	None known.
	ß-Mercaptoethanol	None known.
	Lysis Buffer	None known.
	1.67x High-Salt Wash Buffer	None known.
	5X Low Salt Wash Buffer	None known.
	Elution Buffer	None known.
	DNase Reconstitution Buffer	None known.
	DNase Digestion Buffer	Do not use water jet.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	RNase-Free DNase I (Lyophilized)	No specific fire or explosion hazard.
	ß-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Lysis Buffer	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.
	1.67x High-Salt Wash Buffer	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.
	5X Low Salt Wash Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	Elution Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	DNase Reconstitution Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	DNase Digestion Buffer	Flammable liquid and vapour. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard.
Hazardous combustion products :	RNase-Free DNase I (Lyophilized)	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	ß-Mercaptoethanol	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	Lysis Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides
	1.67x High-Salt Wash Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution	Decomposition products may include the following materials:

SECTION 5: Firefighting measures

Buffer	
	carbon dioxide carbon monoxide
DNase Digestion Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	: RNase-Free DNase I (Lyophilized)	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.
	ß-Mercaptoethanol	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.
	Lysis 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.
	1.67x High-Salt Wash Buffer	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	5X Low Salt Wash 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.
	Elution 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.
	DNase Reconstitution 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.
	DNase 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	: RNase-Free DNase I (Lyophilized)	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.
	ß-Mercaptoethanol	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.
	Lysis Buffer	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.
	1.67x High-Salt Wash Buffer	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.
	5X Low Salt Wash Buffer	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

SECTION 5: Firefighting measures

	fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Elution Buffer	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.
DNase Reconstitution Buffer	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.
DNase 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. 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 :

RNase-Free DNase I (Lyophilized)	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.
ß-Mercaptoethanol	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. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Lysis 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
1.67x High-Salt Wash 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
5X Low Salt Wash 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.
Elution 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.
DNase Reconstitution Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering.

SECTION 6: Accidental release measures

		Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	DNase 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders :	RNase-Free DNase I (Lyophilized)	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".
	ß-Mercaptoethanol	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".
	Lysis 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".
	1.67x High-Salt Wash 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".
	5X Low Salt Wash 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".
	Elution 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".
	DNase Reconstitution 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".
	DNase 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".
6.2 Environmental precautions :	RNase-Free DNase I (Lyophilized)	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).
	ß-Mercaptoethanol	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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
	Lysis 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). Water polluting material. May be harmful to the environment if released in large quantities.
	1.67x High-Salt Wash 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). Water polluting material.

SECTION 6: Accidental release measures

	May be harmful to the environment if released in large quantities.
5X Low Salt Wash 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).
Elution 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).
DNase Reconstitution 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).
DNase 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).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up :

RNase-Free DNase I (Lyophilized)	Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor.
ß-Mercaptoethanol	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.
Lysis 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.
1.67x High-Salt Wash Buffer	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
5X Low Salt Wash 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.
Elution 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.
DNase Reconstitution 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.
DNase Digestion Buffer	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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 DNase I (Lyophilized)	Put on appropriate personal protective equipment (see Section 8).
		ß-Mercaptoethanol	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
		Lysis Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
		1.67x High-Salt Wash Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
		5X Low Salt Wash Buffer	Put on appropriate personal protective equipment (see Section 8).
		Elution Buffer	Put on appropriate personal protective equipment (see Section 8).
		DNase Reconstitution Buffer	Put on appropriate personal protective equipment (see Section 8).
		DNase Digestion Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	:	RNase-Free DNase I (Lyophilized)	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.
		ß-Mercaptoethanol	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

SECTION 7: Handling and storage

	protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Lysis 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.
1.67x High-Salt Wash Buffer	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
5X Low Salt Wash 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.
Elution 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.
DNase Reconstitution 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.
DNase 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.

7.2 Conditions for safe storage, including any incompatibilities

Storage	: RNase-Free DNase I (Lyophilized)	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.
	ß-Mercaptoethanol	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.
	Lysis 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

SECTION 7: Handling and storage

	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.
1.67x High-Salt Wash 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.
5X Low Salt Wash 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.
Elution 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.
DNase Reconstitution 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.
DNase Digestion Buffer	Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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.

Seveso Directive - Reporting thresholds (in tonnes)

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
β-Mercaptoethanol		
H2: Acute toxicity 2 any route of entry or Acute toxicity 3 Inhalation route of entry	50	200
E2: Hazardous to the aquatic environment - Chronic 2	200	500
DNase Digestion Buffer		
P5c: Flammable liquids 2 and 3 not falling under P5a or P5b	5000	50000

SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations	:	RNase-Free DNase I (Lyophilized)	Industrial applications, Professional applications.
		ß-Mercaptoethanol	Industrial applications, Professional applications.
		Lysis Buffer	Industrial applications, Professional applications.
		1.67x High-Salt Wash Buffer	Industrial applications, Professional applications.
		5X Low Salt Wash Buffer	Industrial applications, Professional applications.
		Elution Buffer	Industrial applications, Professional applications.
		DNase Reconstitution Buffer	Industrial applications, Professional applications.
		DNase Digestion Buffer	Industrial applications, Professional applications.
Industrial sector specific solutions	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	Not applicable.
		Lysis Buffer	Not applicable.
		1.67x High-Salt Wash Buffer	Not applicable.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
DNase Reconstitution Buffer	
Glycerol	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** TWA: 10 mg/m³ 8 hours. Form: Mist
DNase Digestion Buffer	
Ethanol	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** TWA: 1000 ppm 8 hours. TWA: 1920 mg/m³ 8 hours.
Manganese dichloride	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** TWA: 0.5 mg/m³, (as Mn) 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

SECTION 8: Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state :

RNase-Free DNase I (Lyophilized)	Solid. [lyophilised]
ß-Mercaptoethanol	Liquid.
Lysis Buffer	Liquid.
1.67x High-Salt Wash Buffer	Liquid.
5X Low Salt Wash Buffer	Liquid.
Elution Buffer	Liquid.
DNase Reconstitution Buffer	Liquid.
DNase Digestion Buffer	Liquid.

SECTION 9: Physical and chemical properties

Colour	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Colourless.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Colourless.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Odour	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Characteristic.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Odourless.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Odour threshold	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
pH	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	7
		1.67x High-Salt Wash Buffer	6.4
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	7.5
		DNase Reconstitution Buffer	7.6
		DNase Digestion Buffer	7
Melting point/freezing point	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	-100°C
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	0°C
		Elution Buffer	0°C
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.

SECTION 9: Physical and chemical properties

Initial boiling point and boiling range	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	157°C
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	100°C
		Elution Buffer	100°C
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Flash point	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Closed cup: 74°C Open cup: 74°C
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Closed cup: 32°C
Evaporation rate	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Flammability (solid, gas)	:	RNase-Free DNase I (Lyophilized)	Not applicable.
		ß-Mercaptoethanol	Not applicable.
		Lysis Buffer	Not applicable.
		1.67x High-Salt Wash Buffer	Not applicable.
		5X Low Salt Wash Buffer	Not applicable.
		Elution Buffer	Not applicable.
		DNase Reconstitution Buffer	Not applicable.
		DNase Digestion Buffer	Not applicable.
Upper/lower flammability or explosive limits	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Lower: 2.3% Upper: 18%
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.

SECTION 9: Physical and chemical properties

Vapour pressure	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	0.13 kPa [room temperature]
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Vapour density	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	2.7 [Air = 1]
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Relative density	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	1.1
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Solubility(ies)	:	RNase-Free DNase I (Lyophilized)	Easily soluble in the following materials: cold water and hot water.
		ß-Mercaptoethanol	Easily soluble in the following materials: cold water and hot water.
		Lysis Buffer	Soluble in the following materials: cold water and hot water.
		1.67x High-Salt Wash Buffer	Soluble in the following materials: cold water and hot water.
		5X Low Salt Wash Buffer	Easily soluble in the following materials: cold water and hot water.
		Elution Buffer	Easily soluble in the following materials: cold water and hot water.
		DNase Reconstitution Buffer	Soluble in the following materials: cold water and hot water.
		DNase Digestion Buffer	Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	-0.056
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.

SECTION 9: Physical and chemical properties

		DNase Digestion Buffer	Not available.
Auto-ignition temperature	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	295°C
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Decomposition temperature	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Viscosity	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Dynamic (room temperature): 3.43 mPa·s
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Explosive properties	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.
Oxidising properties	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Not available.

SECTION 9: Physical and chemical properties

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	RNase-Free DNase I (Lyophilized)	No specific test data related to reactivity available for this product or its ingredients.
		ß-Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.
		Lysis Buffer	No specific test data related to reactivity available for this product or its ingredients.
		1.67x High-Salt Wash Buffer	No specific test data related to reactivity available for this product or its ingredients.
		5X Low Salt Wash Buffer	No specific test data related to reactivity available for this product or its ingredients.
		Elution Buffer	No specific test data related to reactivity available for this product or its ingredients.
		DNase Reconstitution Buffer	No specific test data related to reactivity available for this product or its ingredients.
		DNase Digestion Buffer	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	RNase-Free DNase I (Lyophilized)	The product is stable.
		ß-Mercaptoethanol	The product is stable.
		Lysis Buffer	The product is stable.
		1.67x High-Salt Wash Buffer	The product is stable.
		5X Low Salt Wash Buffer	The product is stable.
		Elution Buffer	The product is stable.
		DNase Reconstitution Buffer	The product is stable.
		DNase Digestion Buffer	The product is stable.
10.3 Possibility of hazardous reactions	:	RNase-Free DNase I (Lyophilized)	Under normal conditions of storage and use, hazardous reactions will not occur.
		ß-Mercaptoethanol	Under normal conditions of storage and use, hazardous reactions will not occur.
		Lysis Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		1.67x High-Salt Wash Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		5X Low Salt Wash Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		Elution Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNase Reconstitution Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		DNase Digestion Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	RNase-Free DNase I (Lyophilized)	No specific data.
		ß-Mercaptoethanol	No specific data.
		Lysis Buffer	No specific data.
		1.67x High-Salt Wash Buffer	No specific data.
		5X Low Salt Wash Buffer	No specific data.
		Elution Buffer	No specific data.
		DNase Reconstitution Buffer	No specific data.
		DNase Digestion Buffer	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose

SECTION 10: Stability and reactivity

containers to heat or sources of ignition.

10.5 Incompatible materials :

RNase-Free DNase I (Lyophilized)	May react or be incompatible with oxidising materials.
ß-Mercaptoethanol	May react or be incompatible with oxidising materials.
Lysis Buffer	May react or be incompatible with oxidising materials.
1.67x High-Salt Wash Buffer	May react or be incompatible with oxidising materials.
5X Low Salt Wash Buffer	May react or be incompatible with oxidising materials.
Elution Buffer	May react or be incompatible with oxidising materials.
DNase Reconstitution Buffer	May react or be incompatible with oxidising materials.
DNase Digestion Buffer	Reactive or incompatible with the following materials: oxidizing materials

10.6 Hazardous decomposition products :

RNase-Free DNase I (Lyophilized)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
ß-Mercaptoethanol	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Lysis Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
1.67x High-Salt Wash Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
5X Low Salt Wash Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Elution Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
DNase Reconstitution Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
DNase Digestion Buffer	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
ß-Mercaptoethanol				
2-Mercaptoethanol	LD50 Dermal	Rabbit	200 mg/kg	-
	LD50 Oral	Rat	244 mg/kg	-
DNase Digestion Buffer				
Sodium chloride	LD50 Oral	Rat	3000 mg/kg	-
Manganese dichloride	LD50 Oral	Rat	250 mg/kg	-

Acute toxicity estimates

Route	ATE value
Lysis Buffer	
Oral	1057.1 mg/kg
Dermal	2325.6 mg/kg
Inhalation (dusts and mists)	3.171 mg/l
1.67x High-Salt Wash Buffer	
Oral	1282.1 mg/kg
Dermal	2820.5 mg/kg
Inhalation (dusts and mists)	3.846 mg/l
DNase Digestion Buffer	
Oral	125000 mg/kg

Irritation/Corrosion

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
ß-Mercaptoethanol 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-
DNase Digestion Buffer Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	10 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitiser

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
ß-Mercaptoethanol 2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation
1.67x High-Salt Wash Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	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 :

RNase-Free DNase I (Lyophilized)	Not available.
ß-Mercaptoethanol	Routes of entry anticipated: Oral, Dermal, Inhalation.
Lysis Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
1.67x High-Salt Wash Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
5X Low Salt Wash Buffer	Not available.
Elution Buffer	Not available.
DNase Reconstitution Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
DNase Digestion Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation :

RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
ß-Mercaptoethanol	Fatal if inhaled. May cause respiratory irritation.
Lysis Buffer	Harmful if inhaled.
1.67x High-Salt Wash Buffer	Harmful if inhaled.
5X Low Salt Wash Buffer	No known significant effects or critical hazards.
Elution Buffer	No known significant effects or critical hazards.
DNase Reconstitution Buffer	No known significant effects or critical hazards.
DNase Digestion Buffer	No known significant effects or critical hazards.

Ingestion :

RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
ß-Mercaptoethanol	Toxic if swallowed.
Lysis Buffer	Harmful if swallowed.
1.67x High-Salt Wash Buffer	Harmful if swallowed.
5X Low Salt Wash Buffer	No known significant effects or critical hazards.
Elution Buffer	No known significant effects or critical hazards.
DNase Reconstitution	No known significant effects or critical hazards.

SECTION 11: Toxicological information

	Buffer	
	DNase Digestion Buffer	No known significant effects or critical hazards.
Skin contact :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction.
	Lysis Buffer	No known significant effects or critical hazards.
	1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.
Eye contact :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	Causes serious eye damage.
	Lysis Buffer	No known significant effects or critical hazards.
	1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: respiratory tract irritation coughing
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	No specific data.
Ingestion :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: stomach pains
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	No specific data.
Skin contact :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution	No specific data.

SECTION 11: Toxicological information

	Buffer	
	DNase Digestion Buffer	No specific data.
Eye contact :	RNase-Free DNase I (Lyophilized)	No specific data.
	ß-Mercaptoethanol	Adverse symptoms may include the following: pain watering redness
	Lysis Buffer	No specific data.
	1.67x High-Salt Wash Buffer	No specific data.
	5X Low Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	DNase Reconstitution Buffer	No specific data.
	DNase Digestion Buffer	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

General :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
	Lysis Buffer	No known significant effects or critical hazards.
	1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.
Carcinogenicity :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	No known significant effects or critical hazards.
	Lysis Buffer	No known significant effects or critical hazards.
	1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.
	DNase Digestion Buffer	No known significant effects or critical hazards.
Mutagenicity :	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
	ß-Mercaptoethanol	No known significant effects or critical hazards.
	Lysis Buffer	No known significant effects or critical hazards.
	1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
	5X Low Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	DNase Reconstitution Buffer	No known significant effects or critical hazards.

SECTION 11: Toxicological information

		DNase Digestion Buffer	No known significant effects or critical hazards.
Teratogenicity	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	No known significant effects or critical hazards.
		Lysis Buffer	No known significant effects or critical hazards.
		1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
		5X Low Salt Wash Buffer	No known significant effects or critical hazards.
		Elution Buffer	No known significant effects or critical hazards.
		DNase Reconstitution Buffer	No known significant effects or critical hazards.
		DNase Digestion Buffer	No known significant effects or critical hazards.
Developmental effects	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	No known significant effects or critical hazards.
		Lysis Buffer	No known significant effects or critical hazards.
		1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
		5X Low Salt Wash Buffer	No known significant effects or critical hazards.
		Elution Buffer	No known significant effects or critical hazards.
		DNase Reconstitution Buffer	No known significant effects or critical hazards.
		DNase Digestion Buffer	No known significant effects or critical hazards.
Fertility effects	:	RNase-Free DNase I (Lyophilized)	No known significant effects or critical hazards.
		ß-Mercaptoethanol	No known significant effects or critical hazards.
		Lysis Buffer	No known significant effects or critical hazards.
		1.67x High-Salt Wash Buffer	No known significant effects or critical hazards.
		5X Low Salt Wash Buffer	No known significant effects or critical hazards.
		Elution Buffer	No known significant effects or critical hazards.
		DNase Reconstitution Buffer	No known significant effects or critical hazards.
		DNase Digestion Buffer	No known significant effects or critical hazards.
Other information	:	RNase-Free DNase I (Lyophilized)	Not available.
		ß-Mercaptoethanol	Not available.
		Lysis Buffer	Not available.
		1.67x High-Salt Wash Buffer	Not available.
		5X Low Salt Wash Buffer	Not available.
		Elution Buffer	Not available.
		DNase Reconstitution Buffer	Not available.
		DNase Digestion Buffer	Adverse symptoms may include the following: Repeated exposure may cause skin dryness or cracking.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
DNase Digestion Buffer			
Sodium chloride	Acute EC50 2430000 µg/l Fresh water	Algae - Navicula seminulum	96 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

SECTION 12: Ecological information

	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks
Manganese dichloride	Acute EC50 5.92 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 4700 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 51800 µg/l Marine water	Crustaceans - Artemia sp. - Nauplii	48 hours
	Acute LC50 220 ppm Marine water	Fish - Lates calcarifer - Fry	96 hours
	Chronic NOEC 510 µg/l Fresh water	Fish - Salmo trutta - Eyed stage, eyed embryo	62 days

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
β-Mercaptoethanol 2-Mercaptoethanol	-0.056	-	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

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. Vapour from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. 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.

Additional information : **Remarks**
De minimis quantities

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

None of the components are listed.

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

RNase-Free DNase I (Lyophilized)	Not applicable.
ß-Mercaptoethanol	Not applicable.
Lysis Buffer	Not applicable.
1.67x High-Salt Wash Buffer	Not applicable.
5X Low Salt Wash Buffer	Not applicable.
Elution Buffer	Not applicable.
DNase Reconstitution Buffer	Not applicable.
DNase Digestion Buffer	Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
ß-Mercaptoethanol H2: Acute toxicity 2 any route of entry or Acute toxicity 3 Inhalation route of entry E2: Hazardous to the aquatic environment - Chronic 2 **DNase Digestion Buffer** P5c: Flammable liquids 2 and 3 not falling under P5a or P5b

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

SECTION 15: Regulatory information

Not listed.

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

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

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	:	Not determined.
Philippines	:	Not determined.
Republic of Korea	:	Not determined.
Taiwan	:	All components are listed or exempted.
Turkey	:	Not determined.
United States	:	At least one component is not listed.

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
β-Mercaptoethanol	
Acute Tox. 3, H301	On basis of test data
Acute Tox. 2, H310	On basis of test data
Acute Tox. 2, H330	On basis of test data
Skin Irrit. 2, H315	Expert judgment
Eye Dam. 1, H318	Expert judgment
Skin Sens. 1, H317	Expert judgment
STOT SE 3, H335	Expert judgment
Aquatic Chronic 2, H411	Expert judgment
Lysis Buffer	
Acute Tox. 4, H302	Calculation method
Acute Tox. 4, H332	Calculation method
Aquatic Chronic 3, H412	Calculation method

SECTION 16: Other information

1.67x High-Salt Wash Buffer	
Acute Tox. 4, H302	Calculation method
Acute Tox. 4, H332	Calculation method
Aquatic Chronic 3, H412	Calculation method
DNase Digestion Buffer	
Flam. Liq. 3, H226	On basis of test data

Full text of abbreviated H statements

β-Mercaptoethanol	
H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H335	May cause respiratory irritation.
H411	Toxic to aquatic life with long lasting effects.
Lysis Buffer	
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H412	Harmful to aquatic life with long lasting effects.
1.67x High-Salt Wash Buffer	
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.
DNase Digestion Buffer	
H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H301	Toxic if swallowed.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

β-Mercaptoethanol	
Acute Tox. 2, H310	ACUTE TOXICITY (dermal) - Category 2
Acute Tox. 2, H330	ACUTE TOXICITY (inhalation) - Category 2
Acute Tox. 3, H301	ACUTE TOXICITY (oral) - Category 3
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Eye Dam. 1, H318	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
Skin Sens. 1, H317	SKIN SENSITISATION - Category 1
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3
Lysis Buffer	
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4
Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
EUH032	Contact with acids liberates very toxic gas.
1.67x High-Salt Wash Buffer	
Acute Tox. 4, H302	ACUTE TOXICITY (oral) - Category 4
Acute Tox. 4, H312	ACUTE TOXICITY (dermal) - Category 4
Acute Tox. 4, H332	ACUTE TOXICITY (inhalation) - Category 4

SECTION 16: Other information

Aquatic Chronic 3, H412	LONG-TERM AQUATIC HAZARD - Category 3
EUH032	Contact with acids liberates very toxic gas.
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - 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
DNase Digestion Buffer	
Acute Tox. 3, H301	ACUTE TOXICITY (oral) - Category 3
Aquatic Chronic 2, H411	LONG-TERM AQUATIC HAZARD - Category 2
Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Flam. Liq. 2, H225	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3, H226	FLAMMABLE LIQUIDS - Category 3

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