

# SAFETY DATA SHEET

DNA Isolation Kit, Part Number 5500-0051

## Section 1. Identification

### 1.1 Product identifier

**Product name** : DNA Isolation Kit, Part Number 5500-0051

**Part No. (Chemical Kit)** : 5500-0051

**Part No.** :

Nucleic Acid Binding Buffer	5972-3631
High Salt Wash Buffer	5972-3633
Elution Buffer	400711-16
Proteinase K	5972-3635
Proteinase K Digestion Buffer	5972-3636

**Validation date** : 1/23/2018

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

**Material uses** :

- Analytical reagent.
- Nucleic Acid Binding Buffer 25 ml
- High Salt Wash Buffer 24 ml
- Elution Buffer 12 ml
- Proteinase K 2 x 0.5 ml
- Proteinase K Digestion Buffer 2 x 5 ml

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
 5301 Stevens Creek Blvd  
 Santa Clara, CA 95051, USA  
 800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** :

<input checked="" type="checkbox"/> Nucleic Acid Binding Buffer	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
High Salt Wash Buffer	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Elution Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Proteinase K	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Proteinase K Digestion Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

## Section 2. Hazards identification

### Nucleic Acid Binding Buffer

H302	ACUTE TOXICITY (oral) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4
H320	EYE IRRITATION - Category 2B
H360	TOXIC TO REPRODUCTION (Fertility) - Category 1B

### High Salt Wash Buffer

H302	ACUTE TOXICITY (oral) - Category 4
H332	ACUTE TOXICITY (inhalation) - Category 4

### Proteinase K

H320	EYE IRRITATION - Category 2B
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### Ingredients of unknown toxicity

Nucleic Acid Binding Buffer	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 30 - 60%
High Salt Wash Buffer	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%
Proteinase K	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 10 - 30%
Proteinase K Digestion Buffer	Percentage of the mixture consisting of ingredient (s) of unknown dermal toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient (s) of unknown inhalation toxicity: 1 - 10%

## 2.2 GHS label elements

### Hazard pictograms

Nucleic Acid Binding Buffer	
High Salt Wash Buffer	

### Signal word

Nucleic Acid Binding Buffer	Danger
High Salt Wash Buffer	Warning
Elution Buffer	No signal word.
Proteinase K	Warning
Proteinase K Digestion Buffer	No signal word.

### Hazard statements

Nucleic Acid Binding Buffer	H302 + H332 - Harmful if swallowed or if inhaled.
	H320 - Causes eye irritation.
	H360 - May damage fertility.
High Salt Wash Buffer	H302 + H332 - Harmful if swallowed or if inhaled.
Elution Buffer	No known significant effects or critical hazards.
Proteinase K	H320 - Causes eye irritation.
Proteinase K Digestion Buffer	No known significant effects or critical hazards.

### Precautionary statements

## Section 2. Hazards identification

### Prevention

:  Nucleic Acid Binding Buffer

P201 - Obtain special instructions before use.  
 P202 - Do not handle until all safety precautions have been read and understood.  
 P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.  
 P271 - Use only outdoors or in a well-ventilated area.  
 P261 - Avoid breathing vapor.  
 P270 - Do not eat, drink or smoke when using this product.  
 P264 - Wash hands thoroughly after handling.  
 P271 - Use only outdoors or in a well-ventilated area.  
 P261 - Avoid breathing vapor.  
 P270 - Do not eat, drink or smoke when using this product.  
 P264 - Wash hands thoroughly after handling.  
 Not applicable.  
 P264 - Wash hands thoroughly after handling.  
 Not applicable.

High Salt Wash Buffer

Elution Buffer  
 Proteinase K  
 Proteinase K Digestion Buffer

### Response

:  Nucleic Acid Binding Buffer

P308 + P313 - IF exposed or concerned: Get medical attention.  
 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.  
 P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical attention.  
 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.  
 P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.  
 Not applicable.  
 P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical attention.  
 Not applicable.  
 P405 - Store locked up.  
 Not applicable.  
 Not applicable.  
 Not applicable.  
 Not applicable.

High Salt Wash Buffer

Elution Buffer  
 Proteinase K

Proteinase K Digestion Buffer

### Storage

:  Nucleic Acid Binding Buffer  
 High Salt Wash Buffer  
 Elution Buffer  
 Proteinase K  
 Proteinase K Digestion Buffer

### Disposal

:

## Section 2. Hazards identification

<b>Supplemental label elements</b>	Nucleic Acid Binding Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	High Salt Wash Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Elution Buffer	Not applicable.
	Proteinase K	Not applicable.
	Proteinase K Digestion Buffer	Not applicable.
	Nucleic Acid Binding Buffer	None known.
	High Salt Wash Buffer	None known.
	Elution Buffer	None known.
	Proteinase K	None known.
	Proteinase K Digestion Buffer	None known.

### 2.3 Other hazards

#### Hazards not otherwise classified

Nucleic Acid Binding Buffer	None known.
High Salt Wash Buffer	None known.
Elution Buffer	None known.
Proteinase K	None known.
Proteinase K Digestion Buffer	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	:	Nucleic Acid Binding Buffer	Mixture
		High Salt Wash Buffer	Mixture
		Elution Buffer	Mixture
		Proteinase K	Mixture
		Proteinase K Digestion Buffer	Mixture

Ingredient name	%	CAS number
<b>Nucleic Acid Binding Buffer</b>		
Tetrahydrothiophene-1,1-dioxide	≥50 - ≤75	126-33-0
Guanidinium thiocyanate	≥10 - ≤25	593-84-0
<b>High Salt Wash Buffer</b>		
Guanidinium thiocyanate	≥25 - ≤50	593-84-0
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤3	1185-53-1
<b>Proteinase K</b>		
Glycerol	≥25 - ≤50	56-81-5
<b>Proteinase K Digestion Buffer</b>		
Sodium chloride	≤3	7647-14-5
Sodium dodecyl sulphate	≤2.5	151-21-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**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.**

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

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: Nucleic Acid Binding 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. If irritation persists, get medical attention.
	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.
	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.
	Proteinase K	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	Proteinase K Digestion Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	: Nucleic Acid Binding 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 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.
	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

## Section 4. First aid measures

products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Elution Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Proteinase K

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Proteinase K Digestion Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

### Skin contact

: Nucleic Acid Binding Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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.

Elution Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Proteinase K

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.

Proteinase K Digestion Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

### Ingestion

: Nucleic Acid Binding 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

## Section 4. First aid measures

High Salt Wash Buffer	<p>airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p> <p>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.</p>
Elution Buffer	<p>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.</p>
Proteinase K	<p>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.</p>
Proteinase K Digestion Buffer	<p>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.</p>

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	<p>Causes eye irritation.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes eye irritation.</p> <p>No known significant effects or critical hazards.</p>
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## Section 4. First aid measures

<b>Inhalation</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Harmful if inhaled. Harmful if inhaled. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Harmful if swallowed. Harmful if swallowed. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: Nucleic Acid Binding Buffer  High Salt Wash Buffer Elution Buffer Proteinase K  Proteinase K Digestion Buffer	Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data.
<b>Inhalation</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer  High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer  High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer  High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations No specific data. No specific data. No specific data. No specific data.

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



## Section 4. First aid measures

<b>Notes to physician</b>	: Nucleic Acid Binding 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.
	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.
	Elution Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Proteinase K	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Proteinase K Digestion Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: Nucleic Acid Binding Buffer	No specific treatment.
	High Salt Wash Buffer	No specific treatment.
	Elution Buffer	No specific treatment.
	Proteinase K	No specific treatment.
	Proteinase K Digestion Buffer	No specific treatment.
<b>Protection of first-aiders</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding 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. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	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.
	Elution Buffer	No action shall be taken involving any personal risk or without suitable training.
	Proteinase K	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.
	Proteinase K Digestion Buffer	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: Nucleic Acid Binding Buffer	Use an extinguishing agent suitable for the surrounding fire.
	High Salt Wash Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Elution Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Proteinase K	Use an extinguishing agent suitable for the surrounding fire.

## Section 5. Fire-fighting measures

	Proteinase K Digestion Buffer	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Nucleic Acid Binding Buffer	None known.
	High Salt Wash Buffer	None known.
	Elution Buffer	None known.
	Proteinase K	None known.
	Proteinase K Digestion Buffer	None known.

### 5.2 Special hazards arising from the substance or mixture

<b>Specific hazards arising from the chemical</b>	: Nucleic Acid Binding Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	High 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.
	Proteinase K	In a fire or if heated, a pressure increase will occur and the container may burst.
	Proteinase K Digestion Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: Nucleic Acid Binding Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides
	High Salt Wash Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds
	Elution Buffer	No specific data.
	Proteinase K	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Proteinase K Digestion Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides

### 5.3 Advice for firefighters

<b>Special protective actions for fire-fighters</b>	: Nucleic Acid Binding 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.
	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.
	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

## Section 5. Fire-fighting measures

	Proteinase K	without suitable training. 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.
	Proteinase K 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.
<b>Special protective equipment for fire-fighters</b>	: Nucleic Acid Binding Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	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.
	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.
	Proteinase K	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Proteinase K 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.

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	: Nucleic Acid Binding 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 spilled material. Put on appropriate personal protective equipment.
	Proteinase K	No action shall be taken involving any personal risk or without suitable training. Evacuate

## Section 6. Accidental release measures

		surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Proteinase K 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 spilled material. Put on appropriate personal protective equipment.
<b>For emergency responders :</b>	Nucleic Acid Binding Buffer	If specialized 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".
	High Salt Wash Buffer	If specialized 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 specialized 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".
	Proteinase K	If specialized 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".
	Proteinase K Digestion Buffer	If specialized 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".
<b>6.2 Environmental precautions</b>	<b>:</b> Nucleic Acid Binding Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	High Salt Wash Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Elution Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Proteinase K	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Proteinase K Digestion Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers,

## Section 6. Accidental release measures

waterways, soil or air).

### 6.3 Methods and materials for containment and cleaning up

**Methods for cleaning up** : Nucleic Acid Binding 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.

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.

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.

Proteinase K

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.

Proteinase K Digestion Buffer

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

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

**Protective measures** :  Nucleic Acid Binding Buffer

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

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 vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use.

## Section 7. Handling and storage

		Empty containers retain product residue and can be hazardous. Do not reuse container.
	Elution Buffer	Put on appropriate personal protective equipment (see Section 8).
	Proteinase K	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Proteinase K Digestion Buffer	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	: Nucleic Acid Binding 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.
	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.
	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.
	Proteinase K	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.
	Proteinase K 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.
<b>7.2 Conditions for safe storage, including any incompatibilities</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding 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. 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



## Section 7. Handling and storage

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

### 7.3 Specific end use(s)

#### Recommendations

Nucleic Acid Binding Buffer	Industrial applications, Professional applications.
High Salt Wash Buffer	Industrial applications, Professional applications.
Elution Buffer	Industrial applications, Professional applications.
Proteinase K	Industrial applications, Professional applications.
Proteinase K Digestion Buffer	Industrial applications, Professional applications.



## Section 7. Handling and storage

<b>Industrial sector specific solutions</b>	<b>:</b> Nucleic Acid Binding Buffer	Not applicable.
	High Salt Wash Buffer	Not applicable.
	Elution Buffer	Not applicable.
	Proteinase K	Not applicable.
	Proteinase K Digestion Buffer	Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>Nucleic Acid Binding Buffer</b> Tetrahydrothiophene-1,1-dioxide Guanidinium thiocyanate	None. None.
<b>High Salt Wash Buffer</b> Guanidinium thiocyanate 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	None. None.
<b>Proteinase K</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>Proteinase K Digestion Buffer</b> Sodium chloride Sodium dodecyl sulphate	None. None.

### 8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

### Skin protection

## Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Liquid. Liquid. Liquid. Liquid. Liquid.
<b>Color</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Not available. Not available. Not available. Not available. Not available.
<b>Odor</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Not available. Not available. Not available. Not available. Not available.
<b>Odor threshold</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Not available. Not available. Not available. Not available. Not available.
<b>pH</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Not available. 6.4 7.5 Not available. Not available.
<b>Melting point</b>	: Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	Not available. Not available. 0°C (32°F) Not available. 0°C (32°F)

## Section 9. Physical and chemical properties

<b>Boiling point</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	100°C (212°F)
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	100°C (212°F)
<b>Flash point</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Evaporation rate</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Flammability (solid, gas)</b>	: Nucleic Acid Binding Buffer	Not applicable.
	High Salt Wash Buffer	Not applicable.
	Elution Buffer	Not applicable.
	Proteinase K	Not applicable.
	Proteinase K Digestion Buffer	Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Vapor pressure</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Vapor density</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Relative density</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Solubility</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Partially soluble in the following materials: cold water and hot water.
	Elution Buffer	Easily soluble in the following materials: cold water and hot water.
	Proteinase K	Partially soluble in the following materials: cold water and hot water.
	Proteinase K Digestion Buffer	Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.

## Section 9. Physical and chemical properties

<b>Auto-ignition temperature</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Decomposition temperature</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.
<b>Viscosity</b>	: Nucleic Acid Binding Buffer	Not available.
	High Salt Wash Buffer	Not available.
	Elution Buffer	Not available.
	Proteinase K	Not available.
	Proteinase K Digestion Buffer	Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: Nucleic Acid Binding Buffer	No specific test data related to reactivity available for this product or its ingredients.
	High 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.
	Proteinase K	No specific test data related to reactivity available for this product or its ingredients.
	Proteinase K Digestion Buffer	No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: Nucleic Acid Binding Buffer	The product is stable.
	High Salt Wash Buffer	The product is stable.
	Elution Buffer	The product is stable.
	Proteinase K	The product is stable.
	Proteinase K Digestion Buffer	The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: Nucleic Acid Binding Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	High 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.
	Proteinase K	Under normal conditions of storage and use, hazardous reactions will not occur.
	Proteinase K Digestion Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: Nucleic Acid Binding Buffer	No specific data.
	High Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	Proteinase K	No specific data.
	Proteinase K Digestion Buffer	No specific data.

## Section 10. Stability and reactivity

<b>10.5 Incompatible materials</b>	<ul style="list-style-type: none"> <li>: Nucleic Acid Binding Buffer</li> <li>High Salt Wash Buffer</li> <li>Elution Buffer</li> <li>Proteinase K</li> <li>Proteinase K Digestion Buffer</li> </ul>	<ul style="list-style-type: none"> <li>May react or be incompatible with oxidizing materials.</li> <li>May react or be incompatible with oxidizing materials.</li> <li>May react or be incompatible with oxidizing materials.</li> <li>May react or be incompatible with oxidizing materials.</li> <li>May react or be incompatible with oxidizing materials.</li> </ul>
<b>10.6 Hazardous decomposition products</b>	<ul style="list-style-type: none"> <li>: Nucleic Acid Binding Buffer</li> <li>High Salt Wash Buffer</li> <li>Elution Buffer</li> <li>Proteinase K</li> <li>Proteinase K Digestion Buffer</li> </ul>	<ul style="list-style-type: none"> <li>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</li> <li>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</li> <li>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</li> <li>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</li> <li>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</li> </ul>

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>Nucleic Acid Binding Buffer</b> Tetrahydrothiophene-1, 1-dioxide	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	2006 mg/kg	-
<b>Proteinase K</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>Proteinase K Digestion Buffer</b> Sodium chloride Sodium dodecyl sulphate	LD50 Oral	Rat	3000 mg/kg	-
	LD50 Oral	Rat	1288 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>Nucleic Acid Binding Buffer</b> Tetrahydrothiophene-1, 1-dioxide	Eyes - Mild irritant	Rabbit	-	253 milligrams	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>Proteinase K</b> Glycerol	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

## Section 11. Toxicological information

<b>Proteinase K Digestion Buffer</b> Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Rabbit	- -	10 milligrams 24 hours 500 milligrams	- -
Sodium dodecyl sulphate	Eyes - Mild irritant	Rabbit	-	250 Micrograms	-
	Eyes - Moderate irritant	Rabbit	-	24 hours 100 milligrams	-
	Eyes - Moderate irritant Skin - Mild irritant	Rabbit Guinea pig	- -	10 milligrams 24 hours 25 milligrams	- -
	Skin - Moderate irritant	Mouse	-	24 hours 25 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 50 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 25 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
<b>High Salt Wash Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation
<b>Proteinase K Digestion Buffer</b> Sodium dodecyl sulphate	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

## Section 11. Toxicological information

<b>Information on the likely routes of exposure</b>	: Nucleic Acid Binding Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
	High Salt Wash Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
	Elution Buffer	Not available.
	Proteinase K	Routes of entry anticipated: Oral, Dermal, Inhalation.
	Proteinase K Digestion Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
<b><u>Potential acute health effects</u></b>		
<b>Eye contact</b>	: Nucleic Acid Binding Buffer	Causes eye irritation.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	Causes eye irritation.
	Proteinase K Digestion Buffer	No known significant effects or critical hazards.
<b>Inhalation</b>	: Nucleic Acid Binding Buffer	Harmful if inhaled.
	High Salt Wash Buffer	Harmful if inhaled.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
	Proteinase K Digestion Buffer	No known significant effects or critical hazards.
<b>Skin contact</b>	: Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
	Proteinase K Digestion Buffer	No known significant effects or critical hazards.
<b>Ingestion</b>	: Nucleic Acid Binding Buffer	Harmful if swallowed.
	High Salt Wash Buffer	Harmful if swallowed.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
	Proteinase K Digestion Buffer	No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

<b>Eye contact</b>	: Nucleic Acid Binding Buffer	Adverse symptoms may include the following: irritation watering redness
	High Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	Proteinase K	Adverse symptoms may include the following: irritation watering redness
	Proteinase K Digestion Buffer	No specific data.
<b>Inhalation</b>	: Nucleic Acid Binding Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	High Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	Proteinase K	No specific data.
	Proteinase K Digestion Buffer	No specific data.



## Section 11. Toxicological information

<b>Skin contact</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	High Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	Proteinase K	No specific data.
<b>Ingestion</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	High Salt Wash Buffer	No specific data.
	Elution Buffer	No specific data.
	Proteinase K	No specific data.
	Proteinase K Digestion Buffer	No specific data.

### Delayed and immediate effects and also 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

<b>General</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
<b>Teratogenicity</b>	: Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
<b>Developmental effects</b>	: Nucleic Acid Binding Buffer	No known significant effects or critical hazards.
	High Salt Wash Buffer	No known significant effects or critical hazards.
	Elution Buffer	No known significant effects or critical hazards.
	Proteinase K	No known significant effects or critical hazards.
	Proteinase K Digestion Buffer	No known significant effects or critical hazards.

## Section 11. Toxicological information

<b>Fertility effects</b>	: <input checked="" type="checkbox"/> Nucleic Acid Binding Buffer High Salt Wash Buffer Elution Buffer Proteinase K Proteinase K Digestion Buffer	May damage fertility. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
<input checked="" type="checkbox"/> <b>Nucleic Acid Binding Buffer</b> Oral Dermal Inhalation (dusts and mists)	1628.4 mg/kg 6875 mg/kg 3.844 mg/l
<b>High Salt Wash Buffer</b> Oral Dermal Inhalation (dusts and mists)	1282.1 mg/kg 2820.5 mg/kg 3.846 mg/l
<b>Proteinase K Digestion Buffer</b> Oral Inhalation (dusts and mists)	57370.2 mg/kg 150 mg/l

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> <b>Nucleic Acid Binding Buffer</b> Tetrahydrothiophene-1, 1-dioxide	Acute EC50 500 mg/l Fresh water Acute EC50 52 mg/l Marine water Acute EC50 40 mg/l Acute EC50 40 mg/l Fresh water Acute LC50 >100 mg/l Fresh water Acute NOEC 171 mg/l Fresh water Acute NOEC 171 mg/l Fresh water	Algae Crustaceans - Acartia tonsa Daphnia Daphnia - Daphnia magna - Young Fish Algae Daphnia	72 hours 48 hours 48 hours 48 hours 96 hours 72 hours 48 hours
<b>Proteinase K</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>Proteinase K Digestion Buffer</b> Sodium chloride	Acute EC50 4.74 g/L Fresh water Acute EC50 519.6 mg/l Fresh water Acute EC50 402600 µg/l Fresh water Acute IC50 6.87 g/L Fresh water Acute LC50 1000000 µg/l Fresh water Chronic LC10 781 mg/l Fresh water Chronic NOEC 6 g/L Fresh water	Algae - Chlamydomonas reinhardtii Crustaceans - Cypris subglobosa Daphnia - Daphnia magna Aquatic plants - Lemna minor Fish - Morone saxatilis - Larvae Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) Aquatic plants - Lemna minor	96 hours 48 hours 48 hours 96 hours 96 hours 3 weeks 96 hours

## Section 12. Ecological information

Sodium dodecyl sulphate	Chronic NOEC 0.314 g/L Fresh water	Daphnia - Daphnia pulex	21 days
	Chronic NOEC 100 mg/l Fresh water	Fish - Gambusia holbrooki - Adult	8 weeks
	Acute EC50 1200 µg/l Marine water	Algae - Skeletonema costatum	96 hours
	Acute LC50 900 µg/l Marine water	Crustaceans - Artemia salina - Adult	48 hours
	Acute LC50 1400 µg/l Fresh water	Daphnia - Daphnia pulex - Neonate	48 hours
	Acute LC50 590 µg/l Fresh water	Fish - Cirrhinus mrigala - Larvae	96 hours
	Chronic NOEC 1.25 mg/l Marine water	Algae - Ulva fasciata - Zoea	96 hours
Chronic NOEC 1 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	21 days	
Chronic NOEC 3.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	21 days	
Chronic NOEC >1357 µg/l Fresh water	Fish - Pimephales promelas	42 days	

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<b>Proteinase K</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>Nucleic Acid Binding Buffer</b> Tetrahydrothiophene-1, 1-dioxide	0	<13	low
<b>Proteinase K</b> Glycerol	-1.76	-	low
<b>Proteinase K Digestion Buffer</b> Sodium dodecyl sulphate	-2.03	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a

## Section 13. Disposal considerations

safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

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

**Transport in bulk according to 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

**U.S. Federal regulations** : **TSCA 8(a) PAIR:** Tetrahydrothiophene-1,1-dioxide; octamethylcyclotetrasiloxane; Polyoxyethylene octyl phenyl ether  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**Clean Water Act (CWA) 311:** Edetic acid

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

## Section 15. Regulatory information

<b>Classification</b>	:	<b>Nucleic Acid Binding Buffer</b>	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 EYE IRRITATION - Category 2B TOXIC TO REPRODUCTION (Fertility) - Category 1B
		<b>High Salt Wash Buffer</b>	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 Not applicable.
		<b>Elution Buffer</b>	Not applicable.
		<b>Proteinase K</b>	EYE IRRITATION - Category 2B
		<b>Proteinase K Digestion Buffer</b>	Not applicable.

### Composition/information on ingredients

Name	%	Classification
<b>Nucleic Acid Binding Buffer</b>		
Tetrahydrothiophene-1,1-dioxide	≥50 - ≤75	EYE IRRITATION - Category 2A TOXIC TO REPRODUCTION (Fertility) - Category 1B
Guanidinium thiocyanate	≥10 - ≤25	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4
<b>High Salt Wash Buffer</b>		
Guanidinium thiocyanate	≥25 - ≤50	ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (dermal) - Category 4 ACUTE TOXICITY (inhalation) - Category 4
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	≤3	SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
<b>Proteinase K</b>		
Glycerol	≥25 - ≤50	EYE IRRITATION - Category 2A
<b>Proteinase K Digestion Buffer</b>		
Sodium chloride	≤3	EYE IRRITATION - Category 2A
Sodium dodecyl sulphate	≤2.5	FLAMMABLE SOLIDS - Category 2 ACUTE TOXICITY (oral) - Category 4 ACUTE TOXICITY (inhalation) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

### State regulations

<b>Massachusetts</b>	:	The following components are listed: SULFOLANE; GLYCERINE MIST
<b>New York</b>	:	None of the components are listed.
<b>New Jersey</b>	:	The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
<b>Pennsylvania</b>	:	The following components are listed: THIOPHENE, TETRAHYDRO-, 1,1-DIOXIDE; 1,2,3-PROPANETRIOL

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

## Section 15. Regulatory information

Not listed.

### Inventory list

<b>Australia</b>	: All components are listed or exempted.
<b>Canada</b>	: All components are listed or exempted.
<b>China</b>	: All components are listed or exempted.
<b>Europe</b>	: All components are listed or exempted.
<b>Japan</b>	: <input checked="" type="checkbox"/> <b>Japan inventory (ENCS)</b> : All components are listed or exempted. <input checked="" type="checkbox"/> <b>Japan inventory (ISHL)</b> : All components are listed or exempted.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: All components are listed or exempted.
<b>Philippines</b>	: All components are listed or exempted.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: <input checked="" type="checkbox"/> Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: All components are listed or exempted.
<b>Viet Nam</b>	: <input checked="" type="checkbox"/> Not determined.

## Section 16. Other information

### History

<b>Date of issue</b>	: 01/23/2018
<b>Date of previous issue</b>	: 02/29/2016.
<b>Version</b>	: 5

Indicates information that has changed from previously issued version.

### Notice to reader

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