# SAFETY DATA SHEET

Agilent Technologies

Absolutely RNA 96 Microprep Kit, Part Number 400793

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

### 1.1 Product identifier

**Product name** : Absolutely RNA 96 Microprep Kit, Part Number 400793

**CAS number** :

| | |
|---|---|
| ß-Mercaptoethanol | 60-24-2 |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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. |

**Part no. (chemical kit)** : 400793

**Part no.** :

| | |
|---|---|
| ß-Mercaptoethanol | 200345-21 |
| RNase-Free DNase I (Lyophilized) | 400711-23 |
| RNA Lysis Buffer | 400790-13 |
| 1.67X High Salt Wash Buffer | 400790-14 |
| 5x Low-Salt Wash Buffer | 400790-15 |
| Elution Buffer | 400790-16 |
| DNase Reconstitution Buffer | 400711-17 |
| DNase Digestion Buffer | 400790-18 |

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

**Material uses** : Analytical reagent.

| | | |
|---|---|---|
| ß-Mercaptoethanol | 0.75 ml (750 µl | 14.33 M) |
| RNase-Free DNase I (Lyophilized) | 2600 U | |
| RNA Lysis Buffer | 25 ml | |
| 1.67X High Salt Wash Buffer | 64 ml | |
| 5x Low-Salt Wash Buffer | 2 x 40 ml | |
| Elution Buffer | 12 ml | |
| DNase Reconstitution Buffer | 0.3 ml | |
| DNase Digestion Buffer | 11 ml | |

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

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

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

### 1.4 Emergency telephone number

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

# SECTION 2: Hazards identification

## 2.1 Classification of the substance or mixture

**Product definition** : ß-Mercaptoethanol — Mono-constituent substance
RNase-Free DNase I (Lyophilized) — UVCB
RNA 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

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

**ß-Mercaptoethanol**

| | | |
|---|---|---|
| H301 | ACUTE TOXICITY (oral) | Category 3 |
| H310 | ACUTE TOXICITY (dermal) | Category 2 |
| H331 | ACUTE TOXICITY (inhalation) | Category 3 |
| H315 | SKIN CORROSION/IRRITATION | Category 2 |
| H318 | SERIOUS EYE DAMAGE/EYE IRRITATION | Category 1 |
| H317 | SKIN SENSITISATION | Category 1A |
| H361f | REPRODUCTIVE TOXICITY | Category 2 |
| H373 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE | Category 2 |
| H400 | SHORT-TERM (ACUTE) AQUATIC HAZARD | Category 1 |
| H411 | LONG-TERM (CHRONIC) AQUATIC HAZARD | Category 2 |

**RNA Lysis Buffer**

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

**DNase Digestion Buffer**

| | | |
|---|---|---|
| H226 | FLAMMABLE LIQUIDS | Category 3 |
| H319 | SERIOUS EYE DAMAGE/EYE IRRITATION | Category 2 |

**Ingredients of unknown toxicity** :
1.67X High Salt Wash Buffer — Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%
DNase Reconstitution Buffer — Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
DNase Digestion Buffer — Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

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

## SECTION 2: Hazards identification

**Hazard pictograms** :

ß-Mercaptoethanol

RNA Lysis Buffer

1.67X High Salt Wash Buffer

DNase Digestion Buffer

**Signal word** :

| | |
|---|---|
| ß-Mercaptoethanol | Danger |
| RNase-Free DNase I (Lyophilized) | No signal word. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | H301 + H331 - Toxic if swallowed or if inhaled.<br>H310 - Fatal in contact with skin.<br>H315 - Causes skin irritation.<br>H317 - May cause an allergic skin reaction.<br>H318 - Causes serious eye damage.<br>H361f - Suspected of damaging fertility.<br>H373 - May cause damage to organs through prolonged or repeated exposure. (heart, liver) (oral)<br>H410 - Very toxic to aquatic life with long lasting effects. |
| RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| RNA Lysis Buffer | H302 + H332 - Harmful if swallowed or if inhaled.<br>H412 - Harmful to aquatic life with long lasting effects. |
| 1.67X High Salt Wash Buffer | H302 + H332 - Harmful if swallowed or if inhaled.<br>H412 - 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 | H226 - Flammable liquid and vapour.<br>H319 - Causes serious eye irritation. |

**Precautionary statements**

**Prevention** :

| | |
|---|---|
| ß-Mercaptoethanol | P280 - Wear protective gloves, protective clothing and eye or face protection.<br>P273 - Avoid release to the environment.<br>P262 - Do not get in eyes, on skin, or on clothing.<br>P260 - Do not breathe vapour. |
| RNase-Free DNase I (Lyophilized) | Not applicable. |

## SECTION 2: Hazards identification

| | | | |
|---|---|---|---|
| | | RNA Lysis Buffer | P273 - Avoid release to the environment.<br>P261 - Avoid breathing vapour.<br>P270 - Do not eat, drink or smoke when using this product.<br>P264 - Wash thoroughly after handling. |
| | | 1.67X High Salt Wash Buffer | P273 - Avoid release to the environment.<br>P261 - Avoid breathing vapour.<br>P270 - Do not eat, drink or smoke when using this product.<br>P264 - Wash thoroughly after handling. |
| | | 5x Low-Salt Wash Buffer | Not applicable. |
| | | Elution Buffer | Not applicable. |
| | | DNase Reconstitution Buffer | Not applicable. |
| | | DNase Digestion Buffer | P280 - Wear eye or face protection.<br>P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| **Response** | : | ß-Mercaptoethanol | P391 - Collect spillage. |
| | | RNase-Free DNase I (Lyophilized) | Not applicable. |
| | | RNA Lysis Buffer | P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. |
| | | 1.67X High Salt Wash Buffer | P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell. |
| | | 5x Low-Salt Wash Buffer | Not applicable. |
| | | Elution Buffer | Not applicable. |
| | | DNase Reconstitution Buffer | Not applicable. |
| | | DNase Digestion Buffer | P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.<br>P337 + P313 - If eye irritation persists: Get medical advice or attention. |
| **Storage** | : | ß-Mercaptoethanol | Not applicable. |
| | | RNase-Free DNase I (Lyophilized) | Not applicable. |
| | | RNA 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. |
| **Disposal** | : | ß-Mercaptoethanol | P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. |
| | | RNase-Free DNase I (Lyophilized) | Not applicable. |
| | | RNA 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** | : | RNA Lysis Buffer | - salts of thiocyanic acid |
| | | 1.67X High Salt Wash Buffer | - salts of thiocyanic acid |
| | | DNase Digestion Buffer | Not applicable. |

## SECTION 2: Hazards identification

**Supplemental label elements** :

| | |
|---|---|
| ß-Mercaptoethanol | Not applicable. |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Not applicable. |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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**

**Tactile warning of danger** :

| | |
|---|---|
| ß-Mercaptoethanol | Not applicable. |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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

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

| PBT | P | B | T | vPvB | vP | vB |
|---|---|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | | | |
| N/A | N/A | N/A | Yes | N/A | N/A | N/A |
| **RNase-Free DNase I (Lyophilized)** | | | | | | |
| N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| | |
|---|---|
| RNA Lysis Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| 1.67X High Salt Wash Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| 5x Low-Salt Wash Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| Elution Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| DNase Reconstitution Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |
| DNase Digestion Buffer | This mixture does not contain any substances that are assessed to be a PBT or a vPvB. |

## SECTION 2: Hazards identification

**Other hazards which do not result in classification** :

| | |
|---|---|
| ß-Mercaptoethanol | None known. |
| RNase-Free DNase I (Lyophilized) | May form combustible dust concentrations in air. |
| RNA Lysis Buffer | Causes digestive tract burns. |
| 1.67X High Salt Wash Buffer | Causes digestive tract burns. |
| 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

**3.1 Substances** :

| | |
|---|---|
| ß-Mercaptoethanol | Mono-constituent substance |
| RNase-Free DNase I (Lyophilized) | UVCB |
| RNA 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 |
|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | |
| ß-Mercaptoethanol | EC: 200-464-6<br>CAS: 60-24-2 | 100 | Acute Tox. 3, H301<br>Acute Tox. 2, H310<br>Acute Tox. 3, H331<br>Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>Skin Sens. 1A, H317<br>Repr. 2, H361f<br>STOT RE 2, H373 (heart, liver) (oral)<br>Aquatic Acute 1, H400 (M=1)<br>Aquatic Chronic 2, H411 | [A] |
| **RNase-Free DNase I (Lyophilized)** | | | | |
| Enzyme. | - | 100 | Not classified. | [*] |
| **RNA Lysis Buffer** | | | | |
| Guanidinium thiocyanate | EC: 209-812-1<br>CAS: 593-84-0<br>Index: 615-004-00-3 | ≥25 - ≤50 | Acute Tox. 4, H302<br>Acute Tox. 4, H312<br>Acute Tox. 4, H332<br>Aquatic Chronic 3, H412<br>EUH032 | [1] |
| **1.67X High Salt Wash Buffer** | | | | |
| Guanidinium thiocyanate | EC: 209-812-1<br>CAS: 593-84-0<br>Index: 615-004-00-3 | ≥25 - ≤50 | Acute Tox. 4, H302<br>Acute Tox. 4, H312<br>Acute Tox. 4, H332<br>Aquatic Chronic 3, H412<br>EUH032 | [1] |
| **DNase Reconstitution Buffer** | | | | |
| Glycerol | REACH #: Annex V<br>EC: 200-289-5<br>CAS: 56-81-5 | ≥50 - ≤75 | Not classified. | [2] |

## SECTION 3: Composition/information on ingredients

| | | | | |
|---|---|---|---|---|
| **DNase Digestion Buffer** | | | | |
| Ethanol | EC: 200-578-6<br>CAS: 64-17-5<br>Index: 603-002-00-5 | ≥25 - ≤50 | Flam. Liq. 2, H225<br>Eye Irrit. 2, H319 | [1] [2] |
| Sodium chloride | EC: 231-598-3<br>CAS: 7647-14-5 | ≤3 | Eye Irrit. 2, H319 | [1] |
| Manganese dichloride | EC: 231-869-6<br>CAS: 7773-01-5 | ≤0.3 | Acute Tox. 3, H301<br>Eye Dam. 1, H318<br>STOT RE 2, H373 (brain)<br>Aquatic Chronic 2, H411<br>**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, are classified and contribute to the classification of the substance 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
[6] Additional disclosure due to company policy
[*] Substance
[A] Constituent
[B] Impurity
[C] Stabilising additive

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

**Eye contact** :

| | |
|---|---|
| β-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. |
| 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. |
| RNA 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 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 Digestion Buffer | Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove |

## SECTION 4: First aid measures

| | | | |
|---|---|---|---|
| | | | any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention. |
| **Inhalation** | : | 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. |
| | | 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. |
| | | RNA 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 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 |

## SECTION 4: First aid measures

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|---|---|---|---|
| | | | 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** | : | 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. |
| | | RNase-Free DNase I (Lyophilized) | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | | RNA 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** | : | ß-Mercaptoethanol | Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. 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. |
| | | RNase-Free DNase I (Lyophilized) | Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur. |
| | | RNA Lysis Buffer | Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. |

## SECTION 4: First aid measures

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|---|---|---|
| | | 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. 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. 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. 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. 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. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. |
| **Protection of first-aiders** : | 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. |
| | RNase-Free DNase I (Lyophilized) | No action shall be taken involving any personal risk or without suitable training. |
| | RNA 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. |

## SECTION 4: First aid measures

| | |
|---|---|
| 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** | : ß-Mercaptoethanol | Causes serious eye damage. |
| | RNase-Free DNase I (Lyophilized) | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. |
| | RNA 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 | Causes serious eye irritation. |
| **Inhalation** | : ß-Mercaptoethanol | Toxic if inhaled. |
| | RNase-Free DNase I (Lyophilized) | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. |
| | RNA 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** | : ß-Mercaptoethanol | Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. |
| | RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| | RNA 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. |
| **Ingestion** | : ß-Mercaptoethanol | Toxic if swallowed. |
| | RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| | RNA Lysis Buffer | Harmful if swallowed. Corrosive to the digestive tract. Causes burns. |
| | 1.67X High Salt Wash Buffer | Harmful if swallowed. Corrosive to the digestive tract. Causes burns. |
| | 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

## SECTION 4: First aid measures

| | | | |
|---|---|---|---|
| **Eye contact** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>pain<br>watering<br>redness |
| | | RNase-Free DNase I (Lyophilized) | Adverse symptoms may include the following:<br>irritation<br>redness |
| | | RNA 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 | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |
| **Inhalation** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | Adverse symptoms may include the following:<br>respiratory tract irritation<br>coughing |
| | | RNA 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** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>pain or irritation<br>redness<br>blistering may occur<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | No specific data. |
| | | RNA 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** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>stomach pains<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | No specific data. |
| | | RNA Lysis Buffer | Adverse symptoms may include the following:<br>stomach pains |
| | | 1.67X High Salt Wash Buffer | Adverse symptoms may include the following: |

## SECTION 4: First aid measures

| | |
|---|---|
| | stomach pains |
| 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| RNase-Free DNase I (Lyophilized) | Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | No specific treatment. |
| RNase-Free DNase I (Lyophilized) | No specific treatment. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Use an extinguishing agent suitable for the surrounding fire. |
| RNase-Free DNase I (Lyophilized) | Use dry chemical powder. |
| RNA 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. |

**Unsuitable extinguishing media** :

| | |
|---|---|
| ß-Mercaptoethanol | None known. |
| RNase-Free DNase I (Lyophilized) | Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture. |
| RNA 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. |

## SECTION 5: Firefighting measures

| | |
|---|---|
| DNase Digestion Buffer | Do not use water jet. |

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

**Hazards from the substance or mixture** :

| | |
|---|---|
| ß-Mercaptoethanol | In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life. 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. |
| RNase-Free DNase I (Lyophilized) | May form explosible dust-air mixture if dispersed. |
| RNA 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. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. |

**Hazardous combustion products** :

| | |
|---|---|
| ß-Mercaptoethanol | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>sulfur oxides |
| RNase-Free DNase I (Lyophilized) | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide |
| RNA Lysis Buffer | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>nitrogen oxides<br>sulfur oxides |
| 1.67X High Salt Wash Buffer | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>nitrogen oxides<br>sulfur oxides<br>halogenated compounds |
| 5x Low-Salt Wash Buffer | No specific data. |
| Elution Buffer | No specific data. |
| DNase Reconstitution Buffer | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide |
| DNase Digestion Buffer | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>halogenated compounds<br>metal oxide/oxides |

## SECTION 5: Firefighting measures

### 5.3 Advice for firefighters

| | | | |
|---|---|---|---|
| **Special precautions for fire-fighters** | : | 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. |
| | | 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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. |
| | | RNA 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** | : | 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. |
| | | 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. |
| | | RNA 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 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 |

## SECTION 5: Firefighting measures

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|---|---|
| | 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** :

| | |
|---|---|
| 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. |
| 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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing dust. Put on appropriate personal protective equipment. |
| RNA 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. 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. |

## SECTION 6: Accidental release measures

| | | | |
|---|---|---|---|
| | | | 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** | : | 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". |
| | | 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". |
| | | RNA 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** | : | 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. |
| | | 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). |
| | | RNA 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. 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 |

## SECTION 6: Accidental release measures

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|---|---|
| | 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** :

| | |
|---|---|
| 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. |
| RNase-Free DNase I (Lyophilized) | Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Vacuum or sweep up material and place in a designated, labelled waste container. Dispose of via a licensed waste disposal contractor. |
| RNA 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** | : | 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. 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 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. |
| | | RNase-Free DNase I (Lyophilized) | Put on appropriate personal protective equipment (see Section 8). Avoid breathing dust. Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Prevent dust accumulation. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Electrical equipment and lighting should be protected to appropriate standards to prevent dust coming into contact with hot surfaces, sparks or other ignition sources. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. |
| | | RNA 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 |

## SECTION 7: Handling and storage

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| | | | 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** | : | 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 protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| | | 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. |
| | | RNA 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** | : | 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. See Section 10 for |

## SECTION 7: Handling and storage

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|---|---|
| | incompatible materials before handling or use. |
| RNase-Free DNase I (Lyophilized) | 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 oxidising 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. See Section 10 for incompatible materials before handling or use. |
| RNA 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 been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| 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. See Section 10 for incompatible materials before handling or use. |
| 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. 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| 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. See Section 10 for incompatible materials before handling or use. |
| DNase Digestion Buffer | Store in accordance with local regulations. Store in a |

## SECTION 7: Handling and storage

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 oxidising 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. See Section 10 for incompatible materials before handling or use.

### Seveso Directive - Reporting thresholds

#### Danger criteria

| Category | Notification and MAPP threshold | Safety report threshold |
|---|---|---|
| **ß-Mercaptoethanol** | | |
| H2 | 50 tonne | 200 tonne |
| E1 | 100 tonne | 200 tonne |
| **DNase Digestion Buffer** | | |
| P5c | 5000 tonne | 50000 tonne |

### 7.3 Specific end use(s)

| | | | |
|---|---|---|---|
| **Recommendations** | : | ß-Mercaptoethanol | Industrial applications, Professional applications. |
| | | RNase-Free DNase I (Lyophilized) | Industrial applications, Professional applications. |
| | | RNA 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** | : | ß-Mercaptoethanol | Not available. |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

## SECTION 8: Exposure controls/personal protection

| Product/ingredient name | Exposure limit values |
|---|---|
| **DNase Reconstitution Buffer** | |
| Glycerol | **EH40/2005 WELs (United Kingdom (UK), 1/2020).**<br>TWA: 10 mg/m³ 8 hours. Form: Mist |
| **DNase Digestion Buffer** | |
| Ethanol | **EH40/2005 WELs (United Kingdom (UK), 1/2020).**<br>TWA: 1000 ppm 8 hours.<br>TWA: 1920 mg/m³ 8 hours. |
| Manganese dichloride | **EH40/2005 WELs (United Kingdom (UK), 1/2020).**<br>TWA: 0.2 mg/m³, (as Mn) 8 hours. Form: Inhalable fraction<br>TWA: 0.05 mg/m³, (as Mn) 8 hours. Form: Respirable fraction |

**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**

| Product/ingredient name | Type | Exposure | Value | Population | Effects |
|---|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | | |
| ß-Mercaptoethanol | DNEL | Long term Dermal | 0.6 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Inhalation | 4 mg/m³ | Workers | Systemic |
| **DNase Digestion Buffer** | | | | | |
| Ethanol | DNEL | Long term Oral | 87 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 114 mg/m³ | General population | Systemic |
| | DNEL | Long term Dermal | 206 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 343 mg/kg bw/day | Workers | Systemic |
| | DNEL | Short term Inhalation | 950 mg/m³ | General population | Local |
| | DNEL | Long term Inhalation | 950 mg/m³ | Workers | Systemic |
| | DNEL | Short term Inhalation | 1900 mg/m³ | Workers | Local |
| Sodium chloride | DNEL | Short term Oral | 126.65 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Oral | 126.65 mg/kg bw/day | General population | Systemic |
| | DNEL | Short term Dermal | 126.65 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 126.65 mg/kg bw/day | General population | Systemic |
| | DNEL | Short term Dermal | 295.52 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Dermal | 295.52 mg/kg bw/day | Workers | Systemic |
| | DNEL | Short term Inhalation | 443.28 mg/m³ | General population | Systemic |

## SECTION 8: Exposure controls/personal protection

| | | | | | |
|---|---|---|---|---|---|
| | DNEL | Long term Inhalation | 443.28 mg/m³ | General population | Systemic |
| | DNEL | Short term Inhalation | 2068.62 mg/m³ | Workers | Systemic |
| | DNEL | Long term Inhalation | 2068.62 mg/m³ | Workers | Systemic |
| Manganese dichloride | DNEL | Long term Dermal | 0.0021 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 0.00414 mg/kg bw/day | Workers | Systemic |
| | DNEL | Long term Inhalation | 0.043 mg/m³ | General population | Systemic |
| | DNEL | Short term Oral | 0.15 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 0.2 mg/m³ | Workers | Systemic |

**PNECs**

No PNECs available

### 8.2 Exposure controls

**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.

**Individual protection measures**

**Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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

**Skin protection**

**Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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

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

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

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

# SECTION 9: Physical and chemical properties

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

## 9.1 Information on basic physical and chemical properties

**Appearance**

| | | | |
|---|---|---|---|
| **Physical state** | : | ß-Mercaptoethanol | Liquid. |
| | | RNase-Free DNase I (Lyophilized) | Solid. |
| | | RNA 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. |
| **Colour** | : | ß-Mercaptoethanol | Colourless. |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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. |
| **Odour** | : | ß-Mercaptoethanol | Characteristic. |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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. |
| **Odour threshold** | : | ß-Mercaptoethanol | Not available. |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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. |
| **Melting point/freezing point** | : | ß-Mercaptoethanol | -100°C |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | 157°C (314.6°F) |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA Lysis Buffer | Not available. |
| 1.67X High Salt Wash Buffer | Not available. |
| 5x Low-Salt Wash Buffer | 100°C (212°F) |
| Elution Buffer | 100°C (212°F) |
| DNase Reconstitution Buffer | Not available. |
| DNase Digestion Buffer | Not available. |

**Flammability (solid, gas)** :

| | |
|---|---|
| ß-Mercaptoethanol | Not applicable. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Lower: 2.3%<br>Upper: 18% |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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. |

**Flash point** :

| | |
|---|---|
| ß-Mercaptoethanol | Closed cup: 74°C (165.2°F)<br>Open cup: 74°C (165.2°F) |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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: 23 to 37.8°C (73.4 to 100°F) |

| Ingredient name | Closed cup | | | Open cup | | |
|---|---|---|---|---|---|---|
| | °C | °F | Method | °C | °F | Method |
| **RNA Lysis Buffer** | | | | | | |
| octamethylcyclotetrasiloxane | 56 | 132.8 | | 87.78 | 190 | |
| Citric acid, trisodium salt, dihydrate | >100 | >212 | | | | |
| **1.67X High Salt Wash Buffer** | | | | | | |
| Citric acid, trisodium salt, dihydrate | >100 | >212 | | | | |
| **DNase Reconstitution Buffer** | | | | | | |

## SECTION 9: Physical and chemical properties

| | | | | | | |
|---|---|---|---|---|---|---|
| Glycerol | | | Pensky-Martens | 177 | 350.6 | |

**Auto-ignition temperature** :

| | |
|---|---|
| ß-Mercaptoethanol | 295°C (563°F) |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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. |

| Ingredient name | °C | °F | Method |
|---|---|---|---|
| **RNA Lysis Buffer** | | | |
| octamethylcyclotetrasiloxane | 384 to 387 | 723.2 to 728.6 | ASTM E 659 |
| **DNase Reconstitution Buffer** | | | |
| Glycerol | 370 | 698 | |
| **DNase Digestion Buffer** | | | |
| Ethanol | 455 | 851 | DIN 51794 |

**Decomposition temperature** :

| | |
|---|---|
| ß-Mercaptoethanol | Not available. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Not available. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA Lysis Buffer | Not available. |
| 1.67X High Salt Wash Buffer | 6.4 |
| 5x Low-Salt Wash Buffer | 7 |
| Elution Buffer | 7.5 |
| DNase Reconstitution Buffer | 7.5 |
| DNase Digestion Buffer | 7 |

**Viscosity** :

| | |
|---|---|
| ß-Mercaptoethanol | Dynamic: 3.43 mPa·s |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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)** :

## SECTION 9: Physical and chemical properties

| | | |
|---|---|---|
| | ß-Mercaptoethanol | Easily soluble in the following materials: cold water and hot water. |
| | RNase-Free DNase I (Lyophilized) | Easily soluble in the following materials: cold water and hot water. |
| | RNA Lysis Buffer | Easily 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** : | ß-Mercaptoethanol | -0.056 |
| | RNase-Free DNase I (Lyophilized) | Not applicable. |
| | RNA 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. |
| **Vapour pressure** : | ß-Mercaptoethanol | 0.13 kPa (0.98 mm Hg) |
| | RNase-Free DNase I (Lyophilized) | Not available. |
| | RNA 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. |

| Ingredient name | Vapour Pressure at 20˚C | | | Vapour pressure at 50˚C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| **RNA Lysis Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| octamethylcyclotetrasiloxane | 0.99 | 0.13 | | | | |
| **1.67X High Salt Wash Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride | 0 | 0 | | 0.000007501 | 0.000001 | |
| **5x Low-Salt Wash Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| Trometamol | <0.00075006 | <0.0001 | | | | |
| **Elution Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |

## SECTION 9: Physical and chemical properties

| | | | | | | |
|---|---|---|---|---|---|---|
| Trometamol | <0.00075006 | <0.0001 | | | | |
| **DNase Reconstitution Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| Trometamol | <0.00075006 | <0.0001 | | | | |
| **DNase Digestion Buffer** | | | | | | |
| Ethanol | 42.95 | 5.7 | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |

**Evaporation rate** :

| | |
|---|---|
| ß-Mercaptoethanol | Not available. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | 1.1 |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | 2.7 [Air = 1] |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Not available. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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. |

**Particle characteristics**

## SECTION 9: Physical and chemical properties

| | | | |
|---|---|---|---|
| **Median particle size** | : | ß-Mercaptoethanol | Not applicable. |
| | | RNase-Free DNase I (Lyophilized) | Not available. |
| | | RNA 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. |

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

| | | | |
|---|---|---|---|
| **10.1 Reactivity** | : | ß-Mercaptoethanol | No specific test data related to reactivity available for this product or its ingredients. |
| | | RNase-Free DNase I (Lyophilized) | No specific test data related to reactivity available for this product or its ingredients. |
| | | RNA 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** | : | ß-Mercaptoethanol | The product is stable. |
| | | RNase-Free DNase I (Lyophilized) | The product is stable. |
| | | RNA 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** | : | ß-Mercaptoethanol | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | | RNase-Free DNase I (Lyophilized) | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | | RNA 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. |

## SECTION 10: Stability and reactivity

**10.4 Conditions to avoid** :

| | |
|---|---|
| ß-Mercaptoethanol | No specific data. |
| RNase-Free DNase I (Lyophilized) | Avoid the creation of dust when handling and avoid all possible sources of ignition (spark or flame). Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Prevent dust accumulation. |
| RNA 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 containers to heat or sources of ignition. |

**10.5 Incompatible materials** :

| | |
|---|---|
| ß-Mercaptoethanol | May react or be incompatible with oxidising materials. |
| RNase-Free DNase I (Lyophilized) | Reactive or incompatible with the following materials: oxidising materials |
| RNA 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: oxidising materials |

**10.6 Hazardous decomposition products** :

| | |
|---|---|
| ß-Mercaptoethanol | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| RNase-Free DNase I (Lyophilized) | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| RNA 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**

## SECTION 11: Toxicological information

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | |
| ß-Mercaptoethanol | LD50 Oral | Rat | 244 mg/kg | - |
| **DNase Digestion Buffer** | | | | |
| Ethanol | LC50 Inhalation Vapour | Rat | 124700 mg/m³ | 4 hours |
| | LD50 Oral | Rat | 7 g/kg | - |
| Sodium chloride | LD50 Oral | Rat | 3000 mg/kg | - |
| Manganese dichloride | LD50 Oral | Rat | 250 mg/kg | - |

**Acute toxicity estimates**

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | | |
| ß-Mercaptoethanol | 244 | 200 | N/A | 3 | N/A |
| **RNA Lysis Buffer** | | | | | |
| RNA Lysis Buffer | 1057.1 | 2325.6 | N/A | N/A | 3.2 |
| Guanidinium thiocyanate | 500 | 1100 | N/A | N/A | 1.5 |
| **1.67X High Salt Wash Buffer** | | | | | |
| 1.67X High Salt Wash Buffer | 1282.1 | 2820.5 | N/A | N/A | 3.8 |
| Guanidinium thiocyanate | 500 | 1100 | N/A | N/A | 1.5 |
| **DNase Digestion Buffer** | | | | | |
| DNase Digestion Buffer | 125000 | N/A | N/A | N/A | N/A |
| Ethanol | 7000 | N/A | N/A | 124.7 | N/A |
| Sodium chloride | 3000 | N/A | N/A | N/A | N/A |
| Manganese dichloride | 250 | N/A | N/A | N/A | N/A |

**Irritation/Corrosion**

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|---|---|---|---|---|
| **ß-Mercaptoethanol** | | | | | |
| ß-Mercaptoethanol | Eyes - Severe irritant | Rabbit | - | 2 mg | - |
| **DNase Digestion Buffer** | | | | | |
| Ethanol | Eyes - Mild irritant | Rabbit | - | 24 hours 500 mg | - |
| | Eyes - Moderate irritant | Rabbit | - | 0.066666667 minutes 100 mg | - |
| | Eyes - Moderate irritant | Rabbit | - | 100 uL | - |
| Sodium chloride | Eyes - Moderate irritant | Rabbit | - | 24 hours 100 mg | - |
| | Eyes - Moderate irritant | Rabbit | - | 10 mg | - |
| | Skin - Mild irritant | Rabbit | - | 24 hours 500 mg | - |

**Sensitiser**

**Conclusion/Summary** : Not available.

**Mutagenicity**

**Conclusion/Summary** : Not available.

**Carcinogenicity**

**Conclusion/Summary** : Not available.

**Reproductive toxicity**

**Conclusion/Summary** : Not available.

**Teratogenicity**

## SECTION 11: Toxicological information

**Conclusion/Summary** : Not available.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

| Product/ingredient name | Category | Route of exposure | Target organs |
|---|---|---|---|
| **ß-Mercaptoethanol**<br>ß-Mercaptoethanol | Category 2 | oral | heart, liver |
| **DNase Digestion Buffer**<br>Manganese dichloride | Category 2 | - | brain |

**Aspiration hazard**

Not available.

**Information on likely routes of exposure** :

| | |
|---|---|
| ß-Mercaptoethanol | Routes of entry anticipated: Oral, Dermal, Inhalation. |
| RNase-Free DNase I (Lyophilized) | Not available. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Toxic if inhaled. |
| RNase-Free DNase I (Lyophilized) | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs. |
| RNA 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Toxic if swallowed. |
| RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| RNA Lysis Buffer | Harmful if swallowed. Corrosive to the digestive tract. Causes burns. |
| 1.67X High Salt Wash Buffer | Harmful if swallowed. Corrosive to the digestive tract. Causes burns. |
| 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** :

| | |
|---|---|
| ß-Mercaptoethanol | Fatal in contact with skin. Causes skin irritation. May cause an allergic skin reaction. |
| RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| RNA 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 | No known significant effects or critical hazards. |

## SECTION 11: Toxicological information

| | | | |
|---|---|---|---|
| | | Buffer | |
| | | DNase Digestion Buffer | No known significant effects or critical hazards. |
| **Eye contact** | : | ß-Mercaptoethanol | Causes serious eye damage. |
| | | RNase-Free DNase I (Lyophilized) | Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes. |
| | | RNA 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 | Causes serious eye irritation. |

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

| | | | |
|---|---|---|---|
| **Inhalation** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | Adverse symptoms may include the following:<br>respiratory tract irritation<br>coughing |
| | | RNA 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** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>stomach pains<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | No specific data. |
| | | RNA Lysis Buffer | Adverse symptoms may include the following:<br>stomach pains |
| | | 1.67X High Salt Wash Buffer | Adverse symptoms may include the following:<br>stomach pains |
| | | 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** | : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>pain or irritation<br>redness<br>blistering may occur<br>reduced foetal weight<br>increase in foetal deaths<br>skeletal malformations |
| | | RNase-Free DNase I (Lyophilized) | No specific data. |
| | | RNA 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** : | ß-Mercaptoethanol | Adverse symptoms may include the following:<br>pain<br>watering<br>redness |
| | RNase-Free DNase I (Lyophilized) | Adverse symptoms may include the following:<br>irritation<br>redness |
| | RNA 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 | Adverse symptoms may include the following:<br>pain or irritation<br>watering<br>redness |

**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** : | ß-Mercaptoethanol | May cause damage to organs through prolonged or repeated exposure if swallowed. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. |
| | RNase-Free DNase I (Lyophilized) | Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. |
| | RNA 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** : | ß-Mercaptoethanol | No known significant effects or critical hazards. |
| | RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| | RNA 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. |

## SECTION 11: Toxicological information

| | | | |
|---|---|---|---|
| **Mutagenicity** | : | ß-Mercaptoethanol | No known significant effects or critical hazards. |
| | | RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| | | RNA 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. |
| **Reproductive toxicity** | : | ß-Mercaptoethanol | Suspected of damaging fertility. |
| | | RNase-Free DNase I (Lyophilized) | No known significant effects or critical hazards. |
| | | RNA 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. |

## SECTION 12: Ecological information

### 12.1 Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| **DNase Digestion Buffer** | | | |
| Ethanol | Acute EC50 3306 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Acute EC50 1074 mg/l Fresh water | Crustaceans - Cypris subglobosa | 48 hours |
| | Acute LC50 5680 mg/l Fresh water | Daphnia - Daphnia magna - Neonate | 48 hours |
| | Acute LC50 11000000 µg/l Marine water | Fish - Alburnus alburnus | 96 hours |
| | Chronic NOEC 4.995 mg/l Marine water | Algae - Ulva pertusa | 96 hours |
| | Chronic NOEC 100 ul/L Fresh water | Daphnia - Daphnia magna - Neonate | 21 days |
| 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 EC50 402.6 mg/l Fresh water | Daphnia - Daphnia magna | 48 hours |
| | Acute IC50 6.87 g/L Fresh water | Aquatic plants - Lemna minor | 96 hours |
| | Acute LC50 1000000 µg/l Fresh water | Fish - Morone saxatilis - Larvae | 96 hours |
| | Chronic LC10 781 mg/l Fresh water | Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling) | 3 weeks |
| | Chronic NOEC 6 g/L Fresh water | Aquatic plants - Lemna minor | 96 hours |
| | Chronic NOEC 0.314 g/L Fresh water | Daphnia - Daphnia pulex | 21 days |
| | Chronic NOEC 100 mg/l Fresh water | Fish - Gambusia holbrooki - Adult | 8 weeks |
| 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

## SECTION 12: Ecological information

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|---|---|---|---|
| **ß-Mercaptoethanol**<br>ß-Mercaptoethanol | OECD 310 Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test) | 69 % - Not readily - 60 days | 20 mg/l | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|---|---|---|
| **ß-Mercaptoethanol**<br>ß-Mercaptoethanol | - | - | Not readily |
| **RNA Lysis Buffer**<br>Guanidinium thiocyanate | - | - | Inherent |
| **1.67X High Salt Wash Buffer**<br>Guanidinium thiocyanate | - | - | Inherent |
| **DNase Digestion Buffer**<br>Ethanol | - | - | Readily |

### 12.3 Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| **ß-Mercaptoethanol**<br>ß-Mercaptoethanol | -0.056 | - | low |
| **DNase Digestion Buffer**<br>Ethanol | -0.35 | 0.5 | low |

### 12.4 Mobility in soil

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

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

| Product/ingredient name | PBT | P | B | T | vPvB | vP | vB |
|---|---|---|---|---|---|---|---|
| **ß-Mercaptoethanol**<br>ß-Mercaptoethanol | N/A | N/A | N/A | Yes | N/A | N/A | N/A |
| **RNase-Free DNase I (Lyophilized)**<br>Enzyme. | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

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

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**Product**

## SECTION 13: Disposal considerations

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

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

**Packaging**

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

**Special precautions** : This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

| | ADR/RID | IMDG | IATA |
|---|---|---|---|
| **14.1 UN number** | UN3316 | UN3316 | UN3316 |
| **14.2 UN proper shipping name** | CHEMICAL KIT | CHEMICAL KIT | Chemical kit |
| **14.3 Transport hazard class(es)** | 9  | 9  | 9  |
| **14.4 Packing group** | - | - | - |
| **14.5 Environmental hazards** | No. | No. | No. |

**Additional information**

**ADR/RID** : **Hazard identification number** 90
**Limited quantity** See SP 251
**Special provisions** 251, 340, 671
**Tunnel code** (E)

**IMDG** : **Emergency schedules** F-A, _S-P_
**Special provisions** 251, 340

**IATA** : The environmentally hazardous substance mark may appear if required by other transportation regulations.
**Quantity limitation** Passenger and Cargo Aircraft: 10 kg. Packaging instructions: 960. Cargo Aircraft Only: 10 kg. Packaging instructions: 960. Limited Quantities - Passenger Aircraft: 1 kg. Packaging instructions: Y960.
**Special provisions** A44, A163

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

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

# SECTION 15: Regulatory information

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

### 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

| Ingredient name | EC number | CAS number | Restriction |
|---|---|---|---|
| **RNA Lysis Buffer**<br>octamethylcyclotetrasiloxane | 209-136-7 | 556-67-2 | 70 |

**Label** :

| | |
|---|---|
| ß-Mercaptoethanol | Not applicable. |
| RNase-Free DNase I (Lyophilized) | Not applicable. |
| RNA 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

**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.

#### Persistent Organic Pollutants

Not listed.

#### Seveso Directive

This product is not controlled under the Seveso Directive.

##### Danger criteria

| Category |
|---|
| **ß-Mercaptoethanol**<br>H2<br>E1<br><br>**DNase Digestion Buffer**<br>P5c |

### International regulations

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

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

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

## SECTION 15: Regulatory information

Not listed.

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

Not listed.

**Inventory list**

| | | |
|---|---|---|
| **Australia** | : | Not determined. |
| **Canada** | : | Not determined. |
| **China** | : | All components are listed or exempted. |
| **Europe** | : | All components are listed or exempted. |
| **Japan** | : | **Japan inventory (CSCL)**: Not determined.<br>**Japan inventory (ISHL)**: All components are listed or exempted. |
| **New Zealand** | : | Not determined. |
| **Philippines** | : | Not determined. |
| **Republic of Korea** | : | Not determined. |
| **Taiwan** | : | All components are listed or exempted. |
| **Thailand** | : | Not determined. |
| **Turkey** | : | Not determined. |
| **United States** | : | All components are active or exempted. |
| **Viet Nam** | : | Not determined. |

**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]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

**Procedure used to derive the classification 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. 3, H331 | On basis of test data |
| Skin Irrit. 2, H315 | Expert judgment |
| Eye Dam. 1, H318 | Expert judgment |
| Skin Sens. 1A, H317 | Expert judgment |
| Repr. 2, H361f | Expert judgment |
| STOT RE 2, H373 (heart, liver) (oral) | Expert judgment |
| Aquatic Acute 1, H400 (M=1) | Expert judgment |
| Aquatic Chronic 2, H411 | Expert judgment |
| **RNA Lysis Buffer** | |
| Acute Tox. 4, H302 | Calculation method |
| Acute Tox. 4, H332 | Calculation method |
| Aquatic Chronic 3, H412 | Calculation method |
| **1.67X High Salt Wash Buffer** | |

## SECTION 16: Other information

| | |
|---|---|
| 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 |
| Eye Irrit. 2, H319 | Calculation method |

**Full text of abbreviated H statements**

| | |
|---|---|
| **ß-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. |
| H331 | Toxic if inhaled. |
| H361f | Suspected of damaging fertility. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H411 | Toxic to aquatic life with long lasting effects. |
| **RNA 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. |
| EUH032 | Contact with acids liberates very toxic gas. |
| **1.67X High Salt Wash Buffer** | |
| H302 | Harmful if swallowed. |
| H312 | Harmful in contact with skin. |
| H332 | Harmful if inhaled. |
| H412 | Harmful to aquatic life with long lasting effects. |
| EUH032 | Contact with acids liberates very toxic gas. |
| **DNase Digestion Buffer** | |
| H225 | Highly flammable liquid and vapour. |
| H226 | Flammable liquid and vapour. |
| H301 | Toxic if swallowed. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with long lasting effects. |

**Full text of classifications [CLP/GHS]**

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

## SECTION 16: Other information

| | |
|---|---|
| **1.67X High Salt Wash Buffer** | |
| Acute Tox. 4 | ACUTE TOXICITY - Category 4 |
| Aquatic Chronic 3 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 |
| **DNase Digestion Buffer** | |
| Acute Tox. 3 | ACUTE TOXICITY - Category 3 |
| Aquatic Chronic 2 | LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 |
| Eye Dam. 1 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1 |
| Eye Irrit. 2 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 |
| Flam. Liq. 2 | FLAMMABLE LIQUIDS - Category 2 |
| Flam. Liq. 3 | FLAMMABLE LIQUIDS - Category 3 |
| STOT RE 2 | SPECIFIC TARGET ORGAN TOXICITY - REPEATED EXPOSURE - Category 2 |

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