SAFETY DATA SHEET
NM522 Competent Cells, Part Number 200233

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

1.1 Product identifier
Product name: NM522 Competent Cells, Part Number 200233
Part No. (Kit): 200233
Part No.: NM522 competent cells 200233-41
pUC18 Control Plasmid DNA 200231-42
1.42 M 2-Mercaptoethanol 210200-43

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

<table>
<thead>
<tr>
<th>Identified uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical reagent.</td>
</tr>
<tr>
<td>NM522 competent cells 1 (0.2 ml / Tube)</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA 0.01 ml</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol 0.025 ml</td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
e-mail address of person responsible for this SDS: pdl-msds_author@agilent.com

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

<table>
<thead>
<tr>
<th>Product definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells Mixture</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA Mixture</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol Mixture</td>
</tr>
</tbody>
</table>

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

1.42 M 2-Mercaptoethanol
H312 ACUTE TOXICITY (dermal) - Category 4
H332 ACUTE TOXICITY (inhalation) - Category 4
H315 SKIN CORROSION/IRRITATION - Category 2
H318 SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
H317 SKIN SENSITIZATION - Category 1
H412 LONG-TERM AQUATIC HAZARD - Category 3

Ingredients of unknown ecotoxicity:

<table>
<thead>
<tr>
<th>Ingredients of unknown ecotoxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 15%</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA Not applicable.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol Not applicable.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 28/08/2015
SECTION 2: Hazards identification

Classification according to Directive 1999/45/EC [DPD]

<table>
<thead>
<tr>
<th>Substance/Compound</th>
<th>Classification</th>
<th>Human health hazards</th>
<th>Environmental hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not classified.</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not classified.</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Xn; R20/21</td>
<td>Xi; R41</td>
<td>X; R43 R52/53</td>
</tr>
</tbody>
</table>

Human health hazards:
NM522 competent cells: Not applicable.
pUC18 Control Plasmid DNA: Not applicable.
1.42 M 2-Mercaptoethanol: Harmful by inhalation and in contact with skin. Risk of serious damage to eyes. May cause sensitisation by skin contact.

Environmental hazards:
NM522 competent cells: Not applicable.
pUC18 Control Plasmid DNA: Not applicable.
1.42 M 2-Mercaptoethanol: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

See Section 16 for the full text of the R phrases or H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

<table>
<thead>
<tr>
<th>Signal word</th>
<th>NM522 competent cells</th>
<th>No signal word.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pUC18 Control Plasmid DNA</td>
<td>No signal word.</td>
</tr>
<tr>
<td></td>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Danger</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard statements</th>
<th>NM522 competent cells</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pUC18 Control Plasmid DNA</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>1.42 M 2-Mercaptoethanol</td>
<td>GHS05 - Causes serious eye damage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GHS07 - Harmful in contact with skin.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>May cause an allergic skin reaction.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Harmful to aquatic life with long lasting effects.</td>
</tr>
</tbody>
</table>

Precautionary statements:

Prevention:
NM522 competent cells: Not applicable.
pUC18 Control Plasmid DNA: Not applicable.
1.42 M 2-Mercaptoethanol: P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
P273 - Avoid release to the environment.
SECTION 2: Hazards identification

Response

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>P304 + P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P305 + P310 - IF IN EYES: Immediately call a POISON CENTER or physician.</td>
<td></td>
</tr>
</tbody>
</table>

Storage

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

Disposal

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.</td>
<td></td>
</tr>
</tbody>
</table>

Hazardous ingredients

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>2-Mercaptoethanol</td>
<td></td>
</tr>
</tbody>
</table>

Supplemental label elements

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Not applicable.</td>
<td></td>
</tr>
</tbody>
</table>

Special packaging requirements

<table>
<thead>
<tr>
<th>Tactile warning of danger</th>
<th>NM522 competent cells</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pUC18 Control Plasmid DNA</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

2.3 Other hazards

Other hazards which do not result in classification

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>None known.</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Type</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CAS: 60-24-2</td>
<td></td>
<td>Mixture</td>
<td></td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 28/08/2015
SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1] Substance classified with a health or environmental hazard</td>
<td></td>
</tr>
<tr>
<td>[2] Substance with a workplace exposure limit</td>
<td></td>
</tr>
<tr>
<td>[5] Substance of equivalent concern</td>
<td></td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1 Description of first aid measures

**Eye contact**
- **NM522 competent cells**: 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.
- **pUC18 Control Plasmid DNA**: 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.
- **1.42 M 2-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.

**Inhalation**
- **NM522 competent cells**: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- **pUC18 Control Plasmid DNA**: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- **1.42 M 2-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.

**Skin contact**
- **NM522 competent cells**: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- **pUC18 Control Plasmid DNA**: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- **1.42 M 2-Mercaptoethanol**: Get medical attention immediately. Call a poison center or physician. 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
SECTION 4: First aid measures

Ingestion:
- NM522 competent cells: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- pUC18 Control Plasmid DNA: Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
- 1.42 M 2-Mercaptoethanol: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders:
- NM522 competent cells: No action shall be taken involving any personal risk or without suitable training.
- pUC18 Control Plasmid DNA: No action shall be taken involving any personal risk or without suitable training.
- 1.42 M 2-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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects:
- Eye contact:
  - NM522 competent cells: No known significant effects or critical hazards.
  - pUC18 Control Plasmid DNA: No known significant effects or critical hazards.
  - 1.42 M 2-Mercaptoethanol: Causes serious eye damage.
- Inhalation:
  - NM522 competent cells: No known significant effects or critical hazards.
  - pUC18 Control Plasmid DNA: No known significant effects or critical hazards.
  - 1.42 M 2-Mercaptoethanol: Harmful if inhaled.
- Skin contact:
  - NM522 competent cells: No known significant effects or critical hazards.
  - pUC18 Control Plasmid DNA: No known significant effects or critical hazards.
  - 1.42 M 2-Mercaptoethanol: Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

Date of issue/Date of revision: 28/08/2015
SECTION 4: First aid measures

### Notes to physician

**NM522 competent cells**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**pUC18 Control Plasmid DNA**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**1.42 M 2-Mercaptoethanol**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### Over-exposure signs/symptoms

#### Eye contact

**NM522 competent cells**
No specific data.

**pUC18 Control Plasmid DNA**
No specific data.

**1.42 M 2-Mercaptoethanol**
Adverse symptoms may include the following:
- pain
- watering
- redness

#### Inhalation

**NM522 competent cells**
No specific data.

**pUC18 Control Plasmid DNA**
No specific data.

**1.42 M 2-Mercaptoethanol**
No specific data.

### Skin contact

**NM522 competent cells**
No specific data.

**pUC18 Control Plasmid DNA**
No specific data.

**1.42 M 2-Mercaptoethanol**
Adverse symptoms may include the following:
- pain or irritation
- redness
- blistering may occur

### Ingestion

**NM522 competent cells**
No specific data.

**pUC18 Control Plasmid DNA**
No specific data.

**1.42 M 2-Mercaptoethanol**
Adverse symptoms may include the following:
- stomach pains

### 4.3 Indication of any immediate medical attention and special treatment needed

#### Notes to physician

**NM522 competent cells**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**pUC18 Control Plasmid DNA**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**1.42 M 2-Mercaptoethanol**
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

#### Specific treatments

**NM522 competent cells**
No specific treatment.

**pUC18 Control Plasmid DNA**
No specific treatment.

**1.42 M 2-Mercaptoethanol**
No specific treatment.

SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

**Suitable extinguishing media**
- **NM522 competent cells**
- **pUC18 Control Plasmid DNA**
- **1.42 M 2-Mercaptoethanol**

Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**
- **NM522 competent cells**
- **pUC18 Control Plasmid DNA**
- **1.42 M 2-Mercaptoethanol**

None known.

Date of issue/Date of revision: 28/08/2015
SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous combustion products</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides, halogenated compounds, metal oxide/oxides.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>No specific data.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides.</td>
</tr>
</tbody>
</table>

5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>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.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>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.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazardous combustion products</td>
<td>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.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>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.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>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.</td>
</tr>
</tbody>
</table>

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
SECTION 6: Accidental release measures

For non-emergency personnel:

NM522 competent cells
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.

pUC18 Control Plasmid DNA
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.

1.42 M 2-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.

For emergency responders:

NM522 competent cells
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".

pUC18 Control Plasmid DNA
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".

1.42 M 2-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".

6.2 Environmental precautions:

NM522 competent cells
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).

pUC18 Control Plasmid DNA
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).

1.42 M 2-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.

6.3 Methods and material for containment and cleaning up:

Methods for cleaning up:

NM522 competent cells
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.

pUC18 Control Plasmid DNA
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.

1.42 M 2-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.
SECTION 6: Accidental release measures

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

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>Advice on general occupational hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>Potentially biohazardous material. 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.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>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.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>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.</td>
</tr>
</tbody>
</table>

7.2 Conditions for safe storage, including any incompatibilities

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>Advice on general occupational hygiene</th>
</tr>
</thead>
<tbody>
<tr>
<td>NM522 competent cells</td>
<td>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.</td>
</tr>
<tr>
<td>pUC18 Control Plasmid DNA</td>
<td>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.</td>
</tr>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>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</td>
</tr>
</tbody>
</table>
SECTION 7: Handling and storage

7.3 Specific end use(s)

Recommendations: NM522 competent cells, pUC18 Control Plasmid DNA, 1.42 M 2-Mercaptoethanol

Industrial sector specific solutions: NM522 competent cells, pUC18 Control Plasmid DNA, 1.42 M 2-Mercaptoethanol

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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits: No exposure limit value known.

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.

DNSLs/DMELs: No DNSLs available.

PNECs: No PNECs available.

8.2 Exposure controls

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

Individual protection measures

Hygiene measures: Handle as biohazard material (Biosafety level 1). 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.

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SECTION 8: Exposure controls/personal protection

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

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

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

**Respiratory protection**: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates that this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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

SECTION 9: Physical and chemical properties

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

**Appearance**

<table>
<thead>
<tr>
<th>Property</th>
<th>NM522 competent cells</th>
<th>Not available.</th>
<th>pUC18 Control Plasmid DNA</th>
<th>Liquid.</th>
<th>1.42 M 2-Mercaptoethanol</th>
<th>Not available.</th>
<th>2-Mercaptoethanol</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Odour threshold</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6.4</td>
<td>7.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not available.</td>
<td>0°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not available.</td>
<td>100°C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**SECTION 9: Physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### NM522 Competent Cells, Part Number 200233

**SECTION 9: Physical and chemical properties**

<table>
<thead>
<tr>
<th>Explosive properties</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oxidising properties</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**9.2 Other information**

No additional information.

### SECTION 10: Stability and reactivity

<table>
<thead>
<tr>
<th>10.1 Reactivity</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.2 Chemical stability</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The product is stable.</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.3 Possibility of hazardous reactions</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.4 Conditions to avoid</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.5 Incompatible materials</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>10.6 Hazardous decomposition products</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>LD50</td>
<td>Rabbit</td>
<td>200 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>2-Mercaptoethanol</td>
<td>LD50</td>
<td>Rat</td>
<td>244 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>2440 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>2000 mg/kg</td>
</tr>
<tr>
<td>Inhalation (vapours)</td>
<td>20 mg/l</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>2 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitiser

Conclusion/Summary : Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Potential acute health effects

Inhalation:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards. Harmful if inhaled.

Ingestion:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards.

Skin contact:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction.

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SECTION 11: Toxicological information

### Eye contact
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
<td>Causes serious eye damage.</td>
</tr>
</tbody>
</table>

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

#### Inhalation
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

#### Ingestion
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>Adverse symptoms may include the following: stomach pains</td>
</tr>
</tbody>
</table>

#### Skin contact
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>Adverse symptoms may include the following: pain or irritation redness blistering may occur</td>
</tr>
</tbody>
</table>

#### Eye contact
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>Adverse symptoms may include the following: pain watering redness</td>
</tr>
</tbody>
</table>

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

#### Long term exposure
- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

### Potential chronic health effects

#### General
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
<td>Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.</td>
</tr>
</tbody>
</table>

#### Carcinogenicity
<table>
<thead>
<tr>
<th>Substance</th>
<th>NM522 competent cells</th>
<th>pUC18 Control Plasmid DNA</th>
<th>1.42 M 2-Mercaptoethanol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>
SECTION 11: Toxicological information

**Mutagenicity**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards.

**Teratogenicity**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards.

**Developmental effects**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards.

**Fertility effects**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

No known significant effects or critical hazards.

**Toxicokinetics**

**Absorption**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Not available.

**Distribution**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Not available.

**Metabolism**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Not available.

**Elimination**
- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol

Not available.

**Other information**
- Not available.

SECTION 12: Ecological information

**12.1 Toxicity**

**Conclusion/Summary**
- Not available.

**12.2 Persistence and degradability**

**Conclusion/Summary**
- Not available.

**12.3 Bioaccumulative potential**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Log$P_{ow}$</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.42 M 2-Mercaptoethanol</td>
<td>-0.056</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**12.4 Mobility in soil**

**Date of issue/Date of revision**
- 28/08/2015

16/20
SECTION 12: Ecological information

Soil/water partition coefficient (KOC) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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

Hazardous waste

Packaging

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

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

SECTION 14: Transport information

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

14.6 Special precautions for user

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

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

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SECTION 15: Regulatory information

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

: Not applicable.

**Other EU regulations**

- **Europe inventory**
  : All components are listed or exempted.

- **Integrated pollution prevention and control list (IPPC) - Air**
  : Listed

- **Seveso Directive**
  : This product is not controlled under the Seveso Directive.

**International regulations**

- **Chemical Weapon Convention List Schedules I, II & III Chemicals**
  : Not listed.

- **Montreal Protocol (Annexes A, B, C, E)**
  : Not listed.

- **Stockholm Convention on Persistent Organic Pollutants**
  : Not listed.

- **Rotterdam Convention on Prior Inform Consent (PIC)**
  : Not listed.

- **UNECE Aarhus Protocol on POPs and Heavy Metals**
  : Not listed.

**International lists**

- **National inventory**
  : All components are listed or exempted.

  - **Australia**
  : All components are listed or exempted.

  - **Canada**
  : All components are listed or exempted.

  - **China**
  : Not determined.

  - **Japan**
  : All components are listed or exempted.

  - **Malaysia**
  : Not determined.

  - **New Zealand**
  : Not determined.

  - **Philippines**
  : Not determined.

  - **Republic of Korea**
  : All components are listed or exempted.

  - **Taiwan**
  : All components are listed or exempted.

  - **United States**
  : All components are listed or exempted.

**15.2 Chemical Safety Assessment**

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

SECTION 16: Other information

- Indicates information that has changed from previously issued version.

**Abbreviations and acronyms**

: ATE = Acute Toxicity Estimate

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]

DNEL = Derived No Effect Level

EUH statement = CLP-specific Hazard statement

PNEC = Predicted No Effect Concentration

RRN = REACH Registration Number

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

**Date of issue/Date of revision**

: 28/08/2015
SECTION 16: Other information

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Full text of abbreviated H statements:

**2-Mercaptoethanol**

- H301: Toxic if swallowed.
- H310: Fatal in contact with skin.
- H312: Harmful in contact with skin.
- H315: Causes skin irritation.
- H317: May cause an allergic skin reaction.
- H318: Causes serious eye damage.
- H320: Fatal if inhaled.
- H332: Harmful if inhaled.
- H335: May cause respiratory irritation.
- H411: Toxic to aquatic life with long lasting effects.
- H412: Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]:

**2-Mercaptoethanol**

- Acute Tox. 2, H310: ACUTE TOXICITY (dermal) - Category 2
- Acute Tox. 2, H330: ACUTE TOXICITY (inhalation) - Category 2
- Acute Tox. 3, H301: ACUTE TOXICITY (oral) - Category 3
- Acute Tox. 4, H312: ACUTE TOXICITY (dermal) - Category 4
- Acute Tox. 4, H332: ACUTE TOXICITY (inhalation) - Category 4
- Aquatic Chronic 2, H411: LONG-TERM AQUATIC HAZARD - Category 2
- Aquatic Chronic 3, H412: LONG-TERM AQUATIC HAZARD - Category 3
- Eye Dam. 1, H318: SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
- Skin Irrit. 2, H315: SKIN CORROSION/IRRITATION - Category 2
- Skin Sens. 1, H317: SKIN SENSITIZATION - Category 1
- STOT SE 3, H335: SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

Full text of abbreviated R phrases:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol
- R23/24: Toxic by inhalation and in contact with skin.
- R22: Harmful if swallowed.
- R20/21: Harmful by inhalation and in contact with skin.
- R41: Risk of serious damage to eyes.
- R38: Irritating to skin.
- R43: May cause sensitisation by skin contact.
- R51/53: Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of classifications [DSD/DPD]:

- NM522 competent cells
- pUC18 Control Plasmid DNA
- 1.42 M 2-Mercaptoethanol
- T - Toxic
- Xn - Harmful
- Xi - Irritant
- N - Dangerous for the environment

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Notice to reader

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