Section 1. Identification

Product identifier : Cloned Pfu DNA Polymerase - 500 U, Part Number 600154
Part no. : 600154

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

Identified uses :
- Analytical reagent.
- Cloned Pfu Polymerase, 500 U 500 U 2.5 U/µl
- 10X Cloned Pfu Reaction Buffer 2 x 1 ml

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Cloned Pfu Polymerase, 500 U
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

10X Cloned Pfu Reaction Buffer
H319 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A
H412 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

GHS label elements

Hazard pictograms : 10X Cloned Pfu Reaction Buffer

Signal word : WARNING

Hazard statements :
- Cloned Pfu Polymerase, 500 U H320 - Causes eye irritation.
- 10X Cloned Pfu Reaction Buffer H319 - Causes serious eye irritation.

Precautionary statements

Date of issue>Date of revision : 31/10/2022
Date of previous issue : 25/09/2019
Version : 7
Section 2. Hazard(s) identification

Prevention:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
Not applicable.

Response:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
P280 - Wear eye or face protection.  
P273 - Avoid release to the environment.  
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
Not applicable.

Disposal:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
Not applicable.
P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements  
Additional warning phrases:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
Not applicable.

Other hazards which do not result in classification:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
None known.

Section 3. Composition and ingredient information

Substance/mixture:  
Cloned Pfu Polymerase, 500 U  
10X Cloned Pfu Reaction Buffer  
Mixture  
Mixture

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥30 - ≤60</td>
<td>56-81-5</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyoxyethylene octyl phenyl ether</td>
<td>&lt;2.5</td>
<td>9002-93-1</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 and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Occupational exposure limits, if available, are listed in Section 8.
# Section 4. First aid measures

## Description of necessary first aid measures

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>Description of necessary first aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Description of necessary first aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Description of necessary first aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>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.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingestion</th>
<th>Description of necessary first aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>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.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>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...</td>
</tr>
</tbody>
</table>
Section 4. First aid measures

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.

**Most important symptoms/effects, acute and delayed**

<table>
<thead>
<tr>
<th>Mode of Exposure</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Over-exposure signs/symptoms**

<table>
<thead>
<tr>
<th>Mode of Exposure</th>
<th>Substance</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Adverse symptoms may include the following:</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>irritation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>watering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>redness</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No specific data.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No specific data.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Indication of immediate medical attention and special treatment needed, if necessary**
Section 4. First aid measures

Notes to physician:
- **Cloned Pfu Polymerase, 500 U**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **10X Cloned Pfu Reaction 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.

Protection of first-aiders:
- **Cloned Pfu Polymerase, 500 U**: 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.
- **10X Cloned Pfu Reaction 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.

Notes to physician:
- **Cloned Pfu Polymerase, 500 U**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **10X Cloned Pfu Reaction 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.

Specific treatments:
- **Cloned Pfu Polymerase, 500 U**: No specific treatment.
- **10X Cloned Pfu Reaction Buffer**: No specific treatment.

Section 5. Firefighting measures

Extinguishing media:
- **Suitable extinguishing media**:
  - **Cloned Pfu Polymerase, 500 U**: Use an extinguishing agent suitable for the surrounding fire.
  - **10X Cloned Pfu Reaction Buffer**: Use an extinguishing agent suitable for the surrounding fire.

- **Unsuitable extinguishing media**:
  - **Cloned Pfu Polymerase, 500 U**: None known.
  - **10X Cloned Pfu Reaction Buffer**: None known.

Specific hazards arising from the chemical:
- **Cloned Pfu Polymerase, 500 U**: In a fire or if heated, a pressure increase will occur and the container may burst.
- **10X Cloned Pfu Reaction 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.

Hazardous thermal decomposition products:
- **Cloned Pfu Polymerase, 500 U**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
- **10X Cloned Pfu Reaction Buffer**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - nitrogen oxides
  - sulfur oxides
  - halogenated compounds
Section 5. Firefighting measures

**Special protective actions for fire-fighters**
- **Cloned Pfu Polymerase, 500 U**
  - 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.
- **10X Cloned Pfu Reaction 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.

**Special protective equipment for fire-fighters**
- **Cloned Pfu Polymerase, 500 U**
  - Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **10X Cloned Pfu Reaction Buffer**
  - Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**

**For non-emergency personnel**
- **Cloned Pfu Polymerase, 500 U**
  - 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.
- **10X Cloned Pfu Reaction 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.

**For emergency responders**
- **Cloned Pfu Polymerase, 500 U**
  - 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". 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".
- **10X Cloned Pfu Reaction 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".

**Environmental precautions**
- **Cloned Pfu Polymerase, 500 U**
  - 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).
- **10X Cloned Pfu Reaction 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.

**Methods and material for containment and cleaning up**
Section 6. Accidental release measures

**Methods for cleaning up**

**Cloned Pfu Polymerase, 500 U**

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.

**10X Cloned Pfu Reaction Buffer**

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

Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**

**Cloned Pfu Polymerase, 500 U**

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**10X Cloned Pfu Reaction 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. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

**Advice on general occupational hygiene**

**Cloned Pfu Polymerase, 500 U**

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.

**10X Cloned Pfu Reaction 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.

**Conditions for safe storage, including any incompatibilities**

**Cloned Pfu Polymerase, 500 U**

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.

**10X Cloned Pfu Reaction 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
Section 7. Handling and storage

Cloned Pfu DNA Polymerase - 500 U, Part Number 600154

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.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Safe Work Australia (Australia, 12/2019). TWA: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
</tbody>
</table>

Biological exposure indices
No exposure indices known.

Appropriate engineering 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.

Environmental exposure controls
Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection
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.

Hand 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.

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

Respiratory protection
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
Section 9. Physical and chemical properties and safety characteristics

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

**Appearance**

**Physical state**
- Cloned Pfu Polymerase, 500 U: Liquid.
- 10X Cloned Pfu Reaction Buffer: Liquid.

**Colour**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Odour**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Odour threshold**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**pH**
- Cloned Pfu Polymerase, 500 U: 8.2
- 10X Cloned Pfu Reaction Buffer: 8.8

**Melting point/freezing point**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Boiling point, initial boiling point, and boiling range**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Flash point**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Closed cup</th>
<th>Open cup</th>
</tr>
</thead>
<tbody>
<tr>
<td>°C</td>
<td>°F</td>
<td>Method</td>
</tr>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>177</td>
<td>350.6</td>
<td></td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Polyoxyethylene octyl phenyl ether</td>
<td>251</td>
<td>483.8</td>
</tr>
</tbody>
</table>

**Evaporation rate**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Flammability**
- Cloned Pfu Polymerase, 500 U: Not applicable.
- 10X Cloned Pfu Reaction Buffer: Not applicable.

**Lower and upper explosion limit/flammability limit**
- Cloned Pfu Polymerase, 500 U: Not available.
- 10X Cloned Pfu Reaction Buffer: Not available.

**Vapour pressure**

Date of issue/Date of revision: 31/10/2022  
Date of previous issue: 25/09/2019  
Version: 7  
9/16
Section 9. Physical and chemical properties and safety characteristics

### Vapour Pressure at 20°C and 50°C

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapour Pressure at 20°C</th>
<th>Vapour Pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td></td>
<td></td>
</tr>
<tr>
<td>water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Glycerol</td>
<td>0.000075</td>
<td>0.00001</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Polyoxylene octyl phenyl ether</td>
<td>0.997581</td>
<td>0.13</td>
</tr>
</tbody>
</table>

### Relative Vapour Density

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not available.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Relative Density

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not available.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Solubility(ies)

<table>
<thead>
<tr>
<th>Media</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Soluble</td>
</tr>
<tr>
<td>water</td>
<td>Soluble</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td></td>
</tr>
<tr>
<td>water</td>
<td>Soluble</td>
</tr>
</tbody>
</table>

### Partition Coefficient: n-Octanol/Water

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### Auto-Ignition Temperature

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>°C</th>
<th>°F</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Decomposition Temperature

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not available.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Viscosity

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not available.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

### Particle Characteristics

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Section 10. Stability and reactivity

Reactivity:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - No specific test data related to reactivity available for this product or its ingredients.

Chemical stability:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - The product is stable.

Possibility of hazardous reactions:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - No specific data.

Incompatible materials:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - May react or be incompatible with oxidising materials.

Hazardous decomposition products:
- Cloned Pfu Polymerase, 500 U
- 10X Cloned Pfu Reaction Buffer
  - Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

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>Cloned Pfu Polymerase, 500 U Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1800 mg/kg</td>
<td>-</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>Cloned Pfu Polymerase, 500 U Glycerol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 uL</td>
<td>-</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Sensitisation
Not available.

Mutagenicity
Conclusion/Summary : Not available.

Carcinogenicity
Conclusion/Summary : Not available.

Reproductive toxicity
Conclusion/Summary : Not available.

Teratogenicity
Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard
Not available.

Information on likely routes of exposure
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects
Eye contact
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
Causes eye irritation.

Inhalation
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Skin contact
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Ingestion
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics
Eye contact
Cloned Pfu Polymerase, 500 U
10X Cloned Pfu Reaction Buffer
Adverse symptoms may include the following:

irritation
watering
redness

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Section 11. Toxicological information

Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Skin contact
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Ingestion
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

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

Short term exposure

Potential immediate effects
No specific data.

Potential delayed effects
No specific data.

Long term exposure

Potential immediate effects
No specific data.

Potential delayed effects
No specific data.

Potential chronic health effects

General
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Carcinogenicity
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Mutagenicity
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Reproductive toxicity
Cloned Pfu Polymerase, 500 U
No known significant effects or critical hazards.

10X Cloned Pfu Reaction Buffer
No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapours) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>180000.0</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>1800</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### Section 12. Ecological information

#### Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Acute LC50 5.85 mg/l Fresh water</td>
<td>Crustaceans - Ceriodaphnia rigaudi - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Acute LC50 11.2 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td>Polyoxyleneoctyl phenyl ether</td>
<td>Acute LC50 4500 μg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

#### Persistence and degradability

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>4.86</td>
<td>-</td>
<td>high</td>
</tr>
<tr>
<td>Polyoxyleneoctyl phenyl ether</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### Mobility in soil

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

#### Other adverse effects

No known significant effects or critical hazards.

### Section 13. Disposal considerations

#### Disposal methods

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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its
Section 13. Disposal considerations

The 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

**ADG / IMDG / IATA**: Not regulated as Dangerous Goods according to the ADG Code.

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

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

Section 15. Regulatory information

**Standard for the Uniform Scheduling of Medicines and Poisons**
Not regulated.

**Model Work Health and Safety Regulations - Scheduled Substances**
No listed substance

**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)**
Not listed.

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

**Inventory list**

- **Australia**: All components are listed or exempted.
- **Canada**: All components are listed or exempted.
- **China**: All components are listed or exempted.
- **Eurasian Economic Union**: Russian Federation inventory: All components are listed or exempted.
- **New Zealand**: All components are listed or exempted.
- **Philippines**: All components are listed or exempted.
- **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**: All components are listed or exempted.

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Section 16. Any other relevant information

History

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Key to abbreviations

ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
N/A = Not available
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu Polymerase, 500 U</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B</td>
<td></td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A</td>
<td></td>
</tr>
<tr>
<td>LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

* Indicates information that has changed from previously issued version.

Notice to reader

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