Section 1. Identification

Product identifier : PfuTurbo DNA Polymerase AD, Part Number 600255
Part No. (Chemical Kit) : 600255
Part No. : PfuTurbo DNA Polymerase AD 600255-52
10X Cloned Pfu Reaction Buffer AD 600157-82

Relevant identified uses of the substance or mixture and uses advised against
Analytical reagent.

PfuTurbo DNA Polymerase AD 0.04 ml (100 U 2.5 U/µl)
10X Cloned Pfu Reaction Buffer AD 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
Not classified.

10X Cloned Pfu Reaction Buffer AD Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 3.2%
10X Cloned Pfu Reaction Buffer AD Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.2%

GHS label elements

Signal word : PfuTurbo DNA Polymerase AD
              10X Cloned Pfu Reaction Buffer AD
No signal word.

Hazard statements : PfuTurbo DNA Polymerase AD
                    10X Cloned Pfu Reaction Buffer AD
No known significant effects or critical hazards.

Precautionary statements

Prevention : PfuTurbo DNA Polymerase AD
             10X Cloned Pfu Reaction Buffer AD
Not applicable.

Response : PfuTurbo DNA Polymerase AD
           10X Cloned Pfu Reaction Buffer AD
Not applicable.

Storage : PfuTurbo DNA Polymerase AD
          10X Cloned Pfu Reaction Buffer AD
Not applicable.
Section 2. Hazard(s) identification

Disposal:
- PfuTurbo DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Not applicable.

Supplemental label elements:
- PfuTurbo DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Not applicable.

Other hazards which do not result in classification:
- PfuTurbo DNA Polymerase AD: None known.
- 10X Cloned Pfu Reaction Buffer AD: None known.

Section 3. Composition and ingredient information

Substance/mixture:
- PfuTurbo DNA Polymerase AD: Mixture
- 10X Cloned Pfu Reaction Buffer AD: 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>PfuTurbo DNA Polymerase AD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥30 - ≤60</td>
<td>56-81-5</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.

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

Section 4. First aid measures

Description of necessary first aid measures:

Eye contact:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - 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.

Inhalation:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
### Section 4. First aid measures

**Ingestion**

<table>
<thead>
<tr>
<th>Substance</th>
<th>First aid measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>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.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

**Potential acute health effects**

<table>
<thead>
<tr>
<th>Type</th>
<th>Substance</th>
<th>Symptoms/Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Over-exposure signs/symptoms**

<table>
<thead>
<tr>
<th>Type</th>
<th>Substance</th>
<th>Symptoms/Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

**Notes to physician**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Treatment/advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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>
## Section 4. First aid measures

<table>
<thead>
<tr>
<th>Specific treatments</th>
<th>Protection of first-aiders</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

### See toxicological information (Section 11)

## Section 5. Firefighting measures

### Extinguishing media

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
<th>Use an extinguishing agent suitable for the surrounding fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unsuitable extinguishing media</th>
<th>None known.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>None known.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
</tr>
</tbody>
</table>

### Specific hazards arising from the chemical

<table>
<thead>
<tr>
<th>PfuTurbo DNA Polymerase AD</th>
<th>In a fire or if heated, a pressure increase will occur and the container may burst.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
</tbody>
</table>

### Hazardous thermal decomposition products

<table>
<thead>
<tr>
<th>PfuTurbo DNA Polymerase AD</th>
<th>Decomposition products may include the following materials: carbon dioxide carbon monoxide</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds</td>
</tr>
</tbody>
</table>

### Special protective actions for fire-fighters

<table>
<thead>
<tr>
<th>PfuTurbo DNA Polymerase AD</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</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>

### Special protective equipment for fire-fighters

<table>
<thead>
<tr>
<th>PfuTurbo DNA Polymerase AD</th>
<th>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</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.</td>
</tr>
</tbody>
</table>
Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

<table>
<thead>
<tr>
<th>Product</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>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.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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.</td>
</tr>
</tbody>
</table>

For emergency responders

<table>
<thead>
<tr>
<th>Product</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>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 &quot;For non-emergency personnel&quot;.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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 &quot;For non-emergency personnel&quot;.</td>
</tr>
</tbody>
</table>

Environmental precautions

<table>
<thead>
<tr>
<th>Product</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>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).</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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).</td>
</tr>
</tbody>
</table>

Methods and material for containment and cleaning up

Methods for cleaning up

<table>
<thead>
<tr>
<th>Product</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>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.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>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.</td>
</tr>
</tbody>
</table>

Section 7. Handling and storage

Precautions for safe handling

Protective measures

<table>
<thead>
<tr>
<th>Product</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
</tbody>
</table>
Section 7. Handling and storage

**Advice on general occupational hygiene**

- 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**

- 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.

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>PfuTurbo DNA Polymerase AD</td>
<td><strong>Safe Work Australia (Australia, 1/2014).</strong></td>
</tr>
<tr>
<td>Glycerol</td>
<td>TWA: 10 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

**Appropriate engineering controls**

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

**Environmental exposure controls**

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

**Individual protection measures**

**Hygiene measures**

- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
Section 8. Exposure controls and personal protection

**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: safety glasses with side-shields.

**Skin protection**

**Hand protection**: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

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

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

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

Section 9. Physical and chemical properties

**Appearance**

**Physical state**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Colour**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Odour**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Odour threshold**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**pH**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Melting point**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Boiling point**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Flash point**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

**Evaporation rate**: PfuTurbo DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

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Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>PfuTurbo DNA Polymerase AD</th>
<th>10X Cloned Pfu Reaction Buffer AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>PfuTurbo DNA Polymerase AD</td>
<td>Soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Property</th>
<th>PfuTurbo DNA Polymerase AD</th>
<th>10X Cloned Pfu Reaction Buffer AD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</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>
<tr>
<td>Chemical stability</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</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>

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Date of previous issue : 29/09/2016.
Version : 5
Section 10. Stability and reactivity

Conditions to avoid:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

Incompatible materials:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

Hazardous decomposition products:
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

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>PfuTurbo DNA Polymerase AD Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 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>PfuTurbo DNA Polymerase AD Glycerol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitisation
Not available.

Mutagenicity
Not available.

Carcinogenicity
Not available.

Reproductive toxicity
Not available.

Conclusion/Summary
Not available.

Teratogenicity
Not available.

Specific target organ toxicity (single exposure)
Not available.

Specific target organ toxicity (repeated exposure)
Not available.

Aspiration hazard

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# Section 11. Toxicological information

Not available.

<table>
<thead>
<tr>
<th>Information on likely routes of exposure</th>
<th>Routes of entry anticipated: Oral, Dermal, Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PfuTurbo DNA Polymerase AD</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
</tbody>
</table>

## Potential acute health effects

### Eye contact
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

### Inhalation
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

### Skin contact
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

### Ingestion
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

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

### Eye contact
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

### Inhalation
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

### Skin contact
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

### Ingestion
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

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

### Short term exposure

#### Potential immediate effects
- Not available.

#### Potential delayed effects
- Not available.

### Long term exposure

#### Potential immediate effects
- Not available.

#### Potential delayed effects
- Not available.

### Potential chronic health effects
- Not available.
Section 11. Toxicological information

**General**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Carcinogenicity**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Mutagenicity**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Teratogenicity**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Developmental effects**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Fertility effects**
- PfuTurbo DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD
  - No known significant effects or critical hazards.

**Numerical measures of toxicity**

**Acute toxicity estimates**

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>25000 mg/kg</td>
</tr>
<tr>
<td>Dermal</td>
<td>55000 mg/kg</td>
</tr>
<tr>
<td>Inhalation (vapours)</td>
<td>550 mg/l</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>PfuTurbo DNA Polymerase AD</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></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Persistence and degradability**

Not available.

**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>PfuTurbo DNA Polymerase AD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Mobility in soil**

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

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Section 12. Ecological information

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 container must be disposed of in a safe way. 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

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 Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons
Not regulated.

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

Australia inventory (AICS) : Not determined.

International regulations

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

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

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

International lists

National inventory

Canada : Not determined.

China : Not determined.

Europe : Not determined.

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Section 15. Regulatory information


Malaysia: Not determined.
New Zealand: Not determined.
Philippines: Not determined.
Republic of Korea: Not determined.
Taiwan: All components are listed or exempted.
Turkey: Not determined.
United States: Not determined.

Section 16. Any other relevant information

History
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Version: 5

Key to abbreviations:
- ADG = Australian Dangerous Goods
- 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
- NOHSC = National Occupational Health and Safety Commission
- 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>Not classified</td>
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</tr>
</tbody>
</table>

References: Not available.

Notice to reader

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