SAFETY DATA SHEET
Cloned Pfu DNA Polymerase AD, Part Number 600357

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

1.1 Product identifier
   Product name: Cloned Pfu DNA Polymerase AD, Part Number 600357
   Part No. (Kit): 600357
   Part No.: Cloned Pfu DNA Polymerase AD 600357-51
             10X Cloned Pfu 600157-82
             Reaction Buffer AD

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

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>0.4 ml (1000 U)</th>
<th>2.5 U/ìl</th>
<th>4 x 1 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical reagent.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cloned Pfu DNA Polymerase AD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
<td></td>
<td></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
   Product definition: Cloned Pfu DNA Polymerase AD Mixture
                        10X Cloned Pfu Reaction Buffer AD Mixture
   Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
         Not classified.

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

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

2.2 Label elements

Date of issue/Date of revision: 27/02/2017
SECTION 2: Hazards identification

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

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

Precautionary statements:

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

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

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

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

Hazardous ingredients:
- Cloned Pfu DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Not applicable.

Supplemental label elements:
- Cloned Pfu DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Safety data sheet available on request.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles:
- Cloned Pfu DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Not applicable.

Special packaging requirements:

Tactile warning of danger:
- Cloned Pfu DNA Polymerase AD: Not applicable.
- 10X Cloned Pfu Reaction Buffer AD: Not applicable.

2.3 Other hazards:

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

SECTION 3: Composition/information on ingredients

3.1 Substances:
- Cloned Pfu DNA Polymerase AD: Mixture
- 10X Cloned Pfu Reaction Buffer AD: Mixture
SECTION 3: Composition/information on ingredients

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>EC: 200-289-5, CAS: 56-81-5</td>
<td>≥50 - ≤75</td>
<td>Not classified.</td>
<td>[2]</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride</td>
<td></td>
<td></td>
<td>Acute Tox. 4, H302, Acute Tox. 4, H312, Acute Tox. 4, H332, Skin Irrit. 2, H315, Eye Irrit. 2, H319, STOT SE 3, H335</td>
<td>[1]</td>
</tr>
<tr>
<td>Dodecyldimethyl (3-sulphonatopropyl)ammonium</td>
<td>EC: 239-002-3, CAS: 14933-08-5</td>
<td>≤3</td>
<td>See Section 16 for the full text of the H statements declared above.</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.

Type
[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[5] Substance of equivalent concern

SECTION 4: First aid measures

4.1 Description of first aid measures

**Eye contact**
- **Cloned Pfu DNA Polymerase 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.
- **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**
- **Cloned Pfu DNA Polymerase AD**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- **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. 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.

**Skin contact**
- **Cloned Pfu DNA Polymerase AD**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- **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:
- **Cloned Pfu DNA Polymerase AD**: 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.
- **10X Cloned Pfu Reaction Buffer AD**: 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.

Protection of first-aiders:
- **Cloned Pfu DNA Polymerase AD**: No action shall be taken involving any personal risk or without suitable training.
- **10X Cloned Pfu Reaction Buffer AD**: No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

**Potential acute health effects**

**Eye contact**:
- **Cloned Pfu DNA Polymerase AD**: No known significant effects or critical hazards.
- **10X Cloned Pfu Reaction Buffer AD**: No known significant effects or critical hazards.

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

**Skin contact**:
- **Cloned Pfu DNA Polymerase AD**: No known significant effects or critical hazards.
- **10X Cloned Pfu Reaction Buffer AD**: No known significant effects or critical hazards.

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

**Over-exposure signs/symptoms**

**Eye contact**:
- **Cloned Pfu DNA Polymerase AD**: No specific data.
- **10X Cloned Pfu Reaction Buffer AD**: No specific data.

**Inhalation**:
- **Cloned Pfu DNA Polymerase AD**: No specific data.
- **10X Cloned Pfu Reaction Buffer AD**: No specific data.

**Skin contact**:
- **Cloned Pfu DNA Polymerase AD**: No specific data.
- **10X Cloned Pfu Reaction Buffer AD**: No specific data.

**Ingestion**:
- **Cloned Pfu DNA Polymerase AD**: No specific data.
- **10X Cloned Pfu Reaction Buffer AD**: No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician**:
- **Cloned Pfu DNA Polymerase AD**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **10X Cloned Pfu Reaction Buffer AD**: 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.
SECTION 4: First aid measures

Specific treatments:
- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media:
- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:
- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

None known.

5.2 Special hazards arising from the substance or mixture

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

Decomposition products may include the following materials:
- carbon dioxide
- carbon monoxide
- nitrogen oxides
- sulfur oxides
- halogenated compounds

In a fire or if heated, a pressure increase will occur and the container may burst.

5.3 Advice for firefighters

Special precautions for fire-fighters:
- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

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 DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

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.

Date of issue/Date of revision: 27/02/2017
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

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

For emergency responders

- Cloned Pfu DNA Polymerase AD: 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 AD: 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

- Cloned Pfu DNA Polymerase AD: 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 AD: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up

- Cloned Pfu DNA Polymerase AD: 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 AD: 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.

6.4 Reference to other sections

- Cloned Pfu DNA Polymerase AD: See Section 1 for emergency contact information.
- 10X Cloned Pfu Reaction Buffer AD: See Section 8 for information on appropriate personal protective equipment.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures

- Cloned Pfu DNA Polymerase AD: Put on appropriate personal protective equipment (see Section 8).
- 10X Cloned Pfu Reaction Buffer AD: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

- Cloned Pfu DNA Polymerase AD: 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 AD: 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,
SECTION 7: Handling and storage

drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### 7.2 Conditions for safe storage, including any incompatibilities

| Storage | Cloned Pfu DNA Polymerase AD | 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. |
| 10X Cloned Pfu Reaction Buffer AD | 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. |

### 7.3 Specific end use(s)

| Recommendations | Cloned Pfu DNA Polymerase AD | Industrial applications, Professional applications. |
| 10X Cloned Pfu Reaction Buffer AD | Industrial applications, Professional applications. |

### Industrial sector specific solutions

| Cloned Pfu DNA Polymerase AD | Not applicable. |
| 10X Cloned Pfu Reaction Buffer AD | Not applicable. |

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

#### Occupational exposure limits

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
</tbody>
</table>

**Recommended monitoring procedures**

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

**DNELs/DMELs**

No DNELs/DMELs available.

**PNECs**

No PNECs available

Date of issue/Date of revision : 27/02/2017 7/15
8.2 Exposure controls

**Appropriate engineering 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: 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.

**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**

**Physical state**: Cloned Pfu DNA Polymerase AD, Liquid. 10X Cloned Pfu Reaction Buffer AD, Liquid.

**Colour**: Cloned Pfu DNA Polymerase AD, Not available. 10X Cloned Pfu Reaction Buffer AD, Not available.

**Odour**: Cloned Pfu DNA Polymerase AD, Not available. 10X Cloned Pfu Reaction Buffer AD, Not available.

**Odour threshold**: Cloned Pfu DNA Polymerase AD, Not available. 10X Cloned Pfu Reaction Buffer AD, Not available.

**pH**: Cloned Pfu DNA Polymerase AD, 8.2. 10X Cloned Pfu Reaction Buffer AD, 8.8.

Date of issue/Date of revision: 27/02/2017
### SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Cloned Pfu DNA Polymerase AD</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Cloned Pfu 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>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Cloned Pfu DNA Polymerase AD</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>10X Cloned Pfu Reaction Buffer AD</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision:** 27/02/2017
SECTION 9: Physical and chemical properties

Oxidising properties: Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity
Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD
No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability
Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD
The product is stable.

10.3 Possibility of hazardous reactions
Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD
Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid
Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD
No specific data.

10.5 Incompatible materials
Cloned Pfu DNA Polymerase AD, 10X Cloned Pfu Reaction Buffer AD
May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products
Cloned Pfu 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

11.1 Information on toxicological effects

Acute toxicity
Not available.

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<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>

Irritation/Corrosion
Conclusion/Summary: Not available.

Sensitiser
Conclusion/Summary: Not available.

Specific target organ toxicity (single exposure)

Date of issue/Date of revision: 27/02/2017
SECTION 11: Toxicological information

<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>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Dodecyldimethyl(3-sulphonatopropyl)ammonium</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

Aspiration hazard

Not available.

Information on likely routes of exposure:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

Potential acute health effects

Inhalation:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

Ingestion:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

Skin contact:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No known significant effects or critical hazards.

Eye contact:

- Cloned Pfu 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

Inhalation:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

Ingestion:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

Skin contact:

- Cloned Pfu DNA Polymerase AD
- 10X Cloned Pfu Reaction Buffer AD

No specific data.

Eye contact:

- Cloned Pfu 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.

Date of issue/Date of revision: 27/02/2017 11/15
SECTION 11: Toxicological information

Potential immediate effects : Not available.
Potential delayed effects : Not available.

Potential chronic health effects

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

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

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

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

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

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

SECTION 12: Ecological information

12.1 Toxicity
Conclusion/Summary : Not available.

12.2 Persistence and degradability
Not available.

12.3 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>10X Cloned Pfu Reaction Buffer AD</td>
<td></td>
<td></td>
<td>low</td>
</tr>
<tr>
<td>Dodecyldimethyl (3-sulphonatopropyl) ammonium</td>
<td>2.24</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>) : 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.

Date of issue/Date of revision : 27/02/2017
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**:
Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

**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. 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 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**

None of the components are listed.

**Annex XIV**

Substances of very high concern

None of the components are listed.

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

Cloned Pfu DNA Polymerase AD Not applicable.

10X Cloned Pfu Reaction Buffer AD Not applicable.

**Other EU regulations**

**Europe inventory**: Not determined.

**Ozone depleting substances (1005/2009/EU)**

Not listed.

**Prior Informed Consent (PIC) (649/2012/EU)**

Not listed.

**Seveso Directive**

This product is not controlled under the Seveso Directive.

**International regulations**

**Date of issue/Date of revision**: 27/02/2017
### SECTION 15: Regulatory information

**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**

<table>
<thead>
<tr>
<th>Country</th>
<th>Not determined.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>Japan inventory (ENCS): Not determined.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ISHL): Not determined.</td>
</tr>
<tr>
<td>Malaysia</td>
<td></td>
</tr>
<tr>
<td>New Zealand</td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td></td>
</tr>
<tr>
<td>Republic of Korea</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Turkey</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td></td>
</tr>
</tbody>
</table>

#### 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]**

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified.</td>
<td></td>
</tr>
</tbody>
</table>

**Full text of abbreviated H statements**

<table>
<thead>
<tr>
<th>Compound</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>H302</td>
<td>Harmful if swallowed.</td>
</tr>
<tr>
<td>H312</td>
<td>Harmful in contact with skin.</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H332</td>
<td>Harmful if inhaled.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

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

Date of issue/Date of revision: 27/02/2017
**SECTION 16: Other information**

| 10X Cloned Pfu Reaction Buffer AD | ACUTE TOXICITY (oral) - Category 4  
|                                  | ACUTE TOXICITY (dermal) - Category 4  
|                                  | ACUTE TOXICITY (inhalation) - Category 4  
|                                  | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2  
|                                  | SKIN CORROSION/IRRITATION - Category 2  
|                                  | SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3  

**Date of issue/ Date of revision**: 27/02/2017

**Date of previous issue**: No previous validation.

**Version**: 1

**Notice to reader**

Disclaimer: The information contained in this document is based on Agilent’s state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.