SAFETY DATA SHEET

Paq5000 DNA Polymerase, Part Number 600682

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

1.1 Product identifier

Product name: Paq5000 DNA Polymerase, Part Number 600682
Part No. (Kit): 600682
Part No.:

<table>
<thead>
<tr>
<th>Product name</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paq5000 DNA Polymerase</td>
<td>600682-51</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>600680-52</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Identified uses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical reagent. Paq5000 DNA Polymerase</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</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:

<table>
<thead>
<tr>
<th>Product definition</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paq5000 DNA Polymerase</td>
<td>Mixture</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>Mixture</td>
</tr>
</tbody>
</table>

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Not classified.

<table>
<thead>
<tr>
<th>Ingredients of unknown toxicity</th>
<th>Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paq5000 DNA Polymerase</td>
<td>Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%</td>
</tr>
<tr>
<td>% ecological water toxicity</td>
<td>Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%</td>
</tr>
<tr>
<td>Ingredients of unknown ecotoxicity</td>
<td>Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.5%</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>See Section 16 for the full text of the H statements declared above.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 18/05/2017
SECTION 2: Hazards identification

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Signal word
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
No signal word.

Hazard statements
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
No known significant effects or critical hazards.

Precautionary statements

Prevention
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Response
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Storage
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Disposal
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Hazardous ingredients
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Supplemental label elements
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
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
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

Special packaging requirements
Tactile warning of danger
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
Not applicable.

2.3 Other hazards

Other hazards which do not result in classification
Paq5000 DNA Polymerase
10X Paq5000 DNA Polymerase Buffer
None known.
SECTION 3: Composition/information on ingredients

3.1 Substances

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identiifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paq5000 DNA Polymerase</td>
<td>EC: 200-289-5</td>
<td>≥50 - ≤75</td>
<td>Not classified.</td>
<td>[2]</td>
</tr>
<tr>
<td></td>
<td>CAS: 56-81-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>EC: 201-064-4</td>
<td>≤8.1</td>
<td>Skin Irrit. 2, H315</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>CAS: 77-86-1</td>
<td></td>
<td>Eye Irrit. 2, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAS: 82473-24-3</td>
<td>≤1.8</td>
<td>Skin Irrit. 2, H315</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Irrit. 2, H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>STOT SE 3, H335</td>
<td>See Section 16 for the full text of the H statements declared above.</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**

- Paq5000 DNA Polymerase
- 10X Paq5000 DNA Polymerase Buffer

Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

**Inhalation**

- Paq5000 DNA Polymerase
- 10X Paq5000 DNA Polymerase Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact**

- Paq5000 DNA Polymerase
- 10X Paq5000 DNA Polymerase Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Paq5000 DNA Polymerase, Part Number 600682

SECTION 4: First aid measures

Ingestion

**Paq5000 DNA Polymerase**
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 Paq5000 DNA Polymerase Buffer**
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

**Paq5000 DNA Polymerase**
No action shall be taken involving any personal risk or without suitable training.

**10X Paq5000 DNA Polymerase Buffer**
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**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No known significant effects or critical hazards.

- **Inhalation**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No known significant effects or critical hazards.

- **Skin contact**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No known significant effects or critical hazards.

- **Ingestion**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

- **Eye contact**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No specific data.

- **Inhalation**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No specific data.

- **Skin contact**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No specific data.

- **Ingestion**
  - **Paq5000 DNA Polymerase**
  - **10X Paq5000 DNA Polymerase Buffer**
  - No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

**Date of issue/Date of revision**: 18/05/2017
SECTION 4: First aid measures

Notes to physician:
- Paq5000 DNA Polymerase
- 10X Paq5000 DNA Polymerase Buffer
  - Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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:
- Paq5000 DNA Polymerase
- 10X Paq5000 DNA Polymerase Buffer
  - No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media
- Suitable extinguishing media:
  - Paq5000 DNA Polymerase
  - 10X Paq5000 DNA Polymerase Buffer
    - Use an extinguishing agent suitable for the surrounding fire.

- Unsuitable extinguishing media:
  - Paq5000 DNA Polymerase
  - 10X Paq5000 DNA Polymerase Buffer
    - None known.

5.2 Special hazards arising from the substance or mixture
- Hazards from the substance or mixture:
  - Paq5000 DNA Polymerase
    - In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous combustion products:
  - Paq5000 DNA Polymerase
    - Decomposition products may include the following materials:
      - carbon dioxide
      - carbon monoxide
  - 10X Paq5000 DNA Polymerase Buffer
    - Decomposition products may include the following materials:
      - carbon dioxide
      - carbon monoxide
      - nitrogen oxides
      - sulfur oxides
      - metal oxide/oxides

5.3 Advice for firefighters
- Special precautions for fire-fighters:
  - Paq5000 DNA Polymerase
    - 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 Paq5000 DNA Polymerase 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:
  - Paq5000 DNA Polymerase
    - 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.
  - 10X Paq5000 DNA Polymerase Buffer
    - Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:
- Paq5000 DNA Polymerase: 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 Paq5000 DNA Polymerase Buffer: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

For emergency responders:
- Paq5000 DNA Polymerase: 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 Paq5000 DNA Polymerase Buffer: If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions:
- Paq5000 DNA Polymerase: 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 Paq5000 DNA Polymerase Buffer: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:
- Paq5000 DNA Polymerase: 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 Paq5000 DNA Polymerase 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.

6.4 Reference to other sections:
- See Section 1 for emergency contact information.
- See Section 8 for information on appropriate personal protective equipment.
- See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures:
- Paq5000 DNA Polymerase: Put on appropriate personal protective equipment (see Section 8).
- 10X Paq5000 DNA Polymerase Buffer: Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene:
- Paq5000 DNA Polymerase: 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 Paq5000 DNA Polymerase Buffer: Eating, drinking and smoking should be prohibited in areas...
SECTION 7: Handling and storage

Polymerase Buffer where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage : Paq5000 DNA Polymerase 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 Paq5000 DNA Polymerase Buffer Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Paq5000 DNA Polymerase Industrial applications, Professional applications.

10X Paq5000 DNA Polymerase Buffer Industrial applications, Professional applications.

Industrial sector specific solutions : Paq5000 DNA Polymerase Not applicable.

10X Paq5000 DNA Polymerase Buffer 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>Paq5000 DNA Polymerase Glycerol</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m³ 8 hours. Form: Mist</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.
SECTION 8: Exposure controls/personal protection

No DNEls/DMELs available.

**PNECs**
No PNECs available

**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. 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 respirator 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**

<table>
<thead>
<tr>
<th>Property</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
<td>Liquid</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colour</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odour</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>
## SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Odour threshold</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>8.2</td>
<td>10</td>
</tr>
<tr>
<td><strong>Melting point/freezing point</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Initial boiling point and boiling range</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Upper/lower flammability or explosive limits</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Solubility(ies)</strong></td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision** : 18/05/2017
**SECTION 9: Physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<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>
<tr>
<td>Explosive properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**9.2 Other information**
No additional information.

**SECTION 10: Stability and reactivity**

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.1 Reactivity</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>10.2 Chemical stability</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>10.3 Possibility of hazardous reactions</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>10.4 Conditions to avoid</td>
<td>No specific data.</td>
</tr>
<tr>
<td>10.5 Incompatible materials</td>
<td>May react or be incompatible with oxidising materials.</td>
</tr>
<tr>
<td>10.6 Hazardous decomposition products</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Potential acute health effects

<table>
<thead>
<tr>
<th>Routes of entry anticipated: Oral, Dermal, Inhalation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Propanaminium, 2-hydroxy-n,n-dimethyl-3-sulfo-n-3-(3.alpha.,5.beta.,7.alpha.,12.alpha.)-3,7,12-trihydroxy-24-oxocholan-24-ylaminopropyl-, inner salt</td>
</tr>
<tr>
<td>Category 3</td>
</tr>
<tr>
<td>Category 3</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>10X Paq5000 DNA Polymerase Buffer</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>25 Percent</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitiser

<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>
</table>

| Conclusion/Summary    | Not available. |

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>1-Propanaminium, 2-hydroxy-n,n-dimethyl-3-sulfo-n-3-(3.alpha.,5.beta.,7.alpha.,12.alpha.)-3,7,12-trihydroxy-24-oxocholan-24-ylaminopropyl-, inner salt</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Aspiration hazard

<table>
<thead>
<tr>
<th>Information on likely routes of exposure</th>
<th>Paq5000 DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
<td></td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td></td>
</tr>
</tbody>
</table>

Potential acute health effects

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Paq5000 DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>No known significant effects or critical hazards.</td>
<td></td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
<td></td>
</tr>
<tr>
<td>No known significant effects or critical hazards.</td>
<td></td>
</tr>
</tbody>
</table>

Ingestion

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
</tr>
<tr>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

Skin contact

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
</tr>
</thead>
<tbody>
<tr>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer</td>
</tr>
<tr>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>
SECTION 11: Toxicological information

### Potential chronic health effects

<table>
<thead>
<tr>
<th>Group</th>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Developmental effects</td>
<td>No known significant effects or critical hazards.</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

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

**Inhalation**

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Ingestion**

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Skin contact**

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Eye contact**

<table>
<thead>
<tr>
<th>Paq5000 DNA Polymerase</th>
<th>10X Paq5000 DNA Polymerase Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

**Short term exposure**

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

**Long term exposure**

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

**Potential chronic health effects**

- **General**: No known significant effects or critical hazards.
- **Carcinogenicity**: No known significant effects or critical hazards.
- **Mutagenicity**: No known significant effects or critical hazards.
- **Teratogenicity**: No known significant effects or critical hazards.
- **Developmental effects**: No known significant effects or critical hazards.
Paq5000 DNA Polymerase, Part Number 600682

SECTION 11: Toxicological information

Fertility effects:
- Paq5000 DNA Polymerase: No known significant effects or critical hazards.
- 10X Paq5000 DNA Polymerase Buffer: No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>10X Paq5000 DNA Polymerase Buffer Trometamol</td>
<td>Acute EC50 &gt;980 mg/l Fresh water Acute NOEC 520 mg/l Fresh water</td>
<td>Daphnia Daphnia</td>
<td>48 hours 48 hours</td>
</tr>
</tbody>
</table>

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 Paq5000 DNA Polymerase Buffer Trometamol</td>
<td>-1.56</td>
<td>-</td>
<td>low</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.

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.

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SECTION 14: Transport information

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

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

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

Paq5000 DNA Polymerase: Not applicable.

10X Paq5000 DNA Polymerase Buffer: Not applicable.

Other EU regulations

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

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.

Inventory list

Australia: Not determined.

Canada: Not determined.

China: Not determined.

Europe: Not determined.

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SECTION 15: Regulatory information

15.2 Chemical safety assessment

Japan: Not determined.
China inventory (ENCS): Not determined.
Japan inventory (ISHL): Not determined.

Malaysia: Not determined.

New Zealand: Not determined.

Philippines: Not determined.

Republic of Korea: Not determined.

Taiwan: All components are listed or exempted.

Thailand: Not determined.

Turkey: Not determined.

United States: Not determined.

Viet Nam: Not determined.

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

10X Paq5000 DNA Polymerase Buffer

H315: Causes skin irritation.
H319: Causes serious eye irritation.
H335: May cause respiratory irritation.

Full text of classifications [CLP/GHS]

10X Paq5000 DNA Polymerase Buffer

Eye Irrit. 2, H319
Skin Irrit. 2, H315
STOT SE 3, H335

Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

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: 18/05/2017
Date of previous issue: No previous validation.
Version: 1

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