Conforms to HPR 2015

# SAFETY DATA SHEET

Agilent Technologies

Paq5000 Hotstart DNA Polymerase, Part Number 600864

## Section 1. Identification

**Product identifier** : Paq5000 Hotstart DNA Polymerase, Part Number 600864

**Part no. (chemical kit)** : 600864

**Part no.** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | 600864-51 |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | 600860-52 |

**Material uses** : Analytical reagent.

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | 1 ml (5000 U 5.0 U/µl) |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | 1 ml |

**Supplier/Manufacturer** : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

**Emergency telephone number (with hours of operation)** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazard identification

**Classification of the substance or mixture**

Not classified.

**GHS label elements**

**Signal word** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | No signal word. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | No signal word. |

**Hazard statements** :

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

**Precautionary statements**

**Prevention** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not applicable. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

**Response** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not applicable. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

**Storage** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not applicable. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

**Disposal** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not applicable. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

# Section 2. Hazard identification

| | | | |
|---|---|---|---|
| **Supplemental label elements** | : | Paq5000 Hotstart DNA Polymerase | None known. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | None known. |
| | | Paq5000 Hotstart DNA Polymerase | Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 9.8% |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.5% |
| **Other hazards which do not result in classification** | : | Paq5000 Hotstart DNA Polymerase | None known. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | None known. |

# Section 3. Composition/information on ingredients

| | | | |
|---|---|---|---|
| **Substance/mixture** | : | Paq5000 Hotstart DNA Polymerase | Mixture |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Mixture |

| Ingredient name | % (w/w) | CAS number |
|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | |
| 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 | 0.5 - 1.5 | 82473-24-3 |
| Dodecyldimethyl(3-sulphonatopropyl)ammonium | 0.5 - 1.5 | 14933-08-5 |
| Ammonium sulphate | 0.5 - 1.5 | 7783-20-2 |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | |
| Trometamol | 3 - 7 | 77-86-1 |
| 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 | 0.5 - 1.5 | 82473-24-3 |
| Ammonium sulphate | 0.1 - 1 | 7783-20-2 |

**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** | : | Paq5000 Hotstart DNA Polymerase | 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 Paq5000 Hotstart 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 Hotstart DNA Polymerase | 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. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical |

# Section 4. First-aid measures

| | | | |
|---|---|---|---|
| | | | 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** | : | Paq5000 Hotstart DNA Polymerase | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. |
| **Ingestion** | : | Paq5000 Hotstart DNA Polymerase | Wash out mouth with water. 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 Hotstart DNA Polymerase Buffer | Wash out mouth with water. 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. |

## Most important symptoms/effects, acute and delayed

### Potential acute health effects

| | | | |
|---|---|---|---|
| **Eye contact** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Inhalation** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Skin contact** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Ingestion** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |

### Over-exposure signs/symptoms

| | | | |
|---|---|---|---|
| **Eye contact** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |
| **Inhalation** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |
| **Skin contact** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |
| **Ingestion** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |

# Section 4. First-aid measures

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

| | | | |
|---|---|---|---|
| **Notes to physician** | : | Paq5000 Hotstart DNA Polymerase | 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. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. |
| **Specific treatments** | : | Paq5000 Hotstart DNA Polymerase | No specific treatment. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific treatment. |
| **Protection of first-aiders** | : | Paq5000 Hotstart DNA Polymerase | No action shall be taken involving any personal risk or without suitable training. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No action shall be taken involving any personal risk or without suitable training. |

**See toxicological information (Section 11)**

# Section 5. Fire-fighting measures

## Extinguishing media

| | | | |
|---|---|---|---|
| **Suitable extinguishing media** | : | Paq5000 Hotstart DNA Polymerase | Use an extinguishing agent suitable for the surrounding fire. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Use an extinguishing agent suitable for the surrounding fire. |
| **Unsuitable extinguishing media** | : | Paq5000 Hotstart DNA Polymerase | None known. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | None known. |
| **Specific hazards arising from the chemical** | : | Paq5000 Hotstart DNA Polymerase | In a fire or if heated, a pressure increase will occur and the container may burst. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | In a fire or if heated, a pressure increase will occur and the container may burst. |
| **Hazardous thermal decomposition products** | : | Paq5000 Hotstart DNA Polymerase | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>nitrogen oxides<br>sulfur oxides<br>metal oxide/oxides |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Decomposition products may include the following materials:<br>carbon dioxide<br>carbon monoxide<br>nitrogen oxides<br>sulfur oxides<br>metal oxide/oxides |

## Section 5. Fire-fighting measures

| | | | |
|---|---|---|---|
| **Special protective actions for fire-fighters** | : | Paq5000 Hotstart 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 Hotstart 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 Hotstart 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. |
| | | 10X Paq5000 Hotstart 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. |

## Section 6. Accidental release measures

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

| | | | |
|---|---|---|---|
| **For non-emergency personnel** | : | Paq5000 Hotstart 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 spilled material. Put on appropriate personal protective equipment. |
| | | 10X Paq5000 Hotstart 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 spilled material. Put on appropriate personal protective equipment. |
| **For emergency responders** | : | Paq5000 Hotstart DNA Polymerase | If specialized 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 Hotstart DNA Polymerase Buffer | If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". |
| **Environmental precautions** | : | Paq5000 Hotstart DNA Polymerase | Avoid dispersal of spilled 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 Hotstart DNA Polymerase Buffer | Avoid dispersal of spilled 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). |

**Methods and materials for containment and cleaning up**

# Section 6. Accidental release measures

| | | | |
|---|---|---|---|
| **Methods for cleaning up** | : | Paq5000 Hotstart 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 Hotstart 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. |

# Section 7. Handling and storage

**Precautions for safe handling**

| | | | |
|---|---|---|---|
| **Protective measures** | : | Paq5000 Hotstart DNA Polymerase | Put on appropriate personal protective equipment (see Section 8). |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Put on appropriate personal protective equipment (see Section 8). |
| **Advice on general occupational hygiene** | : | Paq5000 Hotstart 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 Hotstart DNA Polymerase Buffer | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |
| **Conditions for safe storage, including any incompatibilities** | : | Paq5000 Hotstart 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |
| | | 10X Paq5000 Hotstart 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

# Section 8. Exposure controls/personal protection

## Control parameters

## Occupational exposure limits

None.

**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.

**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 and safety characteristics

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

## Appearance

| | | |
|---|---|---|
| **Physical state** : | Paq5000 Hotstart DNA Polymerase | Liquid. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | Liquid. |
| **Color** : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

# Section 9. Physical and chemical properties and safety characteristics

**Odor** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Odor threshold** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**pH** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | 8.2 |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | 10 |

**Melting point/freezing point** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Boiling point, initial boiling point, and boiling range** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Flash point** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Evaporation rate** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Flammability** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not applicable. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

**Lower and upper explosion limit/flammability limit** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Not available. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

**Vapor pressure** :

| Ingredient name | Vapor Pressure at 20°C | | | Vapor pressure at 50°C | | |
|---|---|---|---|---|---|---|
| | mm Hg | kPa | Method | mm Hg | kPa | Method |
| **Paq5000 Hotstart DNA Polymerase** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| Ammonium sulphate | 0 | 0 | | | | |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | | | | |
| Water | 23.8 | 3.2 | | 92.258 | 12.3 | |
| Sulfuric acid, magnesium salt, hydrate (1:1:7) | <0.1 | <0.013 | | | | |

## Section 9. Physical and chemical properties and safety characteristics

| | | | |
|---|---|---|---|
| **Relative vapor density** | : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| **Relative density** | : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| **Solubility** | : | Paq5000 Hotstart DNA Polymerase | Easily soluble in the following materials: cold water and hot water. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Easily soluble in the following materials: cold water and hot water. |
| **Partition coefficient: n-octanol/water** | : | Paq5000 Hotstart DNA Polymerase | Not applicable. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |
| **Auto-ignition temperature** | : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| **Decomposition temperature** | : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| **Viscosity** | : | Paq5000 Hotstart DNA Polymerase | Not available. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| **Particle characteristics** | | | |
| **Median particle size** | : | Paq5000 Hotstart DNA Polymerase | Not applicable. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. |

## Section 10. Stability and reactivity

| | | | |
|---|---|---|---|
| **Reactivity** | : | Paq5000 Hotstart DNA Polymerase | No specific test data related to reactivity available for this product or its ingredients. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific test data related to reactivity available for this product or its ingredients. |
| **Chemical stability** | : | Paq5000 Hotstart DNA Polymerase | The product is stable. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | The product is stable. |
| **Possibility of hazardous reactions** | : | Paq5000 Hotstart DNA Polymerase | Under normal conditions of storage and use, hazardous reactions will not occur. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | Under normal conditions of storage and use, hazardous reactions will not occur. |
| **Conditions to avoid** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |

# Section 10. Stability and reactivity

**Incompatible materials** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | May react or be incompatible with oxidizing materials. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | May react or be incompatible with oxidizing materials. |

**Hazardous decomposition products** :

| | |
|---|---|
| Paq5000 Hotstart DNA Polymerase | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | Under normal conditions of storage and use, hazardous decomposition products should not be produced. |

# Section 11. Toxicological information

## Information on toxicological effects

### Acute toxicity

| Product/ingredient name | Result | Species | Dose | Exposure |
|---|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | | |
| Ammonium sulphate | LD50 Oral | Rat | 2840 mg/kg | - |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | | |
| Trometamol | LD50 Dermal | Rat | >5000 mg/kg | - |
| Ammonium sulphate | LD50 Oral | Rat | 2840 mg/kg | - |

### Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|---|---|---|---|---|---|
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | | | |
| Trometamol | Skin - Moderate irritant | Rabbit | - | 25 % | - |
| | Skin - Severe irritant | Rabbit | - | 500 mg | - |

### Sensitization

Not available.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

# Section 11. Toxicological information

| Name | Category | Route of exposure | Target organs |
|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | |
| 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 | Category 3 | - | Respiratory tract irritation |
| Dodecyldimethyl(3-sulphonatopropyl)ammonium | Category 3 | - | Respiratory tract irritation |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | |
| Trometamol | Category 3 | - | Respiratory tract irritation |
| 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 | Category 3 | - | Respiratory tract irritation |

## Specific target organ toxicity (repeated exposure)

Not available.

## Aspiration hazard

Not available.

**Information on the likely routes of exposure**

: Paq5000 Hotstart DNA Polymerase — Routes of entry anticipated: Oral, Dermal, Inhalation.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — Routes of entry anticipated: Oral, Dermal, Inhalation.

## Potential acute health effects

**Eye contact**

: Paq5000 Hotstart DNA Polymerase — No known significant effects or critical hazards.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No known significant effects or critical hazards.

**Inhalation**

: Paq5000 Hotstart DNA Polymerase — No known significant effects or critical hazards.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No known significant effects or critical hazards.

**Skin contact**

: Paq5000 Hotstart DNA Polymerase — No known significant effects or critical hazards.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No known significant effects or critical hazards.

**Ingestion**

: Paq5000 Hotstart DNA Polymerase — No known significant effects or critical hazards.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No known significant effects or critical hazards.

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

**Eye contact**

: Paq5000 Hotstart DNA Polymerase — No specific data.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No specific data.

**Inhalation**

: Paq5000 Hotstart DNA Polymerase — No specific data.

: 10X Paq5000 Hotstart DNA Polymerase Buffer — No specific data.

# Section 11. Toxicological information

| | | | |
|---|---|---|---|
| **Skin contact** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |
| **Ingestion** | : | Paq5000 Hotstart DNA Polymerase | No specific data. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |

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

### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

| | | | |
|---|---|---|---|
| **General** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Carcinogenicity** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Mutagenicity** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |
| **Reproductive toxicity** | : | Paq5000 Hotstart DNA Polymerase | No known significant effects or critical hazards. |
| | | 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. |

## Numerical measures of toxicity

### Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapors) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|---|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | | | |
| Paq5000 Hotstart DNA Polymerase | 29521.8 | 64533.3 | N/A | 645.3 | N/A |
| Dodecyldimethyl(3-sulphonatopropyl)ammonium | 500 | 1100 | N/A | 11 | N/A |
| Ammonium sulphate | 2840 | N/A | N/A | N/A | N/A |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | | | |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | 284000 | N/A | N/A | N/A | N/A |
| Ammonium sulphate | 2840 | N/A | N/A | N/A | N/A |

# Section 12. Ecological information

## Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | |
| Ammonium sulphate | Chronic NOEC 7.5 mg/l Marine water | Algae - Phaeodactylum tricornutum - Exponential growth phase | 96 hours |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | |
| Trometamol | Acute EC50 >980 mg/l Fresh water | Daphnia | 48 hours |
| | Acute NOEC 520 mg/l Fresh water | Daphnia | 48 hours |
| Ammonium sulphate | Chronic NOEC 7.5 mg/l Marine water | Algae - Phaeodactylum tricornutum - Exponential growth phase | 96 hours |

## Persistence and degradability

| Product/ingredient name | Test | Result | Dose | Inoculum |
|---|---|---|---|---|
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | | |
| Trometamol | OECD 301F Ready Biodegradability - Manometric Respirometry Test | 97.1 % - Readily - 28 days | 30 mg/l | - |

| Product/ingredient name | Aquatic half-life | Photolysis | Biodegradability |
|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | |
| Ammonium sulphate | - | - | Readily |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | |
| Trometamol | - | - | Readily |
| Ammonium sulphate | - | - | Readily |

## Bioaccumulative potential

| Product/ingredient name | $LogP_{ow}$ | BCF | Potential |
|---|---|---|---|
| **Paq5000 Hotstart DNA Polymerase** | | | |
| Ammonium sulphate | -5.1 | - | low |
| **10X Paq5000 Hotstart DNA Polymerase Buffer** | | | |
| Trometamol | -2.31 | - | low |
| Ammonium sulphate | -5.1 | - | low |

## Mobility in soil

**Soil/water partition coefficient ($K_{OC}$)** : Not available.

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

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or minimized 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

**TDG / IMDG / IATA** : Not regulated.

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

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

## Section 15. Regulatory information

**Canadian lists**

**Canadian NPRI** : The following components are listed: ammonia (total)

**CEPA Toxic substances** : None of the components are listed.

**International regulations**

**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

**Montreal Protocol**

Not listed.

**Stockholm Convention on Persistent Organic Pollutants**

Not listed.

**Rotterdam Convention on Prior Informed Consent (PIC)**

Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**

Not listed.

**Inventory list**

**Australia** : Not determined.

**Canada** : Not determined.

**China** : Not determined.

**Europe** : Not determined.

**Japan** : **Japan inventory (CSCL)**: Not determined.
**Japan inventory (ISHL)**: Not determined.

**New Zealand** : Not determined.

**Philippines** : Not determined.

**Republic of Korea** : Not determined.

## Section 15. Regulatory information

**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

**History**

**Date of issue/Date of revision** : 03/10/2022

**Date of previous issue** : 07/29/2019

**Version** : 6

**Key to abbreviations** : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
HPR = Hazardous Products Regulations
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
UN = United Nations

**Procedure used to derive the classification**

| Classification | Justification |
|---|---|
| Not classified. | |

**References** : Not available.

**Indicates information that has changed from previously issued version.**

**Notice to reader**

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