

SAFETY DATA SHEET



Paq5000 Hotstart DNA Polymerase, Part Number 600864

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

1.1 Product identifier

Product name : 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

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

Material uses : Analytical reagent.
Paq5000 Hotstart DNA Polymerase 1 ml (5000 U 5.0 U/ μ l)
10X Paq5000 Hotstart DNA Polymerase Buffer 1 ml

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 : Paq5000 Hotstart DNA Polymerase Mixture
10X Paq5000 Hotstart DNA Polymerase Buffer Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Not classified.

Ingredients of unknown toxicity : Paq5000 Hotstart DNA Polymerase Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 10 - 30%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%
10X Paq5000 Hotstart DNA Polymerase Buffer Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%
Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%

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SECTION 2: Hazards identification

| | | |
|---|---|--|
| Ingredients of unknown ecotoxicity | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Contains 9.8% of components with unknown hazards to the aquatic environment Contains 2.5% of components with unknown hazards to the aquatic environment |
|---|---|--|

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

| | | |
|--------------------------|---|--|
| Signal word | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | No signal word. No signal word. |
| Hazard statements | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | No known significant effects or critical hazards. No known significant effects or critical hazards. |

Precautionary statements

| | | |
|---|---|--|
| Prevention | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Response | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Storage | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Disposal | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Hazardous ingredients | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Supplemental label elements | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Safety data sheet available on request. 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 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |

Special packaging requirements

| | | |
|----------------------------------|---|------------------------------------|
| Tactile warning of danger | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
|----------------------------------|---|------------------------------------|

2.3 Other hazards

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SECTION 2: Hazards identification

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : Paq5000 Hotstart DNA Polymerase This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
 10X Paq5000 Hotstart DNA Polymerase Buffer This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

3.1 Substances : Paq5000 Hotstart DNA Polymerase Mixture
 10X Paq5000 Hotstart DNA Polymerase Buffer Mixture

| Product/ingredient name | Identifiers | % | Regulation (EC) No. 1272/2008 [CLP] | Type |
|---|----------------------------------|------|--|------|
| 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 | CAS: 82473-24-3 | ≤3 | Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 | [1] |
| Dodecyldimethyl (3-sulphonatopropyl)ammonium | EC: 239-002-3 CAS: 14933-08-5 | ≤3 | Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 | [1] |
| Ammonium sulphate | EC: 231-984-1 CAS: 7783-20-2 | ≤2.6 | Eye Irrit. 2, H319 | [1] |
| 10X Paq5000 Hotstart DNA Polymerase Buffer | | | | |
| Trometamol | EC: 201-064-4 CAS: 77-86-1 | ≤7.1 | Skin Irrit. 2, H315 Eye Irrit. 2, H319 | [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 | CAS: 82473-24-3 | ≤1.6 | Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 | [1] |
| Ammonium sulphate | EC: 231-984-1 CAS: 7783-20-2 | ≤1.1 | Eye Irrit. 2, H319 | [1] |
| | | | See Section 16 for the full text of the H statements declared above. | |

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy

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

SECTION 4: First aid measures

4.1 Description of 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 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. |
| 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. |

4.2 Most important symptoms and effects, both 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

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SECTION 4: First aid measures

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

4.3 Indication of any immediate medical attention and special treatment needed

| | | |
|----------------------------|---|--|
| Notes to physician | : Paq5000 Hotstart DNA Polymerase 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. 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 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific treatment. No specific treatment. |

SECTION 5: Firefighting measures

5.1 Extinguishing media

| | | |
|---------------------------------------|---|--|
| Suitable extinguishing media | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. |
| Unsuitable extinguishing media | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | None known. None known. |

5.2 Special hazards arising from the substance or mixture

| | | |
|--|---|--|
| Hazards from the substance or mixture | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. |
| Hazardous combustion products | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides |

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SECTION 5: Firefighting measures

5.3 Advice for firefighters

| | | |
|---|--|---|
| Special precautions 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. 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 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. 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 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 spilt 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 spilt material. Put on appropriate personal protective equipment. |
| For emergency responders | : Paq5000 Hotstart 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 Hotstart 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 Hotstart 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 Hotstart 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 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, |

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SECTION 6: Accidental release measures

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 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. |

7.2 Conditions for safe storage, including any incompatibilities

| | | |
|----------------|--|---|
| Storage | : 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 unlabelled 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use. |

7.3 Specific end use(s)

| | | |
|---|--|---|
| Recommendations | : Paq5000 Hotstart DNA Polymerase | Industrial applications, Professional applications. |
| | : 10X Paq5000 Hotstart DNA Polymerase Buffer | Industrial applications, Professional applications. |
| Industrial sector specific solutions | : Paq5000 Hotstart DNA Polymerase | Not available. |
| | : 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

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

| Product/ingredient name | Type | Exposure | Value | Population | Effects |
|---|------|----------------------|--------------------------|--------------------|----------|
| Paq5000 Hotstart DNA Polymerase Ammonium sulphate | DNEL | Long term Inhalation | 1.667 mg/m ³ | General population | Systemic |
| | DNEL | Long term Oral | 6.4 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 11.167 mg/m ³ | Workers | Systemic |
| | DNEL | Long term Dermal | 12.8 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 42.667 mg/kg bw/day | Workers | Systemic |
| 10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol | DNEL | Long term Oral | 8.3 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 29 mg/m ³ | General population | Systemic |
| | DNEL | Long term Dermal | 83.3 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 117.5 mg/m ³ | Workers | Systemic |
| | DNEL | Long term Dermal | 166.7 mg/kg bw/day | Workers | Systemic |
| Ammonium sulphate | DNEL | Long term Inhalation | 1.667 mg/m ³ | General population | Systemic |
| | DNEL | Long term Oral | 6.4 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Inhalation | 11.167 mg/m ³ | Workers | Systemic |
| | DNEL | Long term Dermal | 12.8 mg/kg bw/day | General population | Systemic |
| | DNEL | Long term Dermal | 42.667 mg/kg bw/day | Workers | Systemic |

PNECs

No PNECs available

8.2 Exposure controls

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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SECTION 8: Exposure controls/personal protection

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

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

9.1 Information on basic physical and chemical properties

Appearance

- Physical state** : Paq5000 Hotstart DNA Polymerase Liquid.
10X Paq5000 Hotstart DNA Polymerase Buffer Liquid.
- Colour** : Paq5000 Hotstart DNA Polymerase Not available.
10X Paq5000 Hotstart DNA Polymerase Buffer Not available.
- Odour** : Paq5000 Hotstart DNA Polymerase Not available.
10X Paq5000 Hotstart DNA Polymerase Buffer Not available.
- Odour threshold** : Paq5000 Hotstart DNA Polymerase Not available.
10X Paq5000 Hotstart DNA Polymerase Buffer Not available.
- Melting point/freezing point** : Paq5000 Hotstart DNA Polymerase Not available.
10X Paq5000 Hotstart DNA Polymerase Buffer Not available.

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SECTION 9: Physical and chemical properties

| | | |
|---|---|--|
| Initial boiling point and boiling range | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| Flammability (solid, gas) | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Upper/lower flammability or explosive limits | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| Flash point | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| Auto-ignition temperature | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| Decomposition temperature | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| pH | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | 8.2 10 |
| Viscosity | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. Not available. |
| Solubility(ies) | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. |
| Partition coefficient: n-octanol/water | : Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer | Not applicable. Not applicable. |
| Vapour pressure | : | |

| Ingredient name | Vapour Pressure at 20°C | | | Vapour 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 | | | | |

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SECTION 9: Physical and chemical properties

| | | |
|-----------------------------|--|----------------|
| Evaporation rate | : 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. |
| Vapour density | : Paq5000 Hotstart DNA Polymerase | Not available. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | Not available. |
| Oxidising properties | : 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. |

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

| | | |
|--|--|--|
| 10.1 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. |
| 10.2 Chemical stability | : Paq5000 Hotstart DNA Polymerase | The product is stable. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | The product is stable. |
| 10.3 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. |
| 10.4 Conditions to avoid | : Paq5000 Hotstart DNA Polymerase | No specific data. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | No specific data. |
| 10.5 Incompatible materials | : Paq5000 Hotstart DNA Polymerase | May react or be incompatible with oxidising materials. |
| | 10X Paq5000 Hotstart DNA Polymerase Buffer | May react or be incompatible with oxidising materials. |
| 10.6 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. |

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SECTION 11: Toxicological information

11.1 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 | - |

Acute toxicity estimates

| Product/ingredient name | Oral (mg/kg) | Dermal (mg/kg) | Inhalation (gases) (ppm) | Inhalation (vapours) (mg/l) | Inhalation (dusts and mists) (mg/l) |
|---|--------------|----------------|--------------------------|-----------------------------|-------------------------------------|
| Paq5000 Hotstart DNA Polymerase Paq5000 Hotstart DNA Polymerase | 33333.3 | 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 Ammonium sulphate | 2840 | N/A | N/A | N/A | N/A |

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 | - |

Sensitiser

Conclusion/Summary : 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)

| Product/ingredient 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 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 |

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SECTION 11: Toxicological information

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on 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

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.

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.

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.

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.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : 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.

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

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

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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SECTION 11: Toxicological information

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

SECTION 12: Ecological information

12.1 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 |
| Ammonium sulphate | Acute NOEC 520 mg/l Fresh water Chronic NOEC 7.5 mg/l Marine water | Daphnia Algae - Phaeodactylum tricornutum - Exponential growth phase | 48 hours 96 hours |

12.2 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 |

12.3 Bioaccumulative potential

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SECTION 12: Ecological information

| 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 |

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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.

SECTION 14: Transport information

| | ADR/RID | IMDG | IATA |
|--|----------------|----------------|----------------|
| 14.1 UN number | Not regulated. | Not regulated. | Not regulated. |
| 14.2 UN proper shipping name | - | - | - |
| 14.3 Transport hazard class(es) | - | - | - |
| 14.4 Packing group | - | - | - |

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SECTION 14: Transport information

| | | | |
|-------------------------------|-----|-----|-----|
| 14.5 Environmental hazards | No. | No. | No. |
|-------------------------------|-----|-----|-----|

Additional 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 IMO instruments : 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

| Ingredient name | EC number | CAS number | Restriction |
|--|-----------|------------|-------------|
| Paq5000 Hotstart DNA Polymerase ammonium sulphate | 231-984-1 | 7783-20-2 | 65 |
| 10X Paq5000 Hotstart DNA Polymerase Buffer ammonium sulphate | 231-984-1 | 7783-20-2 | 65 |

Label : Paq5000 Hotstart DNA Polymerase Not applicable.
10X Paq5000 Hotstart 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.

Persistent Organic Pollutants

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

Not listed.

Stockholm Convention on Persistent Organic Pollutants

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SECTION 15: Regulatory information

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. |
| Taiwan | : All components are listed or exempted. |
| Thailand | : Not determined. |
| Turkey | : Not determined. |
| United States | : Not determined. |
| Viet Nam | : Not determined. |

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] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number vPvB = Very Persistent and Very Bioaccumulative |
|-----------------------------------|---|

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

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

Full text of abbreviated H statements

| | |
|--|---|
| Paq5000 Hotstart DNA Polymerase H302 H312 H315 H319 H332 H335 | Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation. |
| 10X Paq5000 Hotstart DNA Polymerase Buffer H315 H319 | Causes skin irritation. Causes serious eye irritation. |

Paq5000 Hotstart DNA Polymerase, Part Number 600864

SECTION 16: Other information

| | |
|------|-----------------------------------|
| H335 | May cause respiratory irritation. |
|------|-----------------------------------|

Full text of classifications [CLP/GHS]

| | |
|--|--|
| Paq5000 Hotstart DNA Polymerase Acute Tox. 4 Eye Irrit. 2 Skin Irrit. 2 STOT SE 3 | ACUTE TOXICITY - Category 4 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3 |
| 10X Paq5000 Hotstart DNA Polymerase Buffer Eye Irrit. 2 Skin Irrit. 2 STOT SE 3 | SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3 |

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

Date of previous issue : No previous validation

Version : 1

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