

Section 2. Hazards identification

Percentage of the mixture consisting of ingredient (s) of unknown oral toxicity: 1 - 10%

2.2 GHS 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.
Supplemental label elements	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	None known. None known.
2.3 Other hazards		
Hazards not otherwise classified	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	None known. None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	Mixture Mixture
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Ingredient name	%	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	≤3	82473-24-3
Dodecyldimethyl(3-sulphonatopropyl)ammonium Ammonium sulphate	≤3 ≤2.6	14933-08-5 7783-20-2
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol	≤7.1	77-86-1

Section 3. Composition/information on ingredients

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	≤1.6	82473-24-3
Ammonium sulphate	≤1.1	7783-20-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

4.1 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 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. 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 Hotstart 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.

4.2 Most important symptoms/effects, acute and delayed

Section 4. First aid measures

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.

4.3 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

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

Specific hazards arising from the chemical	: 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 thermal decomposition 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

5.3 Advice for firefighters

Special protective actions for fire-fighters	: Paq5000 Hotstart DNA Polymerase 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. 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 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. 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

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Paq5000 Hotstart DNA Polymerase 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. 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 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". 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".

6.2 Environmental precautions	: Paq5000 Hotstart DNA Polymerase 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). 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).
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6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: Paq5000 Hotstart DNA Polymerase 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. 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.
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Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8).
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Section 7. Handling and storage

Advice on general occupational hygiene	: Paq5000 Hotstart DNA Polymerase 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. 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	: Paq5000 Hotstart DNA Polymerase 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. 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.
7.3 Specific end use(s)		
Recommendations	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Paq5000 Hotstart DNA Polymerase 10X Paq5000 Hotstart DNA Polymerase Buffer	Not applicable. Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
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 Dodecyldimethyl(3-sulphonatopropyl)ammonium Ammonium sulphate	None. None. None.
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol 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 Ammonium sulphate	None. None. None.

8.2 Exposure controls

- 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: chemical splash goggles.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

- 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

9.1 Information on basic physical and chemical properties

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.
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	: Paq5000 Hotstart DNA Polymerase	Not available.
	10X Paq5000 Hotstart DNA Polymerase Buffer	Not available.
Boiling point	: 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 (solid, gas)	: Paq5000 Hotstart DNA Polymerase	Not applicable.
	10X Paq5000 Hotstart DNA Polymerase Buffer	Not applicable.
Lower and upper explosive (flammable) limits	: Paq5000 Hotstart DNA Polymerase	Not available.
	10X Paq5000 Hotstart DNA Polymerase Buffer	Not available.
Vapor pressure	: Paq5000 Hotstart DNA Polymerase	Not available.
	10X Paq5000 Hotstart DNA Polymerase Buffer	Not available.
Vapor density	: Paq5000 Hotstart DNA Polymerase	Not available.
	10X Paq5000 Hotstart DNA Polymerase Buffer	Not available.

Section 9. Physical and chemical properties

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

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

Section 10. Stability and reactivity

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.

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	-
	LD50 Oral	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 Skin - Severe irritant	Rabbit Rabbit	- -	25 Percent 500 milligrams	- -

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

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 Dodecyldimethyl(3-sulphonatopropyl)ammonium	Category 3 Category 3	Not applicable. Not applicable.	Respiratory tract irritation Respiratory tract irritation
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol	Category 3	Not applicable.	Respiratory tract

Section 11. Toxicological information

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

Not applicable.

irritation
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
10X Paq5000 Hotstart DNA
Polymerase Buffer

Routes of entry anticipated: Oral, Dermal,
Inhalation.

Routes of entry anticipated: Oral, Dermal,
Inhalation.

Potential acute health effects

Eye contact

Paq5000 Hotstart DNA
Polymerase
10X Paq5000 Hotstart DNA
Polymerase Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Inhalation

Paq5000 Hotstart DNA
Polymerase
10X Paq5000 Hotstart DNA
Polymerase Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Skin contact

Paq5000 Hotstart DNA
Polymerase
10X Paq5000 Hotstart DNA
Polymerase Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Ingestion

Paq5000 Hotstart DNA
Polymerase
10X Paq5000 Hotstart DNA
Polymerase Buffer

No known significant effects or critical hazards.

No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

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.

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

Short term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

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

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Paq5000 Hotstart DNA Polymerase Oral Dermal Inhalation (vapors)	29521.8 mg/kg 73333.3 mg/kg 733.3 mg/l
10X Paq5000 Hotstart DNA Polymerase Buffer Oral	61270.3 mg/kg

Section 12. Ecological information

12.1 Toxicity

Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
Paq5000 Hotstart DNA Polymerase Ammonium sulphate	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Young	48 hours
	Acute LC50 14000 to 15000 µg/l Fresh water	Daphnia - Daphnia magna - Young	48 hours
	Acute LC50 68 µg/l Fresh water	Fish - Oncorhynchus gorbuscha - Alevin	96 hours
	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol Ammonium sulphate	Acute EC50 >980 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 520 mg/l Fresh water	Daphnia	48 hours
	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Young	48 hours
	Acute LC50 14000 to 15000 µg/l Fresh water	Daphnia - Daphnia magna - Young	48 hours
	Acute LC50 68 µg/l Fresh water	Fish - Oncorhynchus gorbuscha - Alevin	96 hours
	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Paq5000 Hotstart DNA Polymerase Dodecyldimethyl (3-sulphonatopropyl) ammonium	2.24	-	low
Ammonium sulphate	-5.1	-	low
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol	-1.56	-	low
	Ammonium sulphate	-5.1	low

12.4 Mobility in soil

Section 12. Ecological information

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

DOT / TDG / Mexico / 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 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

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

Section 15. Regulatory information

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : **Paq5000 Hotstart DNA Polymerase** Not applicable.
10X Paq5000 Hotstart DNA Polymerase Buffer Not applicable.

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
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	≤3	Yes.	No.	No.	Yes.	No.
Dodecyldimethyl(3-sulphonatopropyl) ammonium	≤3	No.	No.	No.	Yes.	No.
Ammonium sulphate	≤2.6	No.	No.	No.	Yes.	No.
10X Paq5000 Hotstart DNA Polymerase Buffer Trometamol	≤7.1	Yes.	No.	No.	Yes.	No.
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	≤1.6	Yes.	No.	No.	Yes.	No.
Ammonium sulphate	≤1.1	No.	No.	No.	Yes.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	Paq5000 Hotstart DNA Polymerase Ammonium sulphate	7783-20-2	≤2.6
	10X Paq5000 Hotstart DNA Polymerase Buffer Ammonium sulphate	7783-20-2	≤1.1
Supplier notification	Paq5000 Hotstart DNA Polymerase Ammonium sulphate	7783-20-2	≤2.6
	10X Paq5000 Hotstart DNA Polymerase Buffer Ammonium sulphate	7783-20-2	≤1.1

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

Section 15. Regulatory information

State regulations

- Massachusetts** : The following components are listed: AMMONIUM SULFATE
- New York** : None of the components are listed.
- New Jersey** : None of the components are listed.
- Pennsylvania** : The following components are listed: SULFURIC ACID DIAMMONIUM SALT
- California Prop. 65**
 Not available.

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.
- Japan** : **Japan 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

History

- Date of issue** : 05/18/2017
- Date of previous issue** : 02/13/2015.
- Version** : 4

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

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