Conforms to HPR 2015

SAFETY DATA SHEET

Agilent Technologies

Paq5000 Hotstart DNA Polymerase, Part Number 600862

Section 1. Identification

Product identifier : Paq5000 Hotstart DNA Polymerase, Part Number 600862

Part no. (chemical kit) : 600862

Part no. :

Paq5000 Hotstart DNA Polymerase	600862-51
10X Paq5000 Hotstart DNA Polymerase Buffer	600860-52

Material uses : Analytical reagent.

Paq5000 Hotstart DNA Polymerase	0.2 ml (1000 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: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
		10X Paq5000 Hotstart DNA Polymerase Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides 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 : 08/02/2019

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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