

SAFETY DATA SHEET

Recombinant Exo- Pfu DNA Polymerase, Part Number 600163

Section 1. Identification

Product identifier : Recombinant Exo- Pfu DNA Polymerase, Part Number 600163
Part No. (Chemical Kit) : 600163
Part No. : 10X Cloned Pfu Reaction Buffer 600153-82
 Exo (-) Pfu DNA Polymerase 600163-81

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

Analytical reagent.

10X Cloned Pfu Reaction Buffer 1 ml
 Exo (-) Pfu DNA Polymerase 0.1 ml (250 U 2.5 U/μl)

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
 679 Springvale Road
 Mulgrave
 Victoria 3170, Australia
 1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

10X Cloned Pfu Reaction Buffer
 H319

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A

10X Cloned Pfu Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%
Exo (-) Pfu DNA Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%
10X Cloned Pfu Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 3.2%

GHS label elements

Hazard pictograms

10X Cloned Pfu Reaction Buffer



Signal word

10X Cloned Pfu Reaction Buffer WARNING

Exo (-) Pfu DNA Polymerase No signal word.

Hazard statements

10X Cloned Pfu Reaction Buffer H319 - Causes serious eye irritation.

Exo (-) Pfu DNA Polymerase No known significant effects or critical hazards.

Precautionary statements

Section 2. Hazard(s) identification

Prevention	:	10X Cloned Pfu Reaction Buffer	P280 - Wear eye or face protection.
		Exo (-) Pfu DNA Polymerase	P264 - Wash hands thoroughly after handling.
			Not applicable.
Response	:	10X Cloned Pfu Reaction Buffer	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
			P337 + P313 - If eye irritation persists: Get medical attention.
		Exo (-) Pfu DNA Polymerase	Not applicable.
Storage	:	10X Cloned Pfu Reaction Buffer	Not applicable.
		Exo (-) Pfu DNA Polymerase	Not applicable.
Disposal	:	10X Cloned Pfu Reaction Buffer	Not applicable.
		Exo (-) Pfu DNA Polymerase	Not applicable.
Supplemental label elements	:	10X Cloned Pfu Reaction Buffer	Not applicable.
		Exo (-) Pfu DNA Polymerase	Not applicable.
Other hazards which do not result in classification	:	10X Cloned Pfu Reaction Buffer	None known.
		Exo (-) Pfu DNA Polymerase	None known.

Section 3. Composition and ingredient information

Substance/mixture	:	10X Cloned Pfu Reaction Buffer	Mixture
		Exo (-) Pfu DNA Polymerase	Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	≤2.3	9002-93-1
Exo (-) Pfu DNA Polymerase Glycerol	≥30 - ≤60	56-81-5

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	:	10X Cloned Pfu Reaction Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
		Exo (-) Pfu 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.

Section 4. First aid measures

Inhalation	: 10X Cloned Pfu Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
	Exo (-) Pfu DNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: 10X Cloned Pfu Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Exo (-) Pfu DNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: 10X Cloned Pfu Reaction Buffer	Wash out mouth with water. Remove dentures if any. 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. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Exo (-) Pfu 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: 10X Cloned Pfu Reaction Buffer	Causes serious eye irritation.
	Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards.
Inhalation	: 10X Cloned Pfu Reaction Buffer	No known significant effects or critical hazards.
	Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards.
Skin contact	: 10X Cloned Pfu Reaction Buffer	No known significant effects or critical hazards.
	Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards.

Section 4. First aid measures

Ingestion	: 10X Cloned Pfu Reaction Buffer	No known significant effects or critical hazards.
	: Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: 10X Cloned Pfu Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness
	: Exo (-) Pfu DNA Polymerase	No specific data.
Inhalation	: 10X Cloned Pfu Reaction Buffer	No specific data.
	: Exo (-) Pfu DNA Polymerase	No specific data.
Skin contact	: 10X Cloned Pfu Reaction Buffer	No specific data.
	: Exo (-) Pfu DNA Polymerase	No specific data.
Ingestion	: 10X Cloned Pfu Reaction Buffer	No specific data.
	: Exo (-) Pfu DNA Polymerase	No specific data.

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

Notes to physician	: 10X Cloned Pfu Reaction 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.
	: Exo (-) Pfu DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: 10X Cloned Pfu Reaction Buffer	No specific treatment.
	: Exo (-) Pfu DNA Polymerase	No specific treatment.
Protection of first-aiders	: 10X Cloned Pfu Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	: Exo (-) Pfu DNA Polymerase	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media	: 10X Cloned Pfu Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
	: Exo (-) Pfu DNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: 10X Cloned Pfu Reaction Buffer	None known.
	: Exo (-) Pfu DNA Polymerase	None known.
Specific hazards arising from the chemical	: 10X Cloned Pfu Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	: Exo (-) Pfu DNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.

Section 5. Firefighting measures

Hazardous thermal decomposition products	: 10X Cloned Pfu Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds
	Exo (-) Pfu DNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Special protective actions for fire-fighters	: 10X Cloned Pfu Reaction 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.
	Exo (-) Pfu 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.
Special protective equipment for fire-fighters	: 10X Cloned Pfu Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Exo (-) Pfu 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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: 10X Cloned Pfu Reaction 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	Exo (-) Pfu 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.
For emergency responders	: 10X Cloned Pfu Reaction 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".
	Exo (-) Pfu 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".

Section 6. Accidental release measures

Environmental precautions	: 10X Cloned Pfu Reaction 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).
	Exo (-) Pfu 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).

Methods and material for containment and cleaning up

Methods for cleaning up	: 10X Cloned Pfu Reaction 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.
	Exo (-) Pfu 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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: 10X Cloned Pfu Reaction Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Exo (-) Pfu DNA Polymerase	Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

: 10X Cloned Pfu Reaction 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.
Exo (-) Pfu 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.

Conditions for safe storage, including any incompatibilities

: 10X Cloned Pfu Reaction 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
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Section 7. Handling and storage

Exo (-) Pfu DNA Polymerase

environmental contamination. See Section 10 for incompatible materials before handling or use.

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.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Exo (-) Pfu DNA Polymerase Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.

- 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. 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.

Section 8. Exposure controls and personal protection

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

Appearance

Physical state	:	10X Cloned Pfu Reaction	Liquid.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Liquid.
Colour	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Odour	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Odour threshold	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
pH	:	10X Cloned Pfu Reaction	8.8
		Buffer	
		Exo (-) Pfu DNA Polymerase	8.2
Melting point	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Boiling point	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Flash point	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Evaporation rate	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Flammability (solid, gas)	:	10X Cloned Pfu Reaction	Not applicable.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not applicable.
Lower and upper explosive (flammable) limits	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Vapour pressure	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Vapour density	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Relative density	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.
Solubility	:	10X Cloned Pfu Reaction	Easily soluble in the following materials: cold water and hot water.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	10X Cloned Pfu Reaction	Not available.
		Buffer	
		Exo (-) Pfu DNA Polymerase	Not available.

Section 9. Physical and chemical properties

Auto-ignition temperature	: 10X Cloned Pfu Reaction	Not available.
	Buffer	
	Exo (-) Pfu DNA Polymerase	Not available.
Decomposition temperature	: 10X Cloned Pfu Reaction	Not available.
	Buffer	
	Exo (-) Pfu DNA Polymerase	Not available.
Viscosity	: 10X Cloned Pfu Reaction	Not available.
	Buffer	
	Exo (-) Pfu DNA Polymerase	Not available.

Section 10. Stability and reactivity

Reactivity	: 10X Cloned Pfu Reaction	No specific test data related to reactivity available for this product or its ingredients.
	Buffer	
	Exo (-) Pfu DNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: 10X Cloned Pfu Reaction	The product is stable.
	Buffer	
	Exo (-) Pfu DNA Polymerase	The product is stable.
Possibility of hazardous reactions	: 10X Cloned Pfu Reaction	Under normal conditions of storage and use, hazardous reactions will not occur.
	Buffer	
	Exo (-) Pfu DNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: 10X Cloned Pfu Reaction	No specific data.
	Buffer	
	Exo (-) Pfu DNA Polymerase	No specific data.
Incompatible materials	: 10X Cloned Pfu Reaction	May react or be incompatible with oxidising materials.
	Buffer	
	Exo (-) Pfu DNA Polymerase	May react or be incompatible with oxidising materials.
Hazardous decomposition products	: 10X Cloned Pfu Reaction	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Buffer	
	Exo (-) Pfu DNA Polymerase	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
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
Exo (-) Pfu DNA Polymerase Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	Eyes - Moderate irritant	Rabbit	-	24 hours 10 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
Exo (-) Pfu DNA Polymerase Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

Sensitisation

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : **10X Cloned Pfu Reaction Buffer** Routes of entry anticipated: Oral, Dermal, Inhalation.
Exo (-) Pfu DNA Polymerase Routes of entry not anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : **10X Cloned Pfu Reaction Buffer** Causes serious eye irritation.
Exo (-) Pfu DNA Polymerase No known significant effects or critical hazards.

Inhalation : **10X Cloned Pfu Reaction Buffer** No known significant effects or critical hazards.
Exo (-) Pfu DNA Polymerase No known significant effects or critical hazards.

Skin contact : **10X Cloned Pfu Reaction Buffer** No known significant effects or critical hazards.
Exo (-) Pfu DNA Polymerase No known significant effects or critical hazards.

Ingestion : **10X Cloned Pfu Reaction Buffer** No known significant effects or critical hazards.
Exo (-) Pfu DNA Polymerase No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Section 11. Toxicological information

Eye contact	: 10X Cloned Pfu Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No specific data. No specific data.
Skin contact	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No specific data. No specific data.
Ingestion	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No specific data. 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

Not available.

General	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.
Carcinogenicity	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.
Teratogenicity	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: 10X Cloned Pfu Reaction Buffer Exo (-) Pfu DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
10X Cloned Pfu Reaction Buffer Oral	180000 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Exo (-) Pfu DNA Polymerase Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
10X Cloned Pfu Reaction Buffer Polyoxyethylene octyl phenyl ether	4.86	-	high
Exo (-) Pfu DNA Polymerase Glycerol	-1.76	-	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 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. 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

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

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

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	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: <input checked="" type="checkbox"/> All components are listed or exempted.
Japan	: <input checked="" type="checkbox"/> Japan inventory (ENCS): Not determined. Japan inventory (ISHL): Not determined.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: Not determined.
Taiwan	: <input checked="" type="checkbox"/> All components are listed or exempted.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: <input checked="" type="checkbox"/> Not determined.
United States	: All components are listed or exempted.
Viet Nam	: <input checked="" type="checkbox"/> Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 23/05/2017
Date of previous issue : 08/12/2014.
Version : 4

Key to abbreviations

: ADG = Australian Dangerous Goods
 ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 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)
 NOHSC = National Occupational Health and Safety Commission
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> 10X Cloned Pfu Reaction Buffer Eye Irrit. 2A, H319	Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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.