

SAFETY DATA SHEET



PfuUltra Hotstart DNA Polymerase AD, Part Number 600396

Section 1. Identification

Product identifier : PfuUltra Hotstart DNA Polymerase AD, Part Number 600396
Part No. (Chemical Kit) : 600396
Part No. : PfuUltra Hotstart DNA Polymerase AD 600396-51
 10X PfuUltra Hotstart AD Reaction Buffer 600396-52

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

Analytical reagent.

PfuUltra Hotstart DNA Polymerase AD 0.4 ml (1000 U 2.5 U/μl)
 10X PfuUltra Hotstart AD Reaction Buffer 4 x 1 ml

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

Not classified.

PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60% 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%
10X PfuUltra Hotstart AD Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.6%

GHS label elements

Signal word : PfuUltra Hotstart DNA Polymerase AD No signal word.
 10X PfuUltra Hotstart AD Reaction Buffer No signal word.

Hazard statements : PfuUltra Hotstart DNA Polymerase AD No known significant effects or critical hazards.
 10X PfuUltra Hotstart AD Reaction Buffer No known significant effects or critical hazards.

Precautionary statements

Prevention : PfuUltra Hotstart DNA Polymerase AD Not applicable.
 10X PfuUltra Hotstart AD Reaction Buffer Not applicable.

Response : PfuUltra Hotstart DNA Polymerase AD Not applicable.
 10X PfuUltra Hotstart AD Reaction Buffer Not applicable.

Section 2. Hazard(s) identification

Storage	: PfuUltra Hotstart DNA Polymerase AD	Not applicable.
	10X PfuUltra Hotstart AD Reaction Buffer	Not applicable.
Disposal	: PfuUltra Hotstart DNA Polymerase AD	Not applicable.
	10X PfuUltra Hotstart AD Reaction Buffer	Not applicable.
Supplemental label elements	: PfuUltra Hotstart DNA Polymerase AD	Not applicable.
	10X PfuUltra Hotstart AD Reaction Buffer	Not applicable.
Other hazards which do not result in classification	: PfuUltra Hotstart DNA Polymerase AD	None known.
	10X PfuUltra Hotstart AD Reaction Buffer	None known.

Section 3. Composition and ingredient information

Substance/mixture	: PfuUltra Hotstart DNA Polymerase AD	Mixture
	10X PfuUltra Hotstart AD Reaction Buffer	Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
PfuUltra Hotstart DNA Polymerase AD		
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	: PfuUltra Hotstart DNA Polymerase AD	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 PfuUltra Hotstart AD Reaction 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	: PfuUltra Hotstart DNA Polymerase AD	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10X PfuUltra Hotstart AD Reaction 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.

Section 4. First aid measures

Skin contact	: PfuUltra Hotstart DNA Polymerase AD	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10X PfuUltra Hotstart AD Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: PfuUltra Hotstart DNA Polymerase AD	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 PfuUltra Hotstart AD Reaction 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Inhalation	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Skin contact	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Ingestion	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: PfuUltra Hotstart DNA Polymerase AD	No specific data.
	10X PfuUltra Hotstart AD Reaction Buffer	No specific data.
Inhalation	: PfuUltra Hotstart DNA Polymerase AD	No specific data.
	10X PfuUltra Hotstart AD Reaction Buffer	No specific data.
Skin contact	: PfuUltra Hotstart DNA Polymerase AD	No specific data.
	10X PfuUltra Hotstart AD Reaction Buffer	No specific data.
Ingestion	: PfuUltra Hotstart DNA Polymerase AD	No specific data.
	10X PfuUltra Hotstart AD Reaction Buffer	No specific data.

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

Section 4. First aid measures

Notes to physician	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	No specific treatment. No specific treatment.
Protection of first-aiders	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. 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	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	None known. None known.
Specific hazards arising from the chemical	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction 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	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds
Special protective actions for fire-fighters	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD 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. 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.

Section 5. Firefighting measures

Special protective equipment for fire-fighters	: PfuUltra Hotstart DNA Polymerase AD	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10X PfuUltra Hotstart AD 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.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: PfuUltra Hotstart DNA Polymerase AD	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	10X PfuUltra Hotstart AD 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. Put on appropriate personal protective equipment.
For emergency responders	: PfuUltra Hotstart DNA Polymerase AD	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	10X PfuUltra Hotstart AD 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".
Environmental precautions	: PfuUltra Hotstart DNA Polymerase AD	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	10X PfuUltra Hotstart AD 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).

Methods and material for containment and cleaning up

Methods for cleaning up	: PfuUltra Hotstart DNA Polymerase AD	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 PfuUltra Hotstart AD 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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD 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. 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	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD 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 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
PfuUltra Hotstart DNA Polymerase AD 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.

Section 8. Exposure controls and personal protection

Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state	:	PfuUltra Hotstart DNA Polymerase AD	Liquid.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Liquid.
Colour	:	PfuUltra Hotstart DNA Polymerase AD	Not available.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Odour	:	PfuUltra Hotstart DNA Polymerase AD	Not available.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Odour threshold	:	PfuUltra Hotstart DNA Polymerase AD	Not available.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
pH	:	PfuUltra Hotstart DNA Polymerase AD	8.2
	:	10X PfuUltra Hotstart AD Reaction Buffer	8.8
Melting point	:	PfuUltra Hotstart DNA Polymerase AD	Not available.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Boiling point	:	PfuUltra Hotstart DNA Polymerase AD	Not available.
	:	10X PfuUltra Hotstart AD Reaction Buffer	Not available.

Section 9. Physical and chemical properties

Flash point	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Evaporation rate	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Flammability (solid, gas)	: PfuUltra Hotstart DNA Polymerase AD	Not applicable.
	10X PfuUltra Hotstart AD Reaction Buffer	Not applicable.
Lower and upper explosive (flammable) limits	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Vapour pressure	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Vapour density	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Relative density	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Solubility	: PfuUltra Hotstart DNA Polymerase AD	Soluble in the following materials: cold water and hot water.
	10X PfuUltra Hotstart AD Reaction Buffer	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Auto-ignition temperature	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Decomposition temperature	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.
Viscosity	: PfuUltra Hotstart DNA Polymerase AD	Not available.
	10X PfuUltra Hotstart AD Reaction Buffer	Not available.

Section 10. Stability and reactivity

Reactivity	: PfuUltra Hotstart DNA Polymerase AD	No specific test data related to reactivity available for this product or its ingredients.
	10X PfuUltra Hotstart AD Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: PfuUltra Hotstart DNA Polymerase AD	The product is stable.
	10X PfuUltra Hotstart AD Reaction Buffer	The product is stable.

Section 10. Stability and reactivity

Possibility of hazardous reactions	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	No specific data. No specific data.
Incompatible materials	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
Hazardous decomposition products	: PfuUltra Hotstart DNA Polymerase AD 10X PfuUltra Hotstart AD Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced. 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
PfuUltra Hotstart DNA Polymerase AD Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
PfuUltra Hotstart DNA Polymerase AD 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)

Section 11. Toxicological information

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure : PfuUltra Hotstart DNA Polymerase AD Routes of entry anticipated: Oral, Dermal, Inhalation.
 10X PfuUltra Hotstart AD Routes of entry anticipated: Oral, Dermal, Inhalation.
 Reaction Buffer

Potential acute health effects

Eye contact : PfuUltra Hotstart DNA No known significant effects or critical hazards.
 Polymerase AD
 10X PfuUltra Hotstart AD No known significant effects or critical hazards.
 Reaction Buffer

Inhalation : PfuUltra Hotstart DNA No known significant effects or critical hazards.
 Polymerase AD No known significant effects or critical hazards.
 10X PfuUltra Hotstart AD No known significant effects or critical hazards.
 Reaction Buffer

Skin contact : PfuUltra Hotstart DNA No known significant effects or critical hazards.
 Polymerase AD No known significant effects or critical hazards.
 10X PfuUltra Hotstart AD No known significant effects or critical hazards.
 Reaction Buffer

Ingestion : PfuUltra Hotstart DNA No known significant effects or critical hazards.
 Polymerase AD No known significant effects or critical hazards.
 10X PfuUltra Hotstart AD No known significant effects or critical hazards.
 Reaction Buffer

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : PfuUltra Hotstart DNA No specific data.
 Polymerase AD
 10X PfuUltra Hotstart AD No specific data.
 Reaction Buffer

Inhalation : PfuUltra Hotstart DNA No specific data.
 Polymerase AD No specific data.
 10X PfuUltra Hotstart AD No specific data.
 Reaction Buffer

Skin contact : PfuUltra Hotstart DNA No specific data.
 Polymerase AD No specific data.
 10X PfuUltra Hotstart AD No specific data.
 Reaction Buffer

Ingestion : PfuUltra Hotstart DNA No specific data.
 Polymerase AD No specific data.
 10X PfuUltra Hotstart AD No specific data.
 Reaction Buffer

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.

Section 11. Toxicological information

General	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Carcinogenicity	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Mutagenicity	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Teratogenicity	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Developmental effects	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.
Fertility effects	: PfuUltra Hotstart DNA Polymerase AD	No known significant effects or critical hazards.
	10X PfuUltra Hotstart AD Reaction Buffer	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
PfuUltra Hotstart DNA Polymerase AD Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
PfuUltra Hotstart DNA Polymerase AD 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. 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	: 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.

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. Any other relevant information

History

Date of issue/Date of revision : 25/05/2017

Date of previous issue : 28/05/2015.

Version : 5

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
Not classified.	

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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