

SAFETY DATA SHEET



Cloned Pfu DNA Polymerase AD, Part Number 600353

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

1.1 Product identifier

Product name : Cloned Pfu DNA Polymerase AD, Part Number 600353
Part No. (Kit) : 600353
Part No. : Cloned Pfu DNA Polymerase AD 600353-51
10X Cloned Pfu Reaction Buffer AD 600157-82

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

Identified uses		
Analytical reagent. Cloned Pfu DNA Polymerase AD	0.04 ml (100 U	2.5 U/μl)
10X Cloned Pfu Reaction Buffer AD	1 ml	

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation) : CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Cloned Pfu DNA Polymerase AD Mixture
10X Cloned Pfu Reaction Buffer AD Mixture

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

Not classified.

Ingredients of unknown toxicity : 10X Cloned Pfu Reaction Buffer AD Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 3.2%
Ingredients of unknown ecotoxicity : 10X Cloned Pfu Reaction Buffer AD Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.2%

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Date of issue/Date of revision : 27/02/2017

SECTION 2: Hazards identification

Signal word	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	No signal word. No signal word.
Hazard statements	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	No known significant effects or critical hazards. No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
Response	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
Storage	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
Disposal	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
Hazardous ingredients	: 10X Cloned Pfu Reaction Buffer AD	Not applicable.
Supplemental label elements	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Safety data sheet available on request.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
<u>Special packaging requirements</u>		
Tactile warning of danger	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
2.3 Other hazards		
Other hazards which do not result in classification	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	None known. None known.

SECTION 3: Composition/information on ingredients

3.1 Substances	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Mixture Mixture
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SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Cloned Pfu DNA Polymerase AD Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
10X Cloned Pfu Reaction Buffer AD 2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	EC: 214-684-5 CAS: 1185-53-1	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	[1]
Dodecyldimethyl (3-sulphonatopropyl)ammonium	EC: 239-002-3 CAS: 14933-08-5	≤3	Acute Tox. 4, H302 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 See Section 16 for the full text of the H statements declared above.	[1]

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.

Type

[1] Substance classified with a health or environmental hazard

[2] Substance with a workplace exposure limit

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	: Cloned Pfu 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 Cloned Pfu Reaction Buffer 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.
Inhalation	: Cloned Pfu 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 Cloned Pfu Reaction Buffer AD	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	: Cloned Pfu DNA Polymerase AD	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	: 10X Cloned Pfu Reaction Buffer AD	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

SECTION 4: First aid measures

Ingestion	: Cloned Pfu 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 Cloned Pfu Reaction Buffer 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.
Protection of first-aiders	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

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

Over-exposure signs/symptoms

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

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	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.
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SECTION 4: First aid measures

Specific treatments	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	No specific treatment. No specific treatment.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	None known. None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	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

5.3 Advice for firefighters

Special precautions for fire-fighters	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Cloned Pfu 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 spilled material. Put on appropriate personal protective equipment.
	: 10X Cloned Pfu Reaction Buffer 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 spilled material. Put on appropriate personal protective equipment.
For emergency responders	: Cloned Pfu 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 Cloned Pfu Reaction Buffer 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".

6.2 Environmental precautions

: Cloned Pfu DNA Polymerase AD	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 Cloned Pfu Reaction Buffer AD	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).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	: Cloned Pfu 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 Cloned Pfu Reaction Buffer 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.

6.4 Reference to other sections

: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

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

SECTION 7: Handling and storage

drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage	: Cloned Pfu DNA Polymerase AD	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.
	10X Cloned Pfu Reaction Buffer AD	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.

7.3 Specific end use(s)

Recommendations	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Cloned Pfu DNA Polymerase AD Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist

Recommended monitoring procedures	: If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
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DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

SECTION 8: Exposure controls/personal protection**8.2 Exposure controls**

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

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties**9.1 Information on basic physical and chemical properties****Appearance**

Physical state	: Cloned Pfu DNA Polymerase AD	Liquid.
	: 10X Cloned Pfu Reaction Buffer AD	Liquid.
Colour	: Cloned Pfu DNA Polymerase AD	Not available.
	: 10X Cloned Pfu Reaction Buffer AD	Not available.
Odour	: Cloned Pfu DNA Polymerase AD	Not available.
	: 10X Cloned Pfu Reaction Buffer AD	Not available.
Odour threshold	: Cloned Pfu DNA Polymerase AD	Not available.
	: 10X Cloned Pfu Reaction Buffer AD	Not available.
pH	: Cloned Pfu DNA Polymerase AD	8.2
	: 10X Cloned Pfu Reaction Buffer AD	8.8

SECTION 9: Physical and chemical properties

Melting point/freezing point	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Initial boiling point and boiling range	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Flash point	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Evaporation rate	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Flammability (solid, gas)	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not applicable. Not applicable.
Upper/lower flammability or explosive limits	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Vapour pressure	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Vapour density	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Relative density	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Solubility(ies)	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Auto-ignition temperature	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Decomposition temperature	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Viscosity	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.
Explosive properties	: Cloned Pfu DNA Polymerase AD 10X Cloned Pfu Reaction Buffer AD	Not available. Not available.

SECTION 9: Physical and chemical properties

Oxidising properties	: Cloned Pfu DNA Polymerase AD	Not available.
	: 10X Cloned Pfu Reaction Buffer AD	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Cloned Pfu DNA Polymerase AD	No specific test data related to reactivity available for this product or its ingredients.
	: 10X Cloned Pfu Reaction Buffer AD	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Cloned Pfu DNA Polymerase AD	The product is stable.
	: 10X Cloned Pfu Reaction Buffer AD	The product is stable.
10.3 Possibility of hazardous reactions	: Cloned Pfu DNA Polymerase AD	Under normal conditions of storage and use, hazardous reactions will not occur.
	: 10X Cloned Pfu Reaction Buffer AD	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Cloned Pfu DNA Polymerase AD	No specific data.
	: 10X Cloned Pfu Reaction Buffer AD	No specific data.
10.5 Incompatible materials	: Cloned Pfu DNA Polymerase AD	May react or be incompatible with oxidising materials.
	: 10X Cloned Pfu Reaction Buffer AD	May react or be incompatible with oxidising materials.
10.6 Hazardous decomposition products	: Cloned Pfu DNA Polymerase AD	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	: 10X Cloned Pfu Reaction Buffer AD	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Not available.

Acute toxicity estimates

Route	ATE value
10X Cloned Pfu Reaction Buffer AD	
Oral	25000 mg/kg
Dermal	55000 mg/kg
Inhalation (vapours)	550 mg/l

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

SECTION 11: Toxicological information

Product/ingredient name	Category	Route of exposure	Target organs
10X Cloned Pfu Reaction Buffer AD 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation
Dodecyldimethyl(3-sulphonatopropyl)ammonium	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

: Cloned Pfu DNA Polymerase AD
10X Cloned Pfu Reaction Buffer AD

Routes of entry anticipated: Oral, Dermal, Inhalation.

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

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

Symptoms related to the physical, chemical and toxicological characteristics

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

SECTION 11: Toxicological information

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
10X Cloned Pfu Reaction Buffer AD Dodecyldimethyl (3-sulphonatopropyl) ammonium	2.24	-	low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	Cloned Pfu DNA Polymerase AD	Not applicable.
	10X Cloned Pfu Reaction Buffer AD	Not applicable.

Other EU regulations

Europe inventory : Not determined.

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

SECTION 15: Regulatory information

[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.

[International lists](#)

[National inventory](#)

Australia	: Not determined.
Canada	: Not determined.
China	: Not determined.
Japan	: Japan inventory (ENCS) : Not determined. Japan inventory (ISHL) : Not determined.
Malaysia	: Not determined.
New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Turkey	: Not determined.
United States	: Not determined.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

✔ Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
 CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 DNEL = Derived No Effect Level
 EUH statement = CLP-specific Hazard statement
 PNEC = Predicted No Effect Concentration
 RRN = REACH Registration Number

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

Classification	Justification
Not classified.	

[Full text of abbreviated H statements](#)

10X Cloned Pfu Reaction Buffer AD H302 H312 H315 H319 H332 H335	Harmful if swallowed. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. Harmful if inhaled. May cause respiratory irritation.
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[Full text of classifications \[CLP/GHS\]](#)

SECTION 16: Other information

10X Cloned Pfu Reaction Buffer AD

Acute Tox. 4, H302
 Acute Tox. 4, H312
 Acute Tox. 4, H332
 Eye Irrit. 2, H319
 Skin Irrit. 2, H315
 STOT SE 3, H335

ACUTE TOXICITY (oral) - Category 4
 ACUTE TOXICITY (dermal) - Category 4
 ACUTE TOXICITY (inhalation) - Category 4
 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
 SKIN CORROSION/IRRITATION - Category 2
 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE
 (Respiratory tract irritation) - Category 3

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Notice to reader

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