SAFETY DATA SHEET

Agilent Technologies

PfuTurbo Cx Hotstart DNA Polymerase, Part Number 600410

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

1.1 Product identifier

Product name : PfuTurbo Cx Hotstart DNA Polymerase, Part Number 600410

CAS number :

DMSO	67-68-5
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

Part no. (chemical kit) : 600410

Part no. :

DMSO	600260-53
PfuTurbo Cx Hotstart DNA Polymerase	600410-51
10X PfuTurbo Cx Reaction Buffer	600410-52

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

Identified uses : Analytical reagent.

DMSO	1 ml
PfuTurbo Cx Hotstart DNA Polymerase	40 µl (100 U 2.5 U/µl)
10X PfuTurbo Cx Reaction Buffer	4 x 1 ml

Uses advised against : None known.

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Deutschland GmbH
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 :

DMSO	Mono-constituent substance
PfuTurbo Cx Hotstart DNA Polymerase	Mixture
10X PfuTurbo Cx Reaction Buffer	Mixture

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

10X PfuTurbo Cx Reaction Buffer

H319	SERIOUS EYE DAMAGE/EYE IRRITATION	Category 2
H412	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 3

SECTION 2: Hazards identification

DMSO	The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.
PfuTurbo Cx Hotstart DNA Polymerase	The product is not classified as hazardous according to Regulation (EC) 1272/2008 as amended.
10X PfuTurbo Cx Reaction Buffer	The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : PfuTurbo Cx Hotstart DNA Polymerase
10X PfuTurbo Cx Reaction Buffer

Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

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

Hazard pictograms : 10X PfuTurbo Cx Reaction Buffer

Signal word	DMSO	No signal word.
	PfuTurbo Cx Hotstart DNA Polymerase	No signal word.
	10X PfuTurbo Cx Reaction Buffer	Warning
Hazard statements	DMSO	No known significant effects or critical hazards.
	PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
	10X PfuTurbo Cx Reaction Buffer	H319 - Causes serious eye irritation. H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention	DMSO	Not applicable.
	PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
	10X PfuTurbo Cx Reaction Buffer	P280 - Wear eye or face protection. P273 - Avoid release to the environment.
Response	DMSO	Not applicable.
	PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
	10X PfuTurbo Cx 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 advice or attention.
Storage	DMSO	Not applicable.
	PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
	10X PfuTurbo Cx Reaction Buffer	Not applicable.
Disposal	DMSO	Not applicable.
	PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
	10X PfuTurbo Cx Reaction Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

SECTION 2: Hazards identification

Supplemental label elements :

DMSO	Not applicable.
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles :

DMSO	Not applicable.
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

Special packaging requirements

Tactile warning of danger :

DMSO	Not applicable.
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
DMSO						
No	N/A	No	No	No	N/A	No

PfuTurbo Cx Hotstart DNA Polymerase	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
10X PfuTurbo Cx Reaction Buffer	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification :

DMSO	None known.
PfuTurbo Cx Hotstart DNA Polymerase	Contains one or more substances considered to have endocrine-disrupting properties.
10X PfuTurbo Cx Reaction Buffer	Contains one or more substances considered to have endocrine-disrupting properties.

Substances identified as having endocrine disruptor properties :

Ingredient name	Impact
PfuTurbo Cx Hotstart DNA Polymerase	
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Environment
10X PfuTurbo Cx Reaction Buffer	
Polyoxyethylene octyl phenyl ether	Environment

SECTION 3: Composition/information on ingredients

3.1 Substances

DMSO	Mono-constituent substance
PfuTurbo Cx Hotstart DNA Polymerase	Mixture
10X PfuTurbo Cx Reaction Buffer	Mixture

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
DMSO					
Dimethyl sulfoxide	EC: 200-664-3 CAS: 67-68-5	100	Not classified.	-	[1]
PfuTurbo Cx Hotstart DNA Polymerase					
Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	-	[2]
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	CAS: 9036-19-5	<0.25	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410	ATE [Oral] = 500 mg/kg M [Acute] = 10 M [Chronic] = 1	[1] [3]
10X PfuTurbo Cx Reaction Buffer					
Ammonium sulphate	EC: 231-984-1 CAS: 7783-20-2	≤3	Eye Irrit. 2, H319	-	[1]
Polyoxyethylene octyl phenyl ether	CAS: 9002-93-1	<2.5	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410 **See Section 16 for the full text of the H statements declared above.**	ATE [Oral] = 1800 mg/kg M [Acute] = 10 M [Chronic] = 1	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

DMSO	[1] Constituent
PfuTurbo Cx Hotstart DNA Polymerase	[1] Substance classified with a health or environmental hazard [2] Substance with a workplace exposure limit [3] Substance of equivalent concern
10X PfuTurbo Cx Reaction Buffer	[1] Substance classified with a health or environmental hazard [2] Substance of equivalent concern

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact :

DMSO: 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.

PfuTurbo Cx Hotstart DNA Polymerase: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

10X PfuTurbo Cx Reaction Buffer: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove

SECTION 4: First aid measures

			any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	:	DMSO	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		PfuTurbo Cx Hotstart DNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		10X PfuTurbo Cx 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.
Skin contact	:	DMSO	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		PfuTurbo Cx Hotstart DNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		10X PfuTurbo Cx 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.
Ingestion	:	DMSO	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
		PfuTurbo Cx Hotstart DNA Polymerase	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
		10X PfuTurbo Cx Reaction Buffer	Wash out mouth with water. Remove dentures if any. 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.
Protection of first-aiders	:	DMSO	No action shall be taken involving any personal risk or without suitable training.
		PfuTurbo Cx Hotstart DNA Polymerase	No action shall be taken involving any personal risk or without suitable training.
		10X PfuTurbo Cx 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.

SECTION 4: First aid measures

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	Causes serious eye irritation.
Inhalation	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.
Skin contact	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.
Ingestion	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	No specific data.
Skin contact	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	No specific data.
Ingestion	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	DMSO	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		PfuTurbo Cx Hotstart DNA Polymerase 10X PfuTurbo Cx 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.

SECTION 4: First aid measures

Specific treatments	:	DMSO	No specific treatment.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific treatment.
		10X PfuTurbo Cx Reaction Buffer	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	DMSO	Use an extinguishing agent suitable for the surrounding fire.
		PfuTurbo Cx Hotstart DNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
		10X PfuTurbo Cx Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	DMSO	None known.
		PfuTurbo Cx Hotstart DNA Polymerase	None known.
		10X PfuTurbo Cx Reaction Buffer	None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	DMSO	In a fire or if heated, a pressure increase will occur and the container may burst.
		PfuTurbo Cx Hotstart DNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
		10X PfuTurbo Cx Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous combustion products	:	DMSO	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
		PfuTurbo Cx Hotstart DNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		10X PfuTurbo Cx Reaction Buffer	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	:	DMSO	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.
		PfuTurbo Cx Hotstart DNA Polymerase	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
		10X PfuTurbo Cx 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.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters	: DMSO	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.
	PfuTurbo Cx Hotstart DNA Polymerase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. 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.
	10X PfuTurbo Cx 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. 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	: DMSO	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.
	PfuTurbo Cx Hotstart DNA Polymerase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	10X PfuTurbo Cx 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.
For emergency responders	: DMSO	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".
	PfuTurbo Cx Hotstart 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".
	10X PfuTurbo Cx 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".
6.2 Environmental precautions	: DMSO	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).
	PfuTurbo Cx Hotstart 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).
	10X PfuTurbo Cx Reaction Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant

SECTION 6: Accidental release measures

authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up :

DMSO	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.
PfuTurbo Cx Hotstart DNA Polymerase	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. May be harmful to the environment if released. Dispose of spillages under controlled conditions.
10X PfuTurbo Cx 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. May be harmful to the environment if released. Dispose of spillages under controlled conditions.

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 :

DMSO	Put on appropriate personal protective equipment (see Section 8).
PfuTurbo Cx Hotstart DNA Polymerase	Put on appropriate personal protective equipment (see Section 8).
10X PfuTurbo Cx 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. Avoid release to the environment. 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.

Advice on general occupational hygiene :

DMSO	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.
PfuTurbo Cx Hotstart DNA Polymerase	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
10X PfuTurbo Cx 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.

SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Storage	:	DMSO	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.
		PfuTurbo Cx Hotstart DNA Polymerase	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
		10X PfuTurbo Cx 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.

7.3 Specific end use(s)

Recommendations	:	DMSO	Industrial applications, Professional applications.
		PfuTurbo Cx Hotstart DNA Polymerase	Industrial applications, Professional applications.
		10X PfuTurbo Cx Reaction Buffer	Industrial applications, Professional applications.
Industrial sector specific solutions	:	DMSO	Not available.
		PfuTurbo Cx Hotstart DNA Polymerase	Not available.
		10X PfuTurbo Cx Reaction Buffer	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
PfuTurbo Cx Hotstart DNA Polymerase	
Glycerol	**NAOSH (Ireland, 5/2021). Notes: Advisory Occupational Exposure Limit Values (OELVs)** OELV-8hr: 10 mg/m³ 8 hours. Form: mist

Biological exposure indices

None known.

SECTION 8: Exposure controls/personal protection

Recommended monitoring procedures : 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.

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
DMSO					
Dimethyl sulfoxide	DNEL	Long term Inhalation	47 mg/m³	General population	Local
	DNEL	Long term Oral	60 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	100 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	120 mg/m³	General population	Systemic
	DNEL	Long term Dermal	200 mg/kg bw/day	Workers	Systemic
	DNEL	Long term Inhalation	265 mg/m³	Workers	Local
	DNEL	Long term Inhalation	484 mg/m³	Workers	Systemic
10X PfuTurbo Cx Reaction Buffer					
Ammonium sulphate	DNEL	Long term Inhalation	1.667 mg/m³	General population	Systemic
	DNEL	Long term Oral	6.4 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	11.167 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	12.8 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	42.667 mg/kg bw/day	Workers	Systemic

PNECs

No PNECs available

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

SECTION 8: Exposure controls/personal protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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

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

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

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

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state :	DMSO	Liquid. [Clear.]
	PfuTurbo Cx Hotstart DNA Polymerase	Liquid.
	10X PfuTurbo Cx Reaction Buffer	Liquid.
Colour :	DMSO	Colourless.
	PfuTurbo Cx Hotstart DNA Polymerase	Not available.
	10X PfuTurbo Cx Reaction Buffer	Not available.
Odour :	DMSO	Odourless. [Slight]
	PfuTurbo Cx Hotstart DNA Polymerase	Not available.
	10X PfuTurbo Cx Reaction Buffer	Not available.
Odour threshold :	DMSO	Not available.
	PfuTurbo Cx Hotstart DNA Polymerase	Not available.
	10X PfuTurbo Cx Reaction Buffer	Not available.
Melting point/freezing point :	DMSO	18.5°C
	PfuTurbo Cx Hotstart DNA Polymerase	Not available.
	10X PfuTurbo Cx Reaction Buffer	0°C
Initial boiling point and boiling range :	DMSO	189°C
	PfuTurbo Cx Hotstart DNA Polymerase	Not available.
	10X PfuTurbo Cx Reaction Buffer	100°C

SECTION 9: Physical and chemical properties

Flammability :

DMSO	Not applicable.
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

Upper/lower flammability or explosive limits :

DMSO	Lower: 2.6% Upper: 28.5%
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Flash point :

DMSO	Closed cup: 87°C [ASTM D 93] Open cup: 87°C
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Ingredient name	Closed cup °C	Closed cup Method	Open cup °C	Open cup Method
PfuTurbo Cx Hotstart DNA Polymerase				
Glycerol			177	
10X PfuTurbo Cx Reaction Buffer				
Polyoxyethylene octyl phenyl ether	251			

Auto-ignition temperature :

DMSO	300 to 302°C
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Ingredient name	°C	Method
PfuTurbo Cx Hotstart DNA Polymerase		
Glycerol	370	

Decomposition temperature :

DMSO	140 to 189°C
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

pH :

DMSO	Not available.
PfuTurbo Cx Hotstart DNA Polymerase	8.2
10X PfuTurbo Cx Reaction Buffer	8.8

Viscosity :

DMSO	Dynamic: 2.14 mPa·s
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

SECTION 9: Physical and chemical properties

Solubility(ies) :

Media	Result
DMSO	
water	Soluble
PfuTurbo Cx Hotstart DNA Polymerase	
water	Soluble
10X PfuTurbo Cx Reaction Buffer	
water	Soluble

Partition coefficient: n-octanol/water :

DMSO	-1.35
PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
10X PfuTurbo Cx Reaction Buffer	Not applicable.

Vapour pressure :

DMSO	0.056 kPa (0.42 mm Hg) [EU A.4]
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Ingredient name	Vapour Pressure at 20˚C			Vapour pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
PfuTurbo Cx Hotstart DNA Polymerase						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
10X PfuTurbo Cx Reaction Buffer						
water	23.8	3.2		92.258	12.3	
Polyoxyethylene octyl phenyl ether	0.997581	0.13				

Evaporation rate :

DMSO	0.026 (butyl acetate = 1)
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Relative density :

DMSO	1.1
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Vapour density :

DMSO	2.7 [Air = 1]
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

Explosive properties :

DMSO	Not available.
PfuTurbo Cx Hotstart DNA Polymerase	Not available.
10X PfuTurbo Cx Reaction Buffer	Not available.

SECTION 9: Physical and chemical properties

Oxidising properties	:	DMSO	Not available.
		PfuTurbo Cx Hotstart DNA Polymerase	Not available.
		10X PfuTurbo Cx Reaction Buffer	Not available.

Particle characteristics

Median particle size	:	DMSO	Not applicable.
		PfuTurbo Cx Hotstart DNA Polymerase	Not applicable.
		10X PfuTurbo Cx Reaction Buffer	Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

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

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
DMSO				
Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
PfuTurbo Cx Hotstart DNA Polymerase				
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-
10X PfuTurbo Cx Reaction Buffer				
Ammonium sulphate	LD50 Oral	Rat	2840 mg/kg	-
Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
DMSO					
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
PfuTurbo Cx Hotstart DNA Polymerase					
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	500	N/A	N/A	N/A	N/A
10X PfuTurbo Cx Reaction Buffer					
10X PfuTurbo Cx Reaction Buffer	180000.0	N/A	N/A	N/A	N/A
Ammonium sulphate	2840	N/A	N/A	N/A	N/A
Polyoxyethylene octyl phenyl ether	1800	N/A	N/A	N/A	N/A

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
DMSO					
Dimethyl sulfoxide	Eyes - Mild irritant Eyes - Mild irritant Skin - Mild irritant Skin - Mild irritant	Rabbit Rabbit Rabbit Rabbit	- - - -	100 mg 24 hours 500 mg 100 mg 24 hours 500 mg	- - - -
PfuTurbo Cx Hotstart DNA Polymerase					
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 %	-
10X PfuTurbo Cx Reaction Buffer					
Polyoxyethylene octyl phenyl ether	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-

Sensitiser

SECTION 11: Toxicological information

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure :

DMSO	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
PfuTurbo Cx Hotstart DNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
10X PfuTurbo Cx Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Inhalation :

DMSO	No known significant effects or critical hazards.
PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.

Ingestion :

DMSO	No known significant effects or critical hazards.
PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.

Skin contact :

DMSO	No known significant effects or critical hazards.
PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.

Eye contact :

DMSO	No known significant effects or critical hazards.
PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
10X PfuTurbo Cx Reaction Buffer	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation :

DMSO	No specific data.
PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
10X PfuTurbo Cx Reaction Buffer	No specific data.

Ingestion :

DMSO	No specific data.
PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
10X PfuTurbo Cx Reaction Buffer	No specific data.

SECTION 11: Toxicological information

Skin contact	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	No specific data.
Eye contact	:	DMSO	No specific data.
		PfuTurbo Cx Hotstart DNA Polymerase	No specific data.
		10X PfuTurbo Cx Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness

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

General	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.
Carcinogenicity	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.
Mutagenicity	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.
Reproductive toxicity	:	DMSO	No known significant effects or critical hazards.
		PfuTurbo Cx Hotstart DNA Polymerase	No known significant effects or critical hazards.
		10X PfuTurbo Cx Reaction Buffer	No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
DMSO			
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Ulva lactuca	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	21 days
PfuTurbo Cx Hotstart DNA Polymerase			
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Acute EC50 210 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
10X PfuTurbo Cx Reaction Buffer			
Ammonium sulphate	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
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

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
DMSO				
Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
DMSO			
Dimethyl sulfoxide	-	-	Not readily
10X PfuTurbo Cx Reaction Buffer			
Ammonium sulphate	-	-	Readily
Polyoxyethylene octyl phenyl ether	-	-	Readily

12.3 Bioaccumulative potential

SECTION 12: Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
DMSO Dimethyl sulfoxide	-1.35	3.16	low
PfuTurbo Cx Hotstart DNA Polymerase Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	2.7	78.67	low
10X PfuTurbo Cx Reaction Buffer Ammonium sulphate Polyoxyethylene octyl phenyl ether	-5.1 4.86	- -	low high

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
DMSO Dimethyl sulfoxide	No	N/A	No	No	No	N/A	No

12.6 Endocrine disrupting properties

PfuTurbo Cx Hotstart DNA Polymerase	Contains one or more substances considered to have endocrine-disrupting properties.
10X PfuTurbo Cx Reaction Buffer	Contains one or more substances considered to have endocrine-disrupting properties.

12.7 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 : The classification of the product may meet the criteria for a hazardous waste.

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 : Dispose of material(s) and residues under controlled conditions. 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

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

Additional information

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 IMO instruments : 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

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
PfuTurbo Cx Hotstart DNA Polymerase Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Endocrine disrupting properties for environment	Listed	42	7/3/2017
10X PfuTurbo Cx Reaction Buffer Polyoxyethylene octyl phenyl ether	Endocrine disrupting properties for environment	Listed	42	7/3/2017

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
PfuTurbo Cx Hotstart DNA Polymerase Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Endocrine disrupting properties for environment	Recommended	ED/169/2012	7/3/2017
10X PfuTurbo Cx Reaction Buffer Polyoxyethylene octyl phenyl ether	Endocrine disrupting properties for environment	Recommended	ED/169/2012	7/3/2017

SECTION 15: Regulatory information

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Ingredient name	CAS no.	Status
10X PfuTurbo Cx Reaction Buffer		
Ammonium sulphate	7783-20-2	65

Label : DMSO — Not applicable.
PfuTurbo Cx Hotstart DNA Polymerase — Not applicable.
10X PfuTurbo Cx Reaction Buffer — Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Persistent Organic Pollutants

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Eurasian Economic Union : **Russian Federation inventory**: All components are listed or exempted.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : All components are listed or exempted.

Philippines : All components are listed or exempted.

Republic of Korea : Not determined.

Taiwan : All components are listed or exempted.

Thailand : Not determined.

Turkey : Not determined.

SECTION 15: Regulatory information

United States : All components are active or exempted.

Viet Nam : All components are listed or exempted.

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]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

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

Classification	Justification
10X PfuTurbo Cx Reaction Buffer	
Eye Irrit. 2, H319	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

PfuTurbo Cx Hotstart DNA Polymerase	
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
10X PfuTurbo Cx Reaction Buffer	
H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

PfuTurbo Cx Hotstart DNA Polymerase	
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
10X PfuTurbo Cx Reaction Buffer	
Acute Tox. 4	ACUTE TOXICITY - Category 4
Aquatic Acute 1	SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1
Aquatic Chronic 1	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
Eye Dam. 1	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2

SECTION 16: Other information

Date of issue/ Date of revision : 16/12/2022

Date of previous issue : 27/05/2022

Version : 1.1

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