Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

Pfu DNA Polymerase, Part Number 600136

Section 1. Identification

1.1 Product identifier

Product name : Pfu DNA Polymerase, Part Number 600136

Part No. (Chemical Kit) : 600136

Part No. : Native Pfu DNA Polymerase 600136-81
10X Native Plus Pfu Buffer 600135-84

Validation date : 4/28/2017

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

Material uses : Analytical reagent.

Native Pfu DNA Polymerase 0.2 ml (500 U 2.5 U/µl)
10X Native Plus Pfu Buffer 2 x 1 ml

1.3 Details of the supplier of the safety data sheet

Supplier/Manufacturer : Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

1.4 Emergency telephone number

In case of emergency : CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : Native Pfu DNA Polymerase This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
10X Native Plus Pfu Buffer This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

Native Pfu DNA Polymerase
H320 EYE IRRITATION - Category 2B

10X Native Plus Pfu Buffer
H319 EYE IRRITATION - Category 2A

Ingredients of unknown toxicity : 10X Native Plus Pfu Buffer Percentage of the mixture consisting of ingredient (s) of unknown toxicity: 3.2%

2.2 GHS label elements

Hazard pictograms :

Signal word : Native Pfu DNA Polymerase Warning
10X Native Plus Pfu Buffer Warning

Hazard statements : Native Pfu DNA Polymerase H320 - Causes eye irritation.
10X Native Plus Pfu Buffer GHS SYMBOL - **Exclamation mark** - H319 - Causes serious eye irritation.

Section 2. Hazards identification

Precautionary statements

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

2.3 Other hazards

Hazards not otherwise classified	:	Native Pfu DNA Polymerase	None known.
		10X Native Plus Pfu Buffer	None known.

Section 3. Composition/information on ingredients

Substance/mixture	:	Native Pfu DNA Polymerase	Mixture
		10X Native Plus Pfu Buffer	Mixture

Ingredient name	%	CAS number
Native Pfu DNA Polymerase		
Glycerol	≥50 - ≤75	56-81-5
10X Native Plus Pfu Buffer		
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤5	1185-53-1
Ammonium sulphate	≤3	7783-20-2
Polyoxyethylene octyl phenyl ether	≤2.3	9002-93-1

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

4.1 Description of necessary first aid measures

Section 4. First aid measures

Eye contact	:	Native Pfu DNA Polymerase	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		10X Native Plus Pfu Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	:	Native Pfu DNA Polymerase	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.
		10X Native Plus Pfu 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	:	Native Pfu DNA Polymerase	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.
		10X Native Plus Pfu 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	:	Native Pfu DNA Polymerase	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if

Section 4. First aid measures

		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.
	10X Native Plus Pfu Buffer	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	Native Pfu DNA Polymerase	Causes eye irritation.
		10X Native Plus Pfu Buffer	Causes serious eye irritation.
Inhalation	:	Native Pfu DNA Polymerase	No known significant effects or critical hazards.
		10X Native Plus Pfu Buffer	No known significant effects or critical hazards.
Skin contact	:	Native Pfu DNA Polymerase	No known significant effects or critical hazards.
		10X Native Plus Pfu Buffer	No known significant effects or critical hazards.
Ingestion	:	Native Pfu DNA Polymerase	No known significant effects or critical hazards.
		10X Native Plus Pfu Buffer	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	Native Pfu DNA Polymerase	Adverse symptoms may include the following: irritation watering redness
		10X Native Plus Pfu Buffer	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.
Skin contact	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.
Ingestion	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.

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

Section 4. First aid measures

Notes to physician	:	Native Pfu DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		10X Native Plus Pfu Buffer	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Specific treatments	:	Native Pfu DNA Polymerase	No specific treatment.
		10X Native Plus Pfu Buffer	No specific treatment.
Protection of first-aiders	:	Native Pfu DNA Polymerase	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.
		10X Native Plus Pfu 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.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	:	Native Pfu DNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
		10X Native Plus Pfu Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	:	Native Pfu DNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		10X Native Plus Pfu Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds

5.3 Advice for firefighters

Special protective actions for fire-fighters	:	Native Pfu DNA Polymerase	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
		10X Native Plus Pfu 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. Fire-fighting measures

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

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Native Pfu DNA Polymerase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	10X Native Plus Pfu Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	: Native Pfu DNA Polymerase	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	10X Native Plus Pfu Buffer	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions	: Native Pfu DNA Polymerase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	10X Native Plus Pfu Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and materials for containment and cleaning up

Section 6. Accidental release measures

Methods for cleaning up : Native Pfu DNA Polymerase

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

10X Native Plus Pfu 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

7.1 Precautions for safe handling

Protective measures : Native Pfu DNA Polymerase

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

10X Native Plus Pfu Buffer

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Native Pfu DNA Polymerase

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

10X Native Plus Pfu 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.

7.2 Conditions for safe storage, including any incompatibilities : Native Pfu DNA Polymerase

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

10X Native Plus Pfu Buffer

Store in accordance with local regulations. Store in

Section 7. Handling and storage

original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

7.3 Specific end use(s)

Recommendations : Native Pfu DNA Polymerase — Industrial applications, Professional applications.
10X Native Plus Pfu Buffer — Industrial applications, Professional applications.

Industrial sector specific solutions : Native Pfu DNA Polymerase — Not applicable.
10X Native Plus Pfu Buffer — Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Native Pfu DNA Polymerase	
Glycerol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 2/2013).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
10X Native Plus Pfu Buffer	
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	None.
Ammonium sulphate	None.
Polyoxyethylene octyl phenyl ether	None.

8.2 Exposure controls

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

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

Individual protection measures

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

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

Section 8. Exposure controls/personal protection

Skin protection

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

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

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

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	Native Pfu DNA Polymerase	Liquid.
		10X Native Plus Pfu Buffer	Liquid.
Color	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Odor	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Odor threshold	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
pH	:	Native Pfu DNA Polymerase	8.2
		10X Native Plus Pfu Buffer	8.8
Melting point	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Boiling point	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Flash point	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Evaporation rate	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Flammability (solid, gas)	:	Native Pfu DNA Polymerase	Not applicable.
		10X Native Plus Pfu Buffer	Not applicable.
Lower and upper explosive (flammable) limits	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Vapor pressure	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Vapor density	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Relative density	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.

Section 9. Physical and chemical properties

Solubility	:	Native Pfu DNA Polymerase	Soluble in the following materials: cold water and hot water.
		10X Native Plus Pfu Buffer	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Auto-ignition temperature	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Decomposition temperature	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.
Viscosity	:	Native Pfu DNA Polymerase	Not available.
		10X Native Plus Pfu Buffer	Not available.

Section 10. Stability and reactivity

10.1 Reactivity	:	Native Pfu DNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
		10X Native Plus Pfu Buffer	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	Native Pfu DNA Polymerase	The product is stable.
		10X Native Plus Pfu Buffer	The product is stable.
10.3 Possibility of hazardous reactions	:	Native Pfu DNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
		10X Native Plus Pfu Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.
10.5 Incompatible materials	:	Native Pfu DNA Polymerase	May react or be incompatible with oxidizing materials.
		10X Native Plus Pfu Buffer	May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	:	Native Pfu DNA Polymerase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		10X Native Plus Pfu 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
Native Pfu DNA Polymerase				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
10X Native Plus Pfu Buffer				
Ammonium sulphate	LD50 Oral	Rat	2840 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

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

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
10X Native Plus Pfu Buffer			
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Native Pfu DNA Polymerase — Routes of entry anticipated: Oral, Dermal, Inhalation.

10X Native Plus Pfu Buffer — Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Eye contact : Native Pfu DNA Polymerase — Causes eye irritation.
10X Native Plus Pfu Buffer — Causes serious eye irritation.

Inhalation : Native Pfu DNA Polymerase — No known significant effects or critical hazards.
10X Native Plus Pfu Buffer — No known significant effects or critical hazards.

Skin contact : Native Pfu DNA Polymerase — No known significant effects or critical hazards.
10X Native Plus Pfu Buffer — No known significant effects or critical hazards.

Ingestion : Native Pfu DNA Polymerase — No known significant effects or critical hazards.
10X Native Plus Pfu Buffer — No known significant effects or critical hazards.

Section 11. Toxicological information

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	Native Pfu DNA Polymerase	Adverse symptoms may include the following: irritation watering redness
		10X Native Plus Pfu Buffer	Adverse symptoms may include the following: pain or irritation watering redness
Inhalation	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.
Skin contact	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.
Ingestion	:	Native Pfu DNA Polymerase	No specific data.
		10X Native Plus Pfu Buffer	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
10X Native Plus Pfu Buffer Oral	40687.7 mg/kg

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Native Pfu DNA Polymerase			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
10X Native Plus Pfu Buffer			
Ammonium sulphate	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Young	48 hours
	Acute LC50 14000 to 15000 µg/l Fresh water	Daphnia - Daphnia magna - Young	48 hours
	Acute LC50 68 µg/l Fresh water	Fish - Oncorhynchus gorbuscha - Alevin	96 hours
	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks
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	Aquatic half-life	Photolysis	Biodegradability
10X Native Plus Pfu Buffer			
Ammonium sulphate	-	-	Readily
Polyoxyethylene octyl phenyl ether	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Native Pfu DNA Polymerase			
Glycerol	-1.76	-	low
10X Native Plus Pfu Buffer			
Ammonium sulphate	-5.1	-	low
Polyoxyethylene octyl phenyl ether	4.86	-	high

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

Section 14. Transport information

Regulatory information

DOT / IMDG / IATA : Not regulated.

Section 15. Regulatory information

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

U.S. Federal regulations : **TSCA 8(a) PAIR**: Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-; Polyoxyethylene octyl phenyl ether

United States inventory (TSCA 8b): All components are listed or exempted.

Clean Water Act (CWA) 311: Edetic acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

Section 15. Regulatory information

SARA 311/312

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Native Pfu DNA Polymerase						
Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
10X Native Plus Pfu Buffer						
2-Amino-2-(hydroxymethyl)propane-1, 3-diol hydrochloride	≤5	No.	No.	No.	Yes.	No.
Ammonium sulphate	≤3	No.	No.	No.	Yes.	No.
Polyoxyethylene octyl phenyl ether	≤2.3	No.	No.	No.	Yes.	No.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	**10X Native Plus Pfu Buffer** Ammonium sulphate	7783-20-2	≤3
Supplier notification	**10X Native Plus Pfu Buffer** Ammonium sulphate	7783-20-2	≤3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST

New York : None of the components are listed.

New Jersey : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL

Pennsylvania : The following components are listed: 1,2,3-PROPANETRIOL

California Prop. 65

No products were found.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : All components are listed or exempted.

Canada inventory : All components are listed or exempted.

China : All components are listed or exempted.

Section 15. Regulatory information

Europe	:	All components are listed or exempted.
Japan	:	**Japan inventory (ENCS)**: All components are listed or exempted. **Japan inventory (ISHL)**: Not determined.
Malaysia	:	Not determined.
New Zealand	:	All components are listed or exempted.
Philippines	:	All components are listed or exempted.
Republic of Korea	:	Not determined.
Taiwan	:	All components are listed or exempted.
Turkey	:	Not determined.

Section 16. Other information

History

Date of issue	:	04/28/2017
Date of previous issue	:	09/29/2016.
Version	:	5

Indicates information that has changed from previously issued version.

Notice to reader

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