

Expand Long Templ.PCR Syst. (720 U)
Version
1.2Revision Date:
04-27-2016Date of last issue: 11-13-2015
Date of first issue: 09-25-2015**SECTION 1. IDENTIFICATION**

Product name : Expand Long Templ.PCR Syst. (720 U)
Product code : 11681842001

Manufacturer or supplier's details

Company name of supplier : Roche Diagnostics

Address : 9115 Hague Road
46250 Indianapolis IN

Telephone : 1-800-428-5074

Emergency telephone:

In case of emergencies: : CHEMTREC 1-800-424-9300 (U.S. or Canada)
1-703-527-3887 (International)

Recommended use of the chemical and restrictions on use

Restrictions on use : For professional users only.

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

The product is a kit consisting of individual ingredients. The classification of the ingredients can be obtained from section 3. Section Label elements contains the resulting labelling for the kit

GHS label elements

Not a hazardous substance or mixture.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**Enzyme mix****GHS Classification**

Not a hazardous substance or mixture.

Substance name : Expand Long Template PCR System Enzymmix

Hazardous ingredients

Chemical name	CAS-No.	Concentration (% w/w)
Glycerol	56-81-5	≥ 50 - < 70
Taq DNA Polymerase	123340-12-5	≥ 1 - < 5

Expand Long Template buffer 1, 10x conc.**GHS Classification**

Not a hazardous substance or mixture.

Substance name : Expand Long Template buffer 1, 10x conc.

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No hazardous ingredients

Expand Long Template buffer 2, 10 x conc.**GHS Classification**

Not a hazardous substance or mixture.

Substance name : Expand Long Template buffer 2, 10 x conc. 27.5mM MgCl₂**Hazardous ingredients**

Chemical name	CAS-No.	Concentration (% w/w)
Dimethyl Sulfoxide	67-68-5	>= 20 - < 30

Expand Long Template buffer 3, 10 x conc.**GHS Classification**

Not a hazardous substance or mixture.

Substance name : Expand Long Template buffer 3, 10 x conc. 27.5mM MgCl₂**Hazardous ingredients**

Chemical name	CAS-No.	Concentration (% w/w)
Dimethyl Sulfoxide	67-68-5	>= 20 - < 30

SECTION 4. FIRST AID MEASURES

- General advice : Do not leave the victim unattended.
- If inhaled : Move to fresh air.
If unconscious place in recovery position and seek medical advice.
If symptoms persist, call a physician.
- In case of skin contact : If on skin, rinse well with water.
- In case of eye contact : Immediately flush eye(s) with plenty of water.
Remove contact lenses.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Rinse mouth with water.
- Most important symptoms and effects, both acute and delayed : No information available.
- Notes to physician : The first aid procedure should be established in consultation

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with the doctor responsible for industrial medicine.

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Specific hazards during fire fighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for fire-fighters : Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : Prevent product from entering drains.
- Methods and materials for containment and cleaning up : Wipe up with absorbent material (e.g. cloth, fleece). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

- Advice on protection against fire and explosion : Normal measures for preventive fire protection.
- Advice on safe handling : For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area.
- Conditions for safe storage : Containers which are opened must be carefully resealed and kept upright to prevent leakage. Electrical installations / working materials must comply with the technological safety standards.
- Technical measures/Precautions : See label, package insert or internal guidelines
- Materials to avoid : No materials to be especially mentioned.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION
Enzyme mix
Ingredients with workplace control parameters

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Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Glycerol	56-81-5	TWA (mist, respirable fraction)	5 mg/m ³	OSHA Z-1
		TWA (mist, total dust)	15 mg/m ³	OSHA Z-1
		TWA (Mist - total dust)	10 mg/m ³	OSHA P0
		TWA (Mist - respirable fraction)	5 mg/m ³	OSHA P0
Taq DNA Polymerase	123340-12-5	IOEL	0.00006 mg/m ³	Roche Industrial Hygiene Committee (RIHC)

Expand Long Template buffer 1, 10x conc.
Ingredients with workplace control parameters

Contains no substances with occupational exposure limit values.

Expand Long Template buffer 2, 10 x conc.
Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Dimethyl Sulfoxide	67-68-5	TWA	250 ppm	US WEEL

Expand Long Template buffer 3, 10 x conc.
Ingredients with workplace control parameters

Ingredients	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Dimethyl Sulfoxide	67-68-5	TWA	250 ppm	US WEEL

Engineering measures : No data available

Personal protective equipment

Respiratory protection : No personal respiratory protective equipment normally required.

Hand protection

Material : Protective gloves

 Remarks : Wear appropriate protective gloves to prevent skin contact.
Replace torn or punctured gloves promptly.

Eye protection : Safety glasses

Skin and body protection : Protective suit

Hygiene measures : Handle in accordance with good industrial hygiene and safety

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practice.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES***Enzyme mix***

Appearance	:	liquid
Color	:	colorless
Odor	:	none
Odor Threshold	:	No data available
pH	:	8 - 9
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	does not flash
Evaporation rate	:	No data available
Flammability (liquids)	:	The product is not flammable.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Density	:	1.13 - 1.16 g/cm ³
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

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Expand Long Template buffer 1, 10x conc.

Appearance	:	liquid
Color	:	colorless
Odor	:	none
Odor Threshold	:	No data available
pH	:	9.2
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	does not flash
Evaporation rate	:	No data available
Flammability (liquids)	:	The product is not flammable.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

Expand Long Template buffer 2, 10 x conc.

Appearance : liquid

SAFETY DATA SHEET



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Color	:	colorless
Odor	:	none
Odor Threshold	:	No data available
pH	:	9.2 (25 °C)
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	does not flash
Evaporation rate	:	No data available
Flammability (liquids)	:	The product is not flammable.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

Expand Long Template buffer 3, 10 x conc.

Appearance	:	liquid
Color	:	colorless
Odor	:	none

SAFETY DATA SHEET



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Odor Threshold	:	No data available
pH	:	9.2 (25 °C)
Melting point/range	:	No data available
Boiling point/boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (liquids)	:	The product is not flammable.
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapor pressure	:	No data available
Relative vapor density	:	No data available
Relative density	:	No data available
Solubility(ies)		
Water solubility	:	completely miscible
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Autoignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity		
Viscosity, dynamic	:	No data available
Viscosity, kinematic	:	No data available
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use. Stable under recommended storage conditions. No hazards to be specially mentioned.
Conditions to avoid	:	No data available

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Incompatible materials : No data available

Hazardous decomposition products : No hazardous decomposition products are known.

SECTION 11. TOXICOLOGICAL INFORMATION***Enzyme mix*****Acute toxicity**

Not classified based on available information.

Ingredients:**Glycerol:**

Acute oral toxicity : LD50 Oral (Rat): 12,600 mg/kg
LD50 Oral (Mouse): 4,090 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l
Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rabbit): 10,000 mg/kg

Taq DNA Polymerase:

Acute oral toxicity : Acute toxicity estimate: > 5,001 mg/kg
Method: Expert judgment

Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l
Method: Expert judgment

Acute dermal toxicity : Acute toxicity estimate: > 5,001 mg/kg
Method: Expert judgment

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:**Glycerol:**

Assessment: Mild eye irritant, Mild respiratory irritant, No skin irritation

Germ cell mutagenicity

Not classified based on available information.

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Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

Ingredients:**Taq DNA Polymerase:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

Not classified based on available information.

Ingredients:**Taq DNA Polymerase:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Ingredients:**Glycerol:**

Repeated dose toxicity - Assessment : Mild eye irritant, Mild respiratory irritant, No skin irritation

Aspiration toxicity

Not classified based on available information.

Ingredients:**Taq DNA Polymerase:**

No data available

Expand Long Template buffer 1, 10x conc.**Acute toxicity**

Not classified based on available information.

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Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

STOT-repeated exposure

Not classified based on available information.

Aspiration toxicity

Not classified based on available information.

Expand Long Template buffer 2, 10 x conc.**Acute toxicity**

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Acute oral toxicity : LD50 Oral (Rat): 14,500 mg/kg
LD50 Oral (Mouse): 7,920 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l
Test atmosphere: vapor
Method: Expert judgment

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Acute dermal toxicity : LD50 Dermal (Rat): 40,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Remarks: This information is not available.

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Remarks: This information is not available.

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Species: Guinea pig

Result: Does not cause skin sensitization.

Assessment: Mild eye irritation, Mild skin irritation

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

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Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.

STOT-repeated exposure

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Ingredients:**Dimethyl Sulfoxide:**Repeated dose toxicity - : Mild eye irritation, Mild skin irritation
Assessment**Aspiration toxicity**

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

No data available

Expand Long Template buffer 3, 10 x conc.**Acute toxicity**

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Acute oral toxicity : LD50 Oral (Rat): 14,500 mg/kg

LD50 Oral (Mouse): 7,920 mg/kg

Acute inhalation toxicity : Acute toxicity estimate: > 30 mg/l
Test atmosphere: vapor
Method: Expert judgment

Acute dermal toxicity : LD50 Dermal (Rat): 40,000 mg/kg

Skin corrosion/irritation

Not classified based on available information.

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Remarks: This information is not available.

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Remarks: This information is not available.

Respiratory or skin sensitization**Skin sensitization**

Not classified based on available information.

Respiratory sensitization

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Species: Guinea pig

Result: Does not cause skin sensitization.

Assessment: Mild eye irritation, Mild skin irritation

Germ cell mutagenicity

Not classified based on available information.

Carcinogenicity

Not classified based on available information.

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Not classified based on available information.

STOT-single exposure

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, single

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exposure.

STOT-repeated exposure

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

Ingredients:**Dimethyl Sulfoxide:**

Repeated dose toxicity - Assessment : Mild eye irritation, Mild skin irritation

Aspiration toxicity

Not classified based on available information.

Ingredients:**Dimethyl Sulfoxide:**

No data available

SECTION 12. ECOLOGICAL INFORMATION***Enzyme mix*****Ecotoxicity****Ingredients:****Glycerol:**Toxicity to fish : LC50: > 100 mg/l
Exposure time: 96 hToxicity to algae : EC0 (Scenedesmus quadricauda (Green algae)): > 10,000 mg/l
Exposure time: 7 d

Toxicity to fish (Chronic toxicity) : > 1 mg/l

Toxicity to bacteria : EC0 (Pseudomonas putida): > 10,000 mg/l
Exposure time: 16 h**Ecotoxicology Assessment**

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Toxicity Data on Soil : Not expected to adsorb on soil.

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Other organisms relevant to the environment : No data available

Taq DNA Polymerase:

Toxicity to fish : LC50: > 100 mg/l
Exposure time: 96 h

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Toxicity Data on Soil : Not expected to adsorb on soil.

Other organisms relevant to the environment : No data available

Persistence and degradability**Ingredients:****Glycerol:**

Biodegradability : Remarks: The product is miscible in water and readily biodegradable in both water and soil. Accumulation is not expected.

Bioaccumulative potential**Ingredients:****Glycerol:**

Partition coefficient: n-octanol/water : log Pow: -2.66

Taq DNA Polymerase:

Partition coefficient: n-octanol/water : Remarks: No data available

Mobility in soil

No data available

Other adverse effects***Expand Long Template buffer 1, 10x conc.*****Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

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No data available

Other adverse effects***Expand Long Template buffer 2, 10 x conc.*****Ecotoxicity****Ingredients:****Dimethyl Sulfoxide:**

- Toxicity to fish : LC50 (Fish): 32,500 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24,600 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to bacteria : EC50 (Photobacterium phosphoreum): ca. 70,000 mg/l
Exposure time: 0.25 h

Ecotoxicology Assessment

- Toxicity Data on Soil : Not expected to adsorb on soil.
- Other organisms relevant to the environment : No data available

Persistence and degradability**Ingredients:****Dimethyl Sulfoxide:**

- Biodegradability : Biodegradation: 4 %
Exposure time: 1 d
- Biodegradation: 6 %
Exposure time: 8 d
- Biodegradation: 29 %
Exposure time: 15 d
- Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 302

Bioaccumulative potential**Ingredients:****Dimethyl Sulfoxide:**

- Partition coefficient: n-octanol/water : log Pow: -1.35

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No data available

Other adverse effects***Expand Long Template buffer 3, 10 x conc.*****Ecotoxicity****Ingredients:****Dimethyl Sulfoxide:**

- Toxicity to fish : LC50 (Fish): 32,500 mg/l
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 24,600 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
- Toxicity to bacteria : EC50 (Photobacterium phosphoreum): ca. 70,000 mg/l
Exposure time: 0.25 h

Ecotoxicology Assessment

- Toxicity Data on Soil : Not expected to adsorb on soil.
- Other organisms relevant to the environment : No data available

Persistence and degradability**Ingredients:****Dimethyl Sulfoxide:**

- Biodegradability : Biodegradation: 4 %
Exposure time: 1 d
- Biodegradation: 6 %
Exposure time: 8 d
- Biodegradation: 29 %
Exposure time: 15 d
- Biodegradation: 90 %
Exposure time: 28 d
Method: OECD Test Guideline 302

Bioaccumulative potential**Ingredients:****Dimethyl Sulfoxide:**

- Partition coefficient: n-octanol/water : log Pow: -1.35

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No data available

Other adverse effects

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.

Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulation****UNRTDG**

Not regulated as a dangerous good

IATA-DGR

Not regulated as a dangerous good

IMDG-Code

Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

Domestic regulation**49 CFR**

Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION***Enzyme mix*****EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

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This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermedi-ate or Final VOC's (40 CFR 60.489):

Glycerol	56-81-5	50 %
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Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations**Massachusetts Right To Know**

Glycerol	56-81-5	50 - 70 %
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Pennsylvania Right To Know

Glycerol	56-81-5	50 - 70 %
Water	7732-18-5	30 - 50 %

New Jersey Right To Know

Glycerol	56-81-5	50 - 70 %
Water	7732-18-5	30 - 50 %
Taq DNA Polymerase	123340-12-5	1 - 5 %

California Permissible Exposure Limits for Chemical Contaminants

Glycerol	56-81-5
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The ingredients of this product are reported in the following inventories:

CH INV	Not in compliance with the inventory Taq DNA Polymerase
DSL	This product contains the following components that are not on the Canadian DSL nor NDSL. Taq DNA Polymerase Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransfer-ase
AICS	Not in compliance with the inventory Taq DNA Polymerase Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransfer-ase
NZIoC	On the inventory, or in compliance with the inventory
ENCS	Not in compliance with the inventory Water Taq DNA Polymerase Nonyl phenyl-polyethylene glycol, NP 40 Tris hydrochloride

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	Caseins 1,4-Dithiothreitol (DTT) Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransferase
ISHL	Not in compliance with the inventory Water Taq DNA Polymerase Nonyl phenyl-polyethylene glycol, NP 40 Tris hydrochloride Caseins 1,4-Dithiothreitol (DTT) Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransferase
KECI	Not in compliance with the inventory Taq DNA Polymerase 1,4-Dithiothreitol (DTT) Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransferase
PICCS	Not in compliance with the inventory Taq DNA Polymerase Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransferase
IECSC	Not in compliance with the inventory Taq DNA Polymerase Deoxynucleoside-triphosphate:DNA deoxynucleotidyltransferase

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Expand Long Template buffer 1, 10x conc.**EPCRA - Emergency Planning and Community Right-to-Know****CERCLA Reportable Quantity**

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards**SARA 302** : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.**SARA 313** : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.**Clean Air Act**

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This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations
Massachusetts Right To Know

Ammonium sulphate	7783-20-2	1 - 5 %
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Pennsylvania Right To Know

Water	7732-18-5	90 - 100 %
Tris	77-86-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %

New Jersey Right To Know

Water	7732-18-5	90 - 100 %
Tris	77-86-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %

The ingredients of this product are reported in the following inventories:

CH INV	On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL
AICS	On the inventory, or in compliance with the inventory
NZIoC	On the inventory, or in compliance with the inventory
ENCS	Not in compliance with the inventory Water
ISHL	Not in compliance with the inventory Water
KECI	On the inventory, or in compliance with the inventory
PICCS	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

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Expand Long Template buffer 2, 10 x conc.
EPCRA - Emergency Planning and Community Right-to-Know
CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMII Intermediate or Final VOC's (40 CFR 60.489):

Dimethyl Sulfoxide	67-68-5	20 %
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Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations
Massachusetts Right To Know

Ammonium sulphate	7783-20-2	1 - 5 %
-------------------	-----------	---------

Pennsylvania Right To Know

Water	7732-18-5	50 - 70 %
Dimethyl Sulfoxide	67-68-5	20 - 30 %
Tris hydrochloride	1185-53-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %

New Jersey Right To Know

Water	7732-18-5	50 - 70 %
Dimethyl Sulfoxide	67-68-5	20 - 30 %
Tris hydrochloride	1185-53-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %
Tween 20	9005-64-5	1 - 5 %

The ingredients of this product are reported in the following inventories:

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CH INV	On the inventory, or in compliance with the inventory
DSL	All components of this product are on the Canadian DSL
AICS	On the inventory, or in compliance with the inventory
NZIoC	On the inventory, or in compliance with the inventory
ENCS	Not in compliance with the inventory Water Tris hydrochloride
ISHL	Not in compliance with the inventory Water Tris hydrochloride
KECI	On the inventory, or in compliance with the inventory
PICCS	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Expand Long Template buffer 3, 10 x conc.

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

Dimethyl Sulfoxide	67-68-5	20 %
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This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations**Massachusetts Right To Know**

Ammonium sulphate	7783-20-2	1 - 5 %
-------------------	-----------	---------

Pennsylvania Right To Know

Water	7732-18-5	50 - 70 %
Dimethyl Sulfoxide	67-68-5	20 - 30 %
Tris hydrochloride	1185-53-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %

New Jersey Right To Know

Water	7732-18-5	50 - 70 %
Dimethyl Sulfoxide	67-68-5	20 - 30 %
Tris hydrochloride	1185-53-1	5 - 10 %
Ammonium sulphate	7783-20-2	1 - 5 %
Tween 20	9005-64-5	1 - 5 %

The ingredients of this product are reported in the following inventories:

CH INV	On the inventory, or in compliance with the inventory
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AICS	On the inventory, or in compliance with the inventory
NZIoC	On the inventory, or in compliance with the inventory
ENCS	Not in compliance with the inventory Water Tris hydrochloride
ISHL	Not in compliance with the inventory Water Tris hydrochloride
KECI	On the inventory, or in compliance with the inventory
PICCS	On the inventory, or in compliance with the inventory
IECSC	On the inventory, or in compliance with the inventory

TSCA list

No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

Enzyme mix

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Not a hazardous substance or mixture.

Expand Long Template buffer 1, 10x conc.**GHS label elements**

Not a hazardous substance or mixture.

Expand Long Template buffer 2, 10 x conc.**GHS label elements**

Not a hazardous substance or mixture.

Expand Long Template buffer 3, 10 x conc.**GHS label elements**

Not a hazardous substance or mixture.

SECTION 16. OTHER INFORMATION**Full text of other abbreviations**

AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

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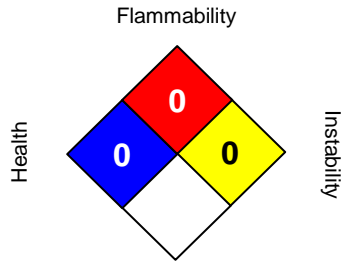
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Enzyme mix

NFPA:



Special hazard.

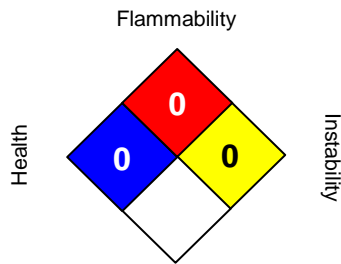
HMIS III:

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Expand Long Template buffer 1, 10x conc.

NFPA:



Special hazard.

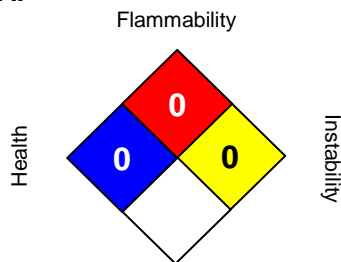
HMIS III:

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Expand Long Template buffer 2, 10 x conc.

NFPA:



Special hazard.

HMIS III:

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

SAFETY DATA SHEET



Expand Long Templ.PCR Syst. (720 U)

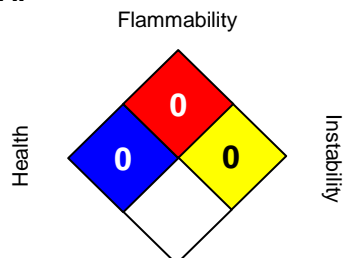
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Expand Long Template buffer 3, 10 x conc.

NFPA:



HMIS III:

HEALTH	0
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04-27-2016

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and re-lease and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

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