



# SAFETY DATA SHEET

United States

## Section 1. Identification

Product name

**Reaction Buffer; part of 'Thermo Sequenase™  
DNA Polymerase (with TAP) kit, 10000 units'**

Catalogue Number

E79000Z



Other means of identification

Not available.

Product type

Liquid.

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

Analytical chemistry.  
Laboratory chemicals  
Scientific research and development

Supplier

Cytiva  
Amersham Place  
Little Chalfont  
Buckinghamshire  
HP7 9NA United Kingdom  
+44 1494 508000

Cytiva USA  
100 Results Way  
Marlborough, MA 01752  
1-800-526-3593

In case of emergency

INFOTRAC - 24 Hour number: 1-800-535-5053  
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)

## Section 2. Hazards identification

OSHA/HCS status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

AQUATIC HAZARD (LONG-TERM) - Category 2

### GHS label elements

Hazard pictograms



Signal word

No signal word.

Hazard statements

Toxic to aquatic life with long lasting effects.

### Precautionary statements

Prevention

Avoid release to the environment.

Response

Collect spillage.

Storage

Not applicable.

Disposal

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified

None known.

Hazards identified when used

No known significant effects or critical hazards.



### Section 3. Composition/information on ingredients

**Substance/mixture** Mixture

**Other means of identification** Not available.

Ingredient name	Synonyms	%	Identifiers
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, hydrochloride (1:1); 1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, hydrochloride; 2-Amino-2-hydroxymethyl-1,3-propanediol hydrochloride; Tris (hydroxymethyl)aminomethane, hydrochloride; 2-amino-2-(hydroxymethyl)propane-1,3-diol; trometamol monohydrochloride; tromethamine hydrochloride; tris-Hydrochloride; 2-Amino-2-(hydroxymethyl)propane-1,3-diol monohydrochloride; Tris (hydroxymethyl)aminomethane hydrochloride; PROPANE-1,3-DIOL, 2-AMINO-2-(HYDROXYMETHYL)-, HYDROCHLORIDE	≥1 - ≤5	CAS: 1185-53-1
nonylphenol, branched and linear, ethoxylated (with average molecular weight ≤ 1 540 g/mol)	Poly(oxy-1,2-ethanediyl), .alpha-(nonylphenyl)-.omega.-hydroxy-; poly(oxy-1,2-ethanediyl), α-(nonylphenyl)-ω-hydroxy-; Poly(oxy-1,2-ethanediyl), α(nonylphenyl)-ω-hydroxy-; Nonylphenol polyethylene glycol ether; Poly(oxy-1,2-ethanediyl), alpha-(nonylphenyl)-omega- hydroxy-; 2-(Nonylphenyl)-.omega.-hydroxypoly(oxy-1,2-ethanediyl); Ethoxylated nonylphenol; Glycols, polyethylene, mono(nonylphenyl) ether; Nonylphenol, ethylene oxide, condensate; Nonylphenoxypolyethoxy ethanol; Polyethylene glycol, nonylphenyl ether	≥0.1 - ≤1	CAS: 9016-45-9

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 and hence require reporting in this section.**

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

### Section 4. First aid measures

#### Description of necessary first aid measures

<b>Eye contact</b>	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.
<b>Inhalation</b>	Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
<b>Skin contact</b>	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<b>Ingestion</b>	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.

#### Most important symptoms/effects, acute and delayed

##### Potential acute health effects

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.

##### Over-exposure signs/symptoms

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.



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

<b>Notes to physician</b>	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.
<b>Specific treatments</b>	No specific treatment.
<b>Protection of first-aiders</b>	No action shall be taken involving any personal risk or without suitable training.
<b>See toxicological information (Section 11)</b>	

**Section 5. Fire-fighting measures****Extinguishing media**

<b>Suitable extinguishing media</b>	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	None known.
<b>Specific hazards arising from the chemical</b>	In a fire or if heated, a pressure increase will occur and the container may burst. This material is toxic 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.
<b>Hazardous thermal decomposition products</b>	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
<b>Special protective actions for fire-fighters</b>	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.
<b>Special protective equipment for fire-fighters</b>	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

**Section 6. Accidental release measures****Personal precautions, protective equipment and emergency procedures**

<b>For non-emergency personnel</b>	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	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".
<b>Environmental precautions</b>	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). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

**Methods and materials for containment and cleaning up**

<b>Small spill</b>	Stop leak if without risk. Move containers from spill area. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
<b>Large spill</b>	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

**Section 7. Handling and storage****Precautions for safe handling**

<b>Protective measures</b>	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor 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.
<b>Advice on general occupational hygiene</b>	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.
<b>Conditions for safe storage, including any incompatibilities</b>	Do not store above the following temperature: -20°C (-4°F). 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. See Section 10 for incompatible materials before handling or use.



## Section 8. Exposure controls/personal protection

### Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	None.
nonylphenol, branched and linear, ethoxylated (with average molecular weight $\leq 1\,540$ g/mol)	None.

#### Biological exposure indices

No exposure indices known.

<b>Appropriate engineering controls</b>	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
<b>Environmental exposure controls</b>	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

<b>Hygiene measures</b>	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.
<b>Eye/face protection</b>	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.
<b>Skin protection</b>	
<b>Hand protection</b>	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.
<b>Body protection</b>	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.
<b>Other skin protection</b>	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.
<b>Respiratory protection</b>	Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### Appearance

<b>Physical state</b>	Liquid.
<b>Color</b>	Colorless.
<b>Odor</b>	Odorless.
<b>Odor threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point/freezing point</b>	Not available.
<b>Boiling point or initial boiling point and boiling range</b>	Not available.
<b>Flash point</b>	Not applicable.
<b>Burning time</b>	Not applicable.
<b>Burning rate</b>	Not applicable.
<b>Evaporation rate</b>	Not available.
<b>Flammability</b>	Not available.
<b>Lower and upper explosive (flammable) limits</b>	Not available.
<b>Vapor pressure</b>	Not available.

	Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	water	17.5	2.3				
Relative vapor density	Not available.						



**Relative density** Not available.  
**Solubility(ies)**

	<b>Media</b>	<b>Result</b>
	cold water	Easily soluble
	hot water	Easily soluble
<b>Solubility in water</b>	Not available.	
<b>Miscible with water</b>	Yes.	
<b>Partition coefficient: n-octanol/ water</b>	Not applicable.	
<b>Auto-ignition temperature</b>	Not available.	
<b>Decomposition temperature</b>	Not available.	
<b>SADT</b>	Not available.	
<b>Viscosity</b>	Dynamic (room temperature): Not available. Kinematic (room temperature): Not available. Kinematic (40°C (104°F)): Not available.	
<b>Flow time (ISO 2431)</b>	Not available.	

**Particle characteristics**

**Median particle size** Not applicable.

**Section 10. Stability and reactivity**

<b>Reactivity</b>	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	The product is stable.
<b>Possibility of hazardous reactions</b>	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	No specific data.
<b>Incompatible materials</b>	No specific data.
<b>Hazardous decomposition products</b>	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

**Section 11. Toxicological information****Information on toxicological effects****Acute toxicity**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Skin corrosion/irritation****Product/ingredient name**

nonylphenol, branched and linear, ethoxylated  
(with average molecular weight  $\leq 1\,540$  g/mol)

**Result****Human - Skin - Mild irritant**

Duration of treatment/exposure: 72 hours

Amount/concentration applied: 15 mg l

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Rabbit - Skin - Mild irritant**

Amount/concentration applied: 500 mg

**Conclusion/Summary  
[Product]** Not available.

**Serious eye damage/eye irritation****Product/ingredient name****Result**

nonylphenol, branched and linear, ethoxylated  
(with average molecular weight  $\leq 1\,540$  g/mol)

**Guinea pig - Eyes - Severe irritant**  
Amount/concentration applied: 20 mg  
**Mouse - Eyes - Severe irritant**  
Amount/concentration applied: 20 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 20 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 5 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 5 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 100 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 5 mg  
**Rabbit - Eyes - Severe irritant**  
Amount/concentration applied: 15 mg

**Conclusion/Summary  
[Product]** Not available.

**Respiratory corrosion/irritation**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Respiratory or skin sensitization**

Not available.

**Skin**

**Conclusion/Summary  
[Product]** Not available.

**Respiratory**

**Conclusion/Summary  
[Product]** Not available.

**Germ cell mutagenicity**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Carcinogenicity**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Reproductive toxicity**

Not available.

**Conclusion/Summary  
[Product]** Not available.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.



**Aspiration hazard**

Not available.

**Information on the likely routes of exposure** Routes of entry anticipated: Oral, Dermal, Inhalation.

**Potential acute health effects**

<b>Eye contact</b>	No known significant effects or critical hazards.
<b>Inhalation</b>	No known significant effects or critical hazards.
<b>Skin contact</b>	No known significant effects or critical hazards.
<b>Ingestion</b>	No known significant effects or critical hazards.

**Symptoms related to the physical, chemical and toxicological characteristics**

<b>Eye contact</b>	No specific data.
<b>Inhalation</b>	No specific data.
<b>Skin contact</b>	No specific data.
<b>Ingestion</b>	No specific data.

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

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Long term exposure**

<b>Potential immediate effects</b>	Not available.
<b>Potential delayed effects</b>	Not available.

**Potential chronic health effects**

Not available.

<b>Conclusion/Summary [Product]</b>	Not available.
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<b>General</b>	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	No known significant effects or critical hazards.
<b>Mutagenicity</b>	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	No known significant effects or critical hazards.

**Numerical measures of toxicity****Acute toxicity estimates**

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Reaction Buffer; part of 'Thermo Sequenase DNA Polymerase (with TAP) kit, 10000 units'	147042.4	N/A	N/A	N/A	N/A

**Section 12. Ecological information****Toxicity**

Product/ingredient name	Result
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	<b>EC50</b> Daphnia >100 mg/l [48 hours]
nonylphenol, branched and linear, ethoxylated (with average molecular weight ≤ 1 540 g/mol)	<b>Acute - LC50 - Fresh water</b> Fish - Bluegill - <i>Lepomis macrochirus</i> Weight: 1 g 1300 µg/l [96 hours] Effect: Mortality <b>Chronic - NOEC - Fresh water</b> Fish - Medaka, high-eyes - <i>Oryzias latipes</i> - Fry Age: 1 days 35 µg/l [100 days] Effect: Morphology <b>Acute - LC50 - Fresh water</b> Daphnia - Water flea - <i>Daphnia magna</i> - Neonate Age: 24 hours



0.148 mg/l [48 hours]  
Effect: Mortality  
**Acute - EC50 - Fresh water**  
Algae - Green algae - *Raphidocelis subcapitata*  
12 mg/l [96 hours]  
Effect: Population  
**Chronic - NOEC - Fresh water**  
Algae - Green algae - *Raphidocelis subcapitata*  
8 mg/l [96 hours]  
Effect: Population

**Conclusion/Summary**  
**[Product]** Not available.

#### **Persistence and degradability**

Not available.

#### **Bioaccumulative potential**

Not available.

#### **Mobility in soil**

**Soil/Water partition coefficient** Not available.

**Other adverse effects** No known significant effects or critical hazards.

### **Section 13. Disposal considerations**

**Disposal methods** The generation of waste should be avoided or 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.

### **Section 14. Transport information**

**Product is not regulated as dangerous goods for transport.**

### **Section 15. Regulatory information**

**U.S. Federal regulations** **TSCA 5(a)2 proposed significant new use rules:** Nonylphenol, ethoxylated  
**TSCA 8(a) PAIR:** Nonylphenol, ethoxylated  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined

#### **TSCA 12(b) - Chemical export notification**

Not applicable.

<b>Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)</b>	Not listed
<b>Clean Air Act Section 602 Class I Substances</b>	Not listed
<b>Clean Air Act Section 602 Class II Substances</b>	Not listed
<b>DEA List I Chemicals (Precursor Chemicals)</b>	Not listed
<b>DEA List II Chemicals (Essential Chemicals)</b>	Not listed

#### **SARA 302/304**

##### **Composition/information on ingredients**

No products were found.

**SARA 304 RQ** Not applicable.

#### **SARA 311/312**

**Classification** Not applicable.

##### **Composition/information on ingredients**

<b>Name</b>	<b>%</b>
2-amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	<5

##### **Classification**

SKIN IRRITATION - Category 2  
EYE IRRITATION - Category 2A



**State regulations**

<b>Massachusetts</b>	None of the components are listed.
<b>New York</b>	None of the components are listed.
<b>New Jersey</b>	None of the components are listed.
<b>Pennsylvania</b>	None of the components are listed.

**California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

**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**

<b>United States</b>	All components are active or exempted.
<b>Canada inventory</b>	All components are listed or exempted.

**Section 16. Other information****National Fire Protection Association (U.S.A.)****Procedure used to derive the classification**

Classification	Justification
AQUATIC HAZARD (LONG-TERM) - Category 2	Calculation method

**History**

<b>Date of printing</b>	2/19/2026
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**Key to abbreviations**

ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 UN = United Nations  
 Not available.

**References**

Indicates information that has changed from previously issued version.

**Notice to reader**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.



