

# SAFETY DATA SHEET

Dpn I Restriction Enzyme, Part Number 500402

## Section 1. Identification

**Product identifier** : Dpn I Restriction Enzyme, Part Number 500402

**Part no. (chemical kit)** : 500402

**Part no.** : Dpn I 500402-51  
 10X Universal Buffer 510000-50  
 10X Optimal Buffer 7 510000-57

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

**Identified uses** :  Analytical reagent.

Dpn I 0.02 ml (200 U 10 U/μl)  
 10X Universal Buffer 1 ml  
 10X Optimal Buffer 7 1 ml

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

**Emergency telephone number (with hours of operation)** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazard identification

### Classification of the substance or mixture

Dpn I  
 H320 EYE IRRITATION - Category 2B

### GHS label elements

**Signal word** : Dpn I Warning  
 10X Universal Buffer No signal word.  
 10X Optimal Buffer 7 No signal word.

**Hazard statements** :  Dpn I H320 - Causes eye irritation.  
 10X Universal Buffer No known significant effects or critical hazards.  
 10X Optimal Buffer 7 No known significant effects or critical hazards.

### Precautionary statements

**Prevention** :  Dpn I Not applicable.  
 10X Universal Buffer Not applicable.  
 10X Optimal Buffer 7 Not applicable.

**Response** : Dpn I P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical advice or attention.

**Storage** : 10X Universal Buffer Not applicable.  
 10X Optimal Buffer 7 Not applicable.  
 Dpn I Not applicable.  
 10X Universal Buffer Not applicable.  
 10X Optimal Buffer 7 Not applicable.

## Section 2. Hazard identification

<b>Disposal</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Supplemental label elements</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known. Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4.5% Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2%
<b>Other hazards which do not result in classification</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Mixture Mixture Mixture
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Ingredient name	Synonyms	% (w/w)	CAS number
<b>Dpn I</b>			
Glycerol	Glycerol	≥30 - ≤60	56-81-5
<b>10X Universal Buffer</b>			
[2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium acetate	Tris acetate	≥1 - ≤5	6850-28-8

Ranges if listed above for hazardous ingredient(s) are prescribed ranges. The actual concentration(s) or actual concentration range(s) are being withheld as a trade secret.

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>	: <input checked="" type="checkbox"/> Dpn I	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 Universal Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	10X Optimal Buffer 7	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.

## Section 4. First-aid measures

### Inhalation

: Dpn I

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 Universal Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

10X Optimal Buffer 7

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

### Skin contact

: Dpn I

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. Flush contaminated skin with plenty of water.

10X Universal Buffer

Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

10X Optimal Buffer 7

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

### Ingestion

: Dpn I

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

10X Universal Buffer

Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

10X Optimal Buffer 7

Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

## Section 4. First-aid measures

### Potential acute health effects

<b>Eye contact</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Inhalation</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: Dpn I  10X Universal Buffer 10X Optimal Buffer 7	Adverse symptoms may include the following: irritation watering redness No specific data. No specific data.
<b>Inhalation</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific data. No specific data. No specific data.

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

<b>Notes to physician</b>	: Dpn I  10X Universal Buffer  10X Optimal Buffer 7	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours. 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>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific treatment. No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: Dpn I  10X Universal Buffer  10X Optimal Buffer 7	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. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	: Dpn I	Use an extinguishing agent suitable for the surrounding fire.
	10X Universal Buffer	Use an extinguishing agent suitable for the surrounding fire.
	10X Optimal Buffer 7	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Dpn I	None known.
	10X Universal Buffer	None known.
	10X Optimal Buffer 7	None known.
<b>Specific hazards arising from the chemical</b>	: Dpn I	In a fire or if heated, a pressure increase will occur and the container may burst.
	10X Universal Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	10X Optimal Buffer 7	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: Dpn I	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
	10X Universal Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides
	10X Optimal Buffer 7	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
	: Dpn I	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 Universal 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.
	10X Optimal Buffer 7	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>	: Dpn I	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10X Universal Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10X Optimal Buffer 7	Fire-fighters should wear appropriate protective

## Section 5. Fire-fighting measures

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>	: Dpn I	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 Universal 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. Put on appropriate personal protective equipment.
	10X Optimal Buffer 7	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>	: Dpn I	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 Universal 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".
	10X Optimal Buffer 7	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>	: Dpn I	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 Universal 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).
	10X Optimal Buffer 7	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).

### Methods and materials for containment and cleaning up

## Section 6. Accidental release measures

<b>Methods for cleaning up</b>	: Dpn I	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 Universal 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.
	10X Optimal Buffer 7	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

### Precautions for safe handling

<b>Protective measures</b>	: Dpn I	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 Universal Buffer	Put on appropriate personal protective equipment (see Section 8).
	10X Optimal Buffer 7	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	: Dpn I	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 Universal 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.
	10X Optimal Buffer 7	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

## Section 7. Handling and storage

**Conditions for safe storage, including any incompatibilities** : Dpn I

10X Universal Buffer

10X Optimal Buffer 7

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.


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.

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
<p> Dpn I Glycerol</p>	<p><b>CA Alberta Provincial (Canada, 6/2018).</b> OEL: 10 mg/m<sup>3</sup> 8 hours. Form: Mist</p> <p><b>CA Quebec Provincial (Canada, 6/2022).</b> TWA EV: 10 mg/m<sup>3</sup> 8 hours. Form: mist</p> <p><b>CA Saskatchewan Provincial (Canada, 7/2013).</b> STEL: 20 mg/m<sup>3</sup> 15 minutes. Form: mist TWA: 10 mg/m<sup>3</sup> 8 hours. Form: mist</p> <p><b>CA British Columbia Provincial (Canada, 6/2023).</b> TWA: 3 mg/m<sup>3</sup> 8 hours. Form: respirable mist TWA: 10 mg/m<sup>3</sup> 8 hours. Form: total mist</p>

[Biological exposure indices](#)

No exposure indices known.



## Section 8. Exposure controls/personal protection

- 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.

### 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 and safety characteristics

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

### Appearance

- |                       |                      |                |
|-----------------------|----------------------|----------------|
| <b>Physical state</b> | : Dpn I              | Liquid.        |
|                       | 10X Universal Buffer | Liquid.        |
|                       | 10X Optimal Buffer 7 | Liquid.        |
| <b>Color</b>          | : Dpn I              | Not available. |
|                       | 10X Universal Buffer | Not available. |
|                       | 10X Optimal Buffer 7 | Not available. |
| <b>Odor</b>           | : Dpn I              | Not available. |
|                       | 10X Universal Buffer | Not available. |
|                       | 10X Optimal Buffer 7 | Not available. |
| <b>Odor threshold</b> | : Dpn I              | Not available. |
|                       | 10X Universal Buffer | Not available. |
|                       | 10X Optimal Buffer 7 | Not available. |

## Section 9. Physical and chemical properties and safety characteristics

**pH** : Dpn I 7.5  
10X Universal Buffer 7.6  
10X Optimal Buffer 7 7.7

**Melting point/freezing point** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

**Boiling point, initial boiling point, and boiling range** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

**Flash point** :

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
Dpn I						
Glycerol	-	-	-	177	350.6	-

**Evaporation rate** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

**Flammability** : Dpn I Not applicable.  
10X Universal Buffer Not applicable.  
10X Optimal Buffer 7 Not applicable.

**Lower and upper explosion limit/flammability limit** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

**Vapor pressure** :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Dpn I						
water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-
<b>10X Universal Buffer</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>10X Optimal Buffer 7</b>						
water	17.5	2.3	-	92.258	12.3	-

**Relative vapor density** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

**Relative density** : Dpn I Not available.  
10X Universal Buffer Not available.  
10X Optimal Buffer 7 Not available.

## Section 9. Physical and chemical properties and safety characteristics

<b>Solubility(ies)</b>	<b>Media</b>	<b>Result</b>		
	Dpn I water	Soluble		
	10X Universal Buffer water	Soluble		
	10X Optimal Buffer 7 water	Soluble		
<b>Partition coefficient: n-octanol/water</b>	Dpn I	Not applicable.		
	10X Universal Buffer	Not applicable.		
	10X Optimal Buffer 7	Not applicable.		
<b>Auto-ignition temperature</b>	<b>Ingredient name</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>
	Dpn I Glycerol	370	698	-
<b>Decomposition temperature</b>	Dpn I	Not available.		
	10X Universal Buffer	Not available.		
	10X Optimal Buffer 7	Not available.		
<b>Viscosity</b>	Dpn I	Not available.		
	10X Universal Buffer	Not available.		
	10X Optimal Buffer 7	Not available.		
<b>Particle characteristics</b>				
<b>Median particle size</b>	Dpn I	Not applicable.		
	10X Universal Buffer	Not applicable.		
	10X Optimal Buffer 7	Not applicable.		

## Section 10. Stability and reactivity

<b>Reactivity</b>	Dpn I	No specific test data related to reactivity available for this product or its ingredients.
	10X Universal Buffer	No specific test data related to reactivity available for this product or its ingredients.
	10X Optimal Buffer 7	No specific test data related to reactivity available for this product or its ingredients.
<b>Chemical stability</b>	Dpn I	The product is stable.
	10X Universal Buffer	The product is stable.
	10X Optimal Buffer 7	The product is stable.
<b>Possibility of hazardous reactions</b>	Dpn I	Under normal conditions of storage and use, hazardous reactions will not occur.
	10X Universal Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	10X Optimal Buffer 7	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>Conditions to avoid</b>	Dpn I	No specific data.
	10X Universal Buffer	No specific data.
	10X Optimal Buffer 7	No specific data.
<b>Incompatible materials</b>	Dpn I	May react or be incompatible with oxidizing materials.
	10X Universal Buffer	May react or be incompatible with oxidizing materials.
	10X Optimal Buffer 7	May react or be incompatible with oxidizing materials.

## Section 10. Stability and reactivity

<b>Hazardous decomposition products</b>	: Dpn I	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X Universal Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X Optimal Buffer 7	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>Dpn I</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>Dpn I</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

#### Sensitization

Not available.

#### Mutagenicity

**Conclusion/Summary** : Not available.

#### Carcinogenicity

**Conclusion/Summary** : Not available.

#### Reproductive toxicity

**Conclusion/Summary** : Not available.

#### Teratogenicity

**Conclusion/Summary** : Not available.

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

Name	Category	Route of exposure	Target organs
<b>10X Universal Buffer</b> [2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium acetate	Category 3	-	Respiratory tract irritation

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

Not available.

#### Aspiration hazard

Not available.

## Section 11. Toxicological information

<b>Information on the likely routes of exposure</b>	: Dpn I	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	10X Universal Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	10X Optimal Buffer 7	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

<b>Eye contact</b>	: Dpn I	Causes eye irritation.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.
<b>Inhalation</b>	: Dpn I	No known significant effects or critical hazards.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.
<b>Skin contact</b>	: Dpn I	No known significant effects or critical hazards.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.
<b>Ingestion</b>	: Dpn I	No known significant effects or critical hazards.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.

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

<b>Eye contact</b>	: Dpn I	Adverse symptoms may include the following: irritation watering redness
	10X Universal Buffer	No specific data.
	10X Optimal Buffer 7	No specific data.
<b>Inhalation</b>	: Dpn I	No specific data.
	10X Universal Buffer	No specific data.
	10X Optimal Buffer 7	No specific data.
<b>Skin contact</b>	: Dpn I	No specific data.
	10X Universal Buffer	No specific data.
	10X Optimal Buffer 7	No specific data.
<b>Ingestion</b>	: Dpn I	No specific data.
	10X Universal Buffer	No specific data.
	10X Optimal Buffer 7	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

<b>General</b>	: Dpn I	No known significant effects or critical hazards.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: Dpn I	No known significant effects or critical hazards.
	10X Universal Buffer	No known significant effects or critical hazards.
	10X Optimal Buffer 7	No known significant effects or critical hazards.

## Section 11. Toxicological information

<b>Mutagenicity</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No known significant effects or critical hazards. No known significant effects or critical hazards. 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)
<b>Dpn I</b> Dpn I Glycerol	130434.8 12600	N/A N/A	N/A N/A	N/A N/A	N/A N/A
<b>10X Universal Buffer</b> 10X Universal Buffer	33163.3	N/A	N/A	N/A	N/A
<b>10X Optimal Buffer 7</b> 10X Optimal Buffer 7	34482.8	N/A	N/A	N/A	N/A

<b>Other information</b>	: 10X Optimal Buffer 7	Adverse symptoms may include the following: May cause skin sensitization.
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## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
<b>Dpn I</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<b>Dpn I</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>Dpn I</b> Glycerol	-1.76	-	Low

### Mobility in soil

<b>Soil/water partition coefficient (K<sub>oc</sub>)</b>	: Not available.
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## Section 12. Ecological information

**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

**TDG / IMDG / IATA** : Not regulated.

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

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

### Canadian lists

**Canadian NPRI** : None of the components are listed.

**CEPA Toxic substances** : None of the components are listed.

### 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

**Canada** : At least one component is not listed in DSL but all such components are listed in NDSL.

**United States** : All components are active or exempted.

## Section 16. Other information

### History

**Date of issue/Date of revision** : 03/21/2024


**Date of previous issue** : 03/30/2021

**Version** : 6

### Key to abbreviations

: ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 HPR = Hazardous Products Regulations  
 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

### Procedure used to derive the classification

Classification	Justification
 <b>Dpn I</b> EYE IRRITATION - Category 2B	Calculation method

 Indicates information that has changed from previously issued version.

### Notice to reader

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.