

SAFETY DATA SHEET



Dpn I Restriction Enzyme, Part Number 500402

Section 1. Identification

1.1 Product identifier

Product name : 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
Validation date : 3/21/2024

1.2 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

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status : Dpn I	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
10X Universal Buffer	
10X Optimal Buffer 7	

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture

Dpn I H320	EYE IRRITATION - Category 2B	
10X Universal Buffer		Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 4.5%
10X Optimal Buffer 7		Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 2%

Section 2. Hazards identification

2.2 GHS label elements

Signal word	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Warning No signal word. No signal word.
Hazard statements	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	H320 - Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
Precautionary statements		
Prevention	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
Response	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	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. Not applicable. Not applicable.
Storage	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
Disposal	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
Supplemental label elements	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known.

2.3 Other hazards

Hazards not otherwise classified	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known.
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Section 3. Composition/information on ingredients

Substance/mixture	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Mixture Mixture Mixture
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Ingredient name	%	CAS number
<input checked="" type="checkbox"/> Dpn I		
Glycerol	≥50 - ≤75	56-81-5
10X Universal Buffer		
[2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium acetate	≤5	6850-28-8

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

4.1 Description of necessary first aid measures

Eye contact	: 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.
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.
	10X Universal Buffer	Flush contaminated skin with plenty of water. 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.

Section 4. First aid measures

10X Universal Buffer

10X Optimal Buffer 7

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. 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.

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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Inhalation	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Skin contact	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Ingestion	: 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.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
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

Eye contact	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Inhalation	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Skin contact	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7
Ingestion	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7

Adverse symptoms may include the following:
irritation
watering
redness
No specific data.
No specific data.
No specific data.
No specific data.
No specific data.
No specific data.
No specific data.
No specific data.
No specific data.

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

Section 4. First aid measures

Notes to physician	: 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.
Specific treatments	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: 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

5.1 Extinguishing media

Suitable extinguishing media	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides metal oxide/oxides Decomposition products may include the following

Section 5. Fire-fighting measures

materials:
 carbon dioxide
 carbon monoxide
 nitrogen oxides
 halogenated compounds
 metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

: 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.

Special protective equipment for fire-fighters

: 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 equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

: 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.

Section 6. Accidental release measures

For emergency responders	: 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".
6.2 Environmental precautions	: 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).
6.3 Methods and materials for containment and cleaning up		
Methods for cleaning up	: 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

7.1 Precautions for safe handling

Section 7. Handling and storage

<p>Protective measures</p>	<p>: Dpn I</p> <p>10X Universal Buffer</p> <p>10X Optimal Buffer 7</p>	<p>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.</p> <p>Put on appropriate personal protective equipment (see Section 8).</p> <p>Put on appropriate personal protective equipment (see Section 8).</p>
<p>Advice on general occupational hygiene</p>	<p>: Dpn I</p> <p>10X Universal Buffer</p> <p>10X Optimal Buffer 7</p>	<p>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.</p> <p>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.</p> <p>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.</p>
<p>7.2 Conditions for safe storage, including any incompatibilities</p>	<p>: Dpn I</p> <p>10X Universal Buffer</p> <p>10X Optimal Buffer 7</p>	<p>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.</p> <p>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.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from</p>

Section 7. Handling and storage

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.

7.3 Specific end use(s)

Recommendations	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Dpn I Glycerol	OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 10 mg/m ³ 8 hours. Form: Total dust OSHA PEL (United States, 5/2018). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust CAL OSHA PEL (United States, 5/2018). TWA: 5 mg/m ³ 8 hours. Form: respirable fraction TWA: 10 mg/m ³ 8 hours. Form: total dust
10X Universal Buffer [2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium acetate	None.

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

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

Individual protection measures

Section 8. Exposure controls/personal protection

- 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

Physical state	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Liquid. Liquid. Liquid.
Color	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
Odor	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
Odor threshold	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
pH	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	7.5 7.6 7.7
Melting point/freezing point	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
Boiling point, initial boiling point, and boiling range	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
Flash point	:	

Section 9. Physical and chemical properties and safety characteristics

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	-
10X Universal Buffer						
water	17.5	2.3	-	92.258	12.3	-
10X Optimal Buffer 7						
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.

Solubility(ies) :

Media	Result
Dpn I	
water	Soluble
10X Universal Buffer	
water	Soluble
10X Optimal Buffer 7	
water	Soluble

Partition coefficient: n-octanol/water : Dpn I Not applicable.
 10X Universal Buffer Not applicable.
 10X Optimal Buffer 7 Not applicable.

Auto-ignition temperature :

Ingredient name	°C	°F	Method
Dpn I			
Glycerol	370	698	-

Section 9. Physical and chemical properties and safety characteristics

Decomposition temperature	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
Viscosity	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<u>Particle characteristics</u>		
Median particle size	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific data. No specific data. No specific data.
10.5 Incompatible materials	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

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

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Dpn I 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
10X Universal Buffer [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.

Information on the likely routes of exposure

: **Dpn I**

10X Universal Buffer

10X Optimal Buffer 7

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact

: **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.

Inhalation

: **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.

Section 11. Toxicological information

Skin contact	: 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.
Ingestion	: 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.

Symptoms related to the physical, chemical and toxicological characteristics

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

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

Short term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Long term exposure

Potential immediate effects	: Not available.
Potential delayed effects	: Not available.

Potential chronic health effects

General	: 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.
Carcinogenicity	: 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.
Mutagenicity	: 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.
Reproductive toxicity	: 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

Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Dpn I Dpn I Glycerol	130434.8 12600	N/A N/A	N/A N/A	N/A N/A	N/A N/A
10X Universal Buffer 10X Universal Buffer	33163.3	N/A	N/A	N/A	N/A
10X Optimal Buffer 7 10X Optimal Buffer 7	34482.8	N/A	N/A	N/A	N/A

Other information : 10X Optimal Buffer 7

Adverse symptoms may include the following: May cause skin sensitization.

Section 12. Ecological information

12.1 Toxicity

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

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Dpn I Glycerol	-1.76	-	Low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

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

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

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

Section 14. Transport information

DOT / TDG / Mexico / 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

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

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: Edetic acid

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

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Section 15. Regulatory information

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : **Dpn I** EYE IRRITATION - Category 2B
 10X Universal Buffer Not applicable.
 10X Optimal Buffer 7 Not applicable.

Composition/information on ingredients

Name	%	Classification
Dpn I Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2B
10X Universal Buffer potassium acetate [2-Hydroxy-1,1-bis (hydroxymethyl)ethyl]ammonium acetate	≤10 ≤5	COMBUSTIBLE DUSTS SKIN IRRITATION - Category 2 EYE IRRITATION - Category 2A SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST
New York : None of the components are listed.
New Jersey : The following components are listed: GLYCERIN
Pennsylvania : The following components are listed: 1,2,3-PROPANETRIOL
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

Australia : Not determined.
Canada : At least one component is not listed in DSL but all such components are listed in NDSL.
China : Not determined.
Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : Not determined.
Taiwan : All components are listed or exempted.

Section 15. Regulatory information

Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are active or exempted.
Viet Nam	: <input checked="" type="checkbox"/> All components are listed or exempted.

Section 16. Other information

[Procedure used to derive the classification](#)

Classification	Justification
<input checked="" type="checkbox"/> Dpn I EYE IRRITATION - Category 2B	Calculation method

[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 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

Indicates information that has changed from previously issued version.

[Notice to reader](#)

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