

# SAFETY DATA SHEET



Dpn I Restriction Enzyme, Part Number 500402

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

### 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

### 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  
**Uses advised against** : None known.

### 1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.  
 5500 Lakeside Cheadle Royal Business Park,  
 Cheadle, Cheshire, SK8 3GR  
 United Kingdom  
 Tel: +44 (0) 345 712 5292  
**e-mail address of person responsible for this SDS** : pdl-msds\_author@agilent.com

### 1.4 Emergency telephone number

**Emergency telephone number (with hours of operation)** : CHEMTREC®: +(44)-870-8200418

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

**Product definition** : Dpn I Mixture  
 10X Universal Buffer Mixture  
 10X Optimal Buffer 7 Mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]**

Not classified.

<input checked="" type="checkbox"/> Dpn I	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
10X Universal Buffer	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
10X Optimal Buffer 7	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

<b>Ingredients of unknown toxicity</b> : <input checked="" type="checkbox"/> Dpn I	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
10X Universal Buffer	Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 10 - 30%
10X Optimal Buffer 7	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%
	Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%
	Percentage of the mixture consisting of ingredient(s) of

## SECTION 2: Hazards identification

<b>Ingredients of unknown ecotoxicity</b>	: <input checked="" type="checkbox"/> 10X Universal Buffer 10X Optimal Buffer 7	unknown acute inhalation toxicity: 10 - 30% Contains 4.5% of components with unknown hazards to the aquatic environment Contains 2% of components with unknown hazards to the aquatic environment
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See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

<b>Signal word</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No signal word. No signal word. No signal word.
<b>Hazard statements</b>	: <input checked="" type="checkbox"/> 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.

#### Precautionary statements

<b>Prevention</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Response</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Storage</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Disposal</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Supplemental label elements</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer  10X Optimal Buffer 7	Safety data sheet available on request. Contains 2-Mercaptoethanol. May produce an allergic reaction. Safety data sheet available on request. Not applicable.
<b>Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.

#### Special packaging requirements

<b>Containers to be fitted with child-resistant fastenings</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Tactile warning of danger</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.

### 2.3 Other hazards

<b>Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
<b>Other hazards which do not result in classification</b>	: <input checked="" type="checkbox"/> Dpn I 10X Universal Buffer 10X Optimal Buffer 7	None known. None known. None known.

Dpn I Restriction Enzyme, Part Number 500402

### SECTION 3: Composition/information on ingredients

**3.1 Substances** : Dpn I Mixture  
 10X Universal Buffer Mixture  
 10X Optimal Buffer 7 Mixture

Product/ingredient name	Identifiers	%	Classification	Type
<b>Dpn I</b> Glycerol	UK (GB) REACH #: Annex V REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[1]
<b>10X Universal Buffer</b> [2-Hydroxy-1,1-bis(hydroxymethyl)ethyl]ammonium acetate	EC: 229-939-6 CAS: 6850-28-8	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 <b>See Section 16 for the full text of the H statements declared above.</b>	[1]

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type  
**Dpn I** [1] Substance with a workplace exposure limit  
 10X Universal Buffer [1] Substance classified with a health or environmental hazard  
 Occupational exposure limits, if available, are listed in Section 8.

### SECTION 4: First aid measures

#### 4.1 Description of 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. Get medical attention if irritation occurs.  
 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. Get medical attention if symptoms occur.  
 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.  
 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.

## SECTION 4: First aid measures

<b>Ingestion</b>	: Dpn I	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 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.
<b>Protection of first-aiders</b>	: Dpn I	No action shall be taken involving any personal risk or without suitable training.
	10X Universal Buffer	No action shall be taken involving any personal risk or without suitable training.
	10X Optimal Buffer 7	No action shall be taken involving any personal risk or without suitable training.

### 4.2 Most important symptoms and effects, both acute and delayed

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: Dpn I	No specific data.
	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.

### 4.3 Indication of any immediate medical attention and special treatment needed

<b>Notes to physician</b>	: Dpn I	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10X Universal Buffer	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	10X Optimal Buffer 7	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	No specific treatment.
	10X Universal Buffer	No specific treatment.
	10X Optimal Buffer 7	No specific treatment.

## SECTION 5: Firefighting measures

### 5.1 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.

## SECTION 5: Firefighting measures

### 5.2 Special hazards arising from the substance or mixture

<b>Hazards from the substance or mixture</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 combustion 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

### 5.3 Advice for firefighters

<b>Special protective actions for fire-fighters</b>	:  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 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

<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 spilt material. 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 spilt 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 spilt material. Put on appropriate personal protective equipment.

## SECTION 6: Accidental release measures

<b>For emergency responders</b>	: Dpn I	If specialised 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 specialised 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 specialised 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>6.2 Environmental precautions</b>	: Dpn I	Avoid dispersal of spilt 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 spilt 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 spilt 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 material for containment and cleaning up

<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.

<b>6.4 Reference to other sections</b>	: See Section 1 for emergency contact information. See Section 8 for information on appropriate personal protective equipment. See Section 13 for additional waste treatment information.
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## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	: Dpn I	Put on appropriate personal protective equipment (see Section 8).
	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).

## SECTION 7: Handling and storage

### Advice on general occupational hygiene

: 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.

### 7.2 Conditions for safe storage, including any incompatibilities

#### Storage

: Dpn I

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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

10X Universal Buffer

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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

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 unlabelled 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

Industrial applications, Professional applications.

10X Optimal Buffer 7

Industrial applications, Professional applications.

Industrial applications, Professional applications.

#### Industrial sector specific solutions

: Dpn I

10X Universal Buffer

Not available.

10X Optimal Buffer 7

Not available.

Not available.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Product/ingredient name	Exposure limit values
Dpn I Glycerol	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Mist

#### Biological exposure indices

No exposure indices known.

**Recommended monitoring procedures** : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

#### DNELs/DMELs

No DNELs/DMELs available.

#### PNECs

No PNECs available

### 8.2 Exposure controls

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

#### 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: safety glasses with side-shields.

#### 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.

**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.

**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.

**SECTION 9: Physical and chemical properties**

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

**9.1 Information on basic physical and chemical properties**

Appearance

<b>Physical state</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Liquid. Liquid. Liquid.
<b>Colour</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<b>Odour</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<b>Odour threshold</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<b>Melting point/freezing point</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<b>Initial boiling point and boiling range</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
<b>Flammability</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
<b>Upper/lower flammability or explosive limits</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.

<b>Flash point</b>	:			<b>Closed cup</b>		<b>Open cup</b>	
		<b>Ingredient name</b>		<b>°C</b>	<b>Method</b>	<b>°C</b>	<b>Method</b>
		Dpn I glycerol		-	-	177	-

<b>Auto-ignition temperature</b>	:	<b>Ingredient name</b>		<b>°C</b>	<b>Method</b>
		Dpn I glycerol		370	-

<b>Decomposition temperature</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
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<b>pH</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	7.5 7.6 7.7
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<b>Viscosity</b>	: Dpn I 10X Universal Buffer 10X Optimal Buffer 7	Not available. Not available. Not available.
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<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 10X Universal Buffer 10X Optimal Buffer 7	Not applicable. Not applicable. Not applicable.
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## SECTION 9: Physical and chemical properties

Vapour pressure	Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	<b>Dpn I</b>						
	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	-

**Evaporation rate** : 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.

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

**Explosive properties** : Dpn I Not available.  
 10X Universal Buffer Not available.  
 10X Optimal Buffer 7 Not available.

**Oxidising properties** : Dpn I Not available.  
 10X Universal Buffer Not available.  
 10X Optimal Buffer 7 Not available.

### Particle characteristics

**Median particle size** : Dpn I Not applicable.  
 10X Universal Buffer Not applicable.  
 10X Optimal Buffer 7 Not applicable.

### 9.2 Other information

No additional information.

## SECTION 10: Stability and reactivity

**10.1 Reactivity** : 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.

**10.2 Chemical stability** : Dpn I The product is stable.  
 10X Universal Buffer The product is stable.  
 10X Optimal Buffer 7 The product is stable.

## SECTION 10: Stability and reactivity

<b>10.3 Possibility of hazardous reactions</b>	:  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.
<b>10.4 Conditions to avoid</b>	:  Dpn I 10X Universal Buffer 10X Optimal Buffer 7	No specific data. No specific data. No specific data.
<b>10.5 Incompatible materials</b>	:  Dpn I 10X Universal Buffer 10X Optimal Buffer 7	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
<b>10.6 Hazardous decomposition products</b>	:  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	-

#### Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Dpn I Glycerol	12600	N/A	N/A	N/A	N/A

#### 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	-

#### Sensitiser

Conclusion/Summary : 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)

## SECTION 11: Toxicological information

Product/ingredient 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.

**Information on likely routes of exposure** :  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

**Inhalation** :  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.

**Ingestion** :  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.

**Skin contact** :  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.

**Eye contact** :  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

**Inhalation** :  Dpn I No specific data.  
 10X Universal Buffer No specific data.  
 10X Optimal Buffer 7 No specific data.

**Ingestion** :  Dpn I No specific data.  
 10X Universal Buffer No specific data.  
 10X Optimal Buffer 7 No specific data.

**Skin contact** :  Dpn I No specific data.  
 10X Universal Buffer No specific data.  
 10X Optimal Buffer 7 No specific data.

**Eye contact** :  Dpn I No specific data.  
 10X Universal Buffer No specific data.  
 10X Optimal Buffer 7 No specific data.

### Delayed and immediate effects as well as 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

**Conclusion/Summary** : Not available.

**General** :  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.

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## SECTION 11: Toxicological information

<b>Carcinogenicity</b>	: <input checked="" type="checkbox"/> 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>Mutagenicity</b>	: <input checked="" type="checkbox"/> 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>	: <input checked="" type="checkbox"/> 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>Other information</b>	: <input checked="" type="checkbox"/> 10X Optimal Buffer 7	Adverse symptoms may include the following: May cause skin sensitisation.

## SECTION 12: Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> Dpn I Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Trout - <i>Oncorhynchus mykiss</i>	96 hours

**Conclusion/Summary** : Not available.

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<input checked="" type="checkbox"/> Dpn I Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

**Conclusion/Summary** : Not available.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<input checked="" type="checkbox"/> Dpn I Glycerol	-1.76	-	Low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

**Mobility** : Not available.

### 12.5 Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

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

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

Product

## SECTION 13: Disposal considerations

**Methods of disposal** : The generation of waste should be avoided or minimised 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.

**Hazardous waste** : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

### Packaging

**Methods of disposal** : The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

**Special precautions** : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

## SECTION 14: Transport information

	ADR/RID	IMDG	IATA
14.1 UN number	Not regulated.	Not regulated.	Not regulated.
14.2 UN proper shipping name	-	-	-
14.3 Transport hazard class(es)	-	-	-
14.4 Packing group	-	-	-
14.5 Environmental hazards	No.	No.	No.

### Additional information

**14.6 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.

**14.7 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 UK (GB)/REACH

#### Annex XIV - List of substances subject to authorisation

##### Annex XIV

None of the components are listed.

##### Substances of very high concern

None of the components are listed.

##### Ozone depleting substances

Not listed.

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## SECTION 15: Regulatory information

### Prior Informed Consent (PIC)

Not listed.

### Persistent Organic Pollutants

Not listed.

### Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

No listed substance

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

### Seveso Directive

This product is not controlled under the Seveso Directive.

### EU regulations

**Industrial emissions (integrated pollution prevention and control) - Air** : Not listed

**Industrial emissions (integrated pollution prevention and control) - Water** : Not listed

**15.2 Chemical safety assessment** : This product contains substances for which Chemical Safety Assessments might still be required.

### 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

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

## SECTION 16: Other information

Indicates information that has changed from previously issued version.

**Abbreviations and acronyms** : ATE = Acute Toxicity Estimate  
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]  
DMEL = Derived Minimal Effect Level  
DNEL = Derived No Effect Level  
EUH statement = CLP-specific Hazard statement  
N/A = Not available  
PBT = Persistent, Bioaccumulative and Toxic  
PNEC = Predicted No Effect Concentration  
RRN = REACH Registration Number  
vPvB = Very Persistent and Very Bioaccumulative

### Procedure used to derive the classification

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**SECTION 16: Other information**

Classification	Justification
Not classified.	

Full text of abbreviated H statements

<b>10X Universal Buffer</b>	
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

Full text of classifications

<b>10X Universal Buffer</b>	
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE - Category 3

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