

SAFETY DATA SHEET



GeneMorph II Random Mutagenesis Kit, Part Number 200550

Section 1. Identification

1.1 Product identifier

Product name : GeneMorph II Random Mutagenesis Kit, Part Number 200550
Part no. (chemical kit) : 200550
Part no. : Mutazyme II 200550-51
 10X Mutazyme II Reaction Buffer 200550-52
 40 mM dNTP Mix (10 mM each dNTP) 600550-53
 1.1 kb Gel Standard 600550-54
Validation date : 12/16/2022

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

Identified uses : Analytical reagent.
 Mutazyme II 30 µl (75 U 2.5 U/µl)
 10X Mutazyme II Reaction Buffer 150 µl
 40 mM dNTP Mix (10 mM each dNTP) 30 µl
 1.1 kb Gel Standard 150 µl (20 ng/µl)

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 : Mutazyme II	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
10X Mutazyme II Reaction Buffer	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.
40 mM dNTP Mix (10 mM each dNTP)	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.
1.1 kb Gel Standard	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

Mutazyme II
 H320 EYE IRRITATION - Category 2B

Section 2. Hazards identification

10X Mutazyme II Reaction Buffer	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 9%
40 mM dNTP Mix (10 mM each dNTP)	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5.7%

2.2 GHS label elements

Signal word

: Mutazyme II	Warning
10X Mutazyme II Reaction Buffer	No signal word.
40 mM dNTP Mix (10 mM each dNTP)	No signal word.
1.1 kb Gel Standard	No signal word.

Hazard statements

: Mutazyme II	H320 - Causes eye irritation.
10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.

Precautionary statements

Prevention

: Mutazyme II	Not applicable.
10X Mutazyme II Reaction Buffer	Not applicable.
40 mM dNTP Mix (10 mM each dNTP)	Not applicable.
1.1 kb Gel Standard	Not applicable.

Response

: Mutazyme II	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.
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Storage

10X Mutazyme II Reaction Buffer	Not applicable.
40 mM dNTP Mix (10 mM each dNTP)	Not applicable.
1.1 kb Gel Standard	Not applicable.
: Mutazyme II	Not applicable.
10X Mutazyme II Reaction Buffer	Not applicable.
40 mM dNTP Mix (10 mM each dNTP)	Not applicable.
1.1 kb Gel Standard	Not applicable.

Disposal

: Mutazyme II	Not applicable.
10X Mutazyme II Reaction Buffer	Not applicable.
40 mM dNTP Mix (10 mM each dNTP)	Not applicable.
1.1 kb Gel Standard	Not applicable.

Supplemental label elements

: Mutazyme II	None known.
10X Mutazyme II Reaction Buffer	None known.
40 mM dNTP Mix (10 mM each dNTP)	None known.
1.1 kb Gel Standard	None known.

2.3 Other hazards

Hazards not otherwise classified

: Mutazyme II	None known.
10X Mutazyme II Reaction Buffer	None known.
40 mM dNTP Mix (10 mM each dNTP)	None known.
1.1 kb Gel Standard	None known.

Section 3. Composition/information on ingredients

Substance/mixture	: Mutazyme II	Mixture
	10X Mutazyme II Reaction Buffer	Mixture
	40 mM dNTP Mix (10 mM each dNTP)	Mixture
	1.1 kb Gel Standard	Mixture

Ingredient name	%	CAS number
Mutazyme II		
Glycerol	≥50 - ≤75	56-81-5
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	<0.25	9036-19-5

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	: Mutazyme II	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 Mutazyme II Reaction 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.
	40 mM dNTP Mix (10 mM each dNTP)	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.
	1.1 kb Gel Standard	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	: Mutazyme II	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 Mutazyme II Reaction 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.

Section 4. First aid measures

	40 mM dNTP Mix (10 mM each dNTP)	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.
	1.1 kb Gel Standard	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact	: Mutazyme II	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 Mutazyme II Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	40 mM dNTP Mix (10 mM each dNTP)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	1.1 kb Gel Standard	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Mutazyme II	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 Mutazyme II Reaction 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.
	40 mM dNTP Mix (10 mM each dNTP)	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.
	1.1 kb Gel Standard	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

Section 4. First aid measures

Eye contact	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Inhalation	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. No specific data.
Inhalation	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No specific data. No specific data. No specific data. No specific data.
Skin contact	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No specific data. No specific data. No specific data. No specific data.
Ingestion	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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

Notes to physician	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP)	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.
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Section 4. First aid measures

	1.1 kb Gel Standard	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No specific treatment. 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. 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	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	None known. None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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. In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP)	Decomposition products may include the following materials: carbon dioxide carbon monoxide Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides Decomposition products may include the following materials:

Section 5. Fire-fighting measures

carbon dioxide
carbon monoxide
nitrogen oxides
phosphorus oxides
No specific data.

1.1 kb Gel Standard

5.3 Advice for firefighters

Special protective actions for fire-fighters

: Mutazyme II

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 Mutazyme II Reaction 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.

40 mM dNTP Mix (10 mM each dNTP)

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.

1.1 kb Gel Standard

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

: Mutazyme II

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

10X Mutazyme II Reaction Buffer

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

40 mM dNTP Mix (10 mM each dNTP)

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

1.1 kb Gel Standard

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

: Mutazyme II

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 Mutazyme II Reaction 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.

40 mM dNTP Mix (10 mM each

No action shall be taken involving any personal

Section 6. Accidental release measures

dNTP)		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.
1.1 kb Gel Standard		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.
For emergency responders :	Mutazyme II	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 Mutazyme II Reaction 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".
	40 mM dNTP Mix (10 mM each dNTP)	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".
	1.1 kb Gel Standard	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	:	Mutazyme II
		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 Mutazyme II Reaction 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).
		40 mM dNTP Mix (10 mM each dNTP)
		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).
		1.1 kb Gel Standard
		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	:	Mutazyme II
		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 Mutazyme II Reaction Buffer
		Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.

Section 6. Accidental release measures

40 mM dNTP Mix (10 mM each dNTP)

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.

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.

1.1 kb Gel Standard

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

Protective measures

: Mutazyme II

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 Mutazyme II Reaction Buffer

Put on appropriate personal protective equipment (see Section 8).

40 mM dNTP Mix (10 mM each dNTP)

Put on appropriate personal protective equipment (see Section 8).

1.1 kb Gel Standard

Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene

: Mutazyme II

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 Mutazyme II Reaction 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.

40 mM dNTP Mix (10 mM each dNTP)

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.

1.1 kb Gel Standard

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

Section 7. Handling and storage

before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

: Mutazyme II

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.

10X Mutazyme II Reaction 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

40 mM dNTP Mix (10 mM each dNTP)

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.

1.1 kb Gel Standard

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.

7.3 Specific end use(s)

Recommendations

: Mutazyme II
10X Mutazyme II Reaction Buffer
40 mM dNTP Mix (10 mM each dNTP)
1.1 kb Gel Standard

Industrial applications, Professional applications.
Industrial applications, Professional applications.
Industrial applications, Professional applications.

Industrial applications, Professional applications.

Section 7. Handling and storage

Industrial sector specific solutions	: Mutazyme II	Not available.
	10X Mutazyme II Reaction Buffer	Not available.
	40 mM dNTP Mix (10 mM each dNTP)	Not available.
	1.1 kb Gel Standard	Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Mutazyme II 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
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	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 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

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.

Section 8. Exposure controls/personal protection

- 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** : Mutazyme II Liquid.
10X Mutazyme II Reaction Buffer Liquid.
40 mM dNTP Mix (10 mM each dNTP) Liquid.
1.1 kb Gel Standard Liquid.
- Color** : Mutazyme II Not available.
10X Mutazyme II Reaction Buffer Not available.
40 mM dNTP Mix (10 mM each dNTP) Not available.
1.1 kb Gel Standard Not available.
- Odor** : Mutazyme II Not available.
10X Mutazyme II Reaction Buffer Not available.
40 mM dNTP Mix (10 mM each dNTP) Not available.
1.1 kb Gel Standard Not available.
- Odor threshold** : Mutazyme II Not available.
10X Mutazyme II Reaction Buffer Not available.
40 mM dNTP Mix (10 mM each dNTP) Not available.
1.1 kb Gel Standard Not available.
- pH** : Mutazyme II 8
10X Mutazyme II Reaction Buffer 8.5
40 mM dNTP Mix (10 mM each dNTP) 7.5
1.1 kb Gel Standard 7.5
- Melting point/freezing point** : Mutazyme II Not available.
10X Mutazyme II Reaction Buffer Not available.
40 mM dNTP Mix (10 mM each dNTP) Not available.
1.1 kb Gel Standard 0°C (32°F)
- Boiling point, initial boiling point, and boiling range** : Mutazyme II Not available.
10X Mutazyme II Reaction Buffer Not available.
40 mM dNTP Mix (10 mM each dNTP) Not available.
1.1 kb Gel Standard 100°C (212°F)

Flash point

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method

Section 9. Physical and chemical properties and safety characteristics

Mutazyme II					
Glycerol				177	350.6
10X Mutazyme II Reaction Buffer					
Sorbitan monolaurate, ethoxylated	275	527		290	554

Evaporation rate : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.

1.1 kb Gel Standard Not available.

Flammability : Mutazyme II Not applicable.
 10X Mutazyme II Reaction Buffer Not applicable.
 40 mM dNTP Mix (10 mM each dNTP) Not applicable.
 1.1 kb Gel Standard Not applicable.

Lower and upper explosion limit/flammability limit : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.
 1.1 kb Gel Standard Not available.

Vapor pressure :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Mutazyme II						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
10X Mutazyme II Reaction Buffer						
water	23.8	3.2		92.258	12.3	
Sorbitan monolaurate, ethoxylated	<1	<0.13				
40 mM dNTP Mix (10 mM each dNTP)						
water	23.8	3.2		92.258	12.3	
1.1 kb Gel Standard						
water	23.8	3.2		92.258	12.3	

Section 9. Physical and chemical properties and safety characteristics

Relative vapor density : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.
 1.1 kb Gel Standard Not available.

Relative density : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.
 1.1 kb Gel Standard Not available.

Solubility(ies)	Media	Result
	Mutazyme II water	Soluble
	10X Mutazyme II Reaction Buffer water	Soluble
	40 mM dNTP Mix (10 mM each dNTP) water	Soluble
	1.1 kb Gel Standard water	Soluble

Partition coefficient: n-octanol/water : Mutazyme II Not applicable.
 10X Mutazyme II Reaction Buffer Not applicable.
 40 mM dNTP Mix (10 mM each dNTP) Not applicable.
 1.1 kb Gel Standard Not applicable.

Auto-ignition temperature	Ingredient name	°C	°F	Method
	Mutazyme II			
	Glycerol	370	698	

Decomposition temperature : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.
 1.1 kb Gel Standard Not available.

Viscosity : Mutazyme II Not available.
 10X Mutazyme II Reaction Buffer Not available.
 40 mM dNTP Mix (10 mM each dNTP) Not available.
 1.1 kb Gel Standard Not available.

Particle characteristics

Median particle size : Mutazyme II Not applicable.
 10X Mutazyme II Reaction Buffer Not applicable.
 40 mM dNTP Mix (10 mM each dNTP) Not applicable.
 1.1 kb Gel Standard Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity : Mutazyme II No specific test data related to reactivity available for this product or its ingredients.
 10X Mutazyme II Reaction Buffer No specific test data related to reactivity available for this product or its ingredients.
 40 mM dNTP Mix (10 mM each dNTP) No specific test data related to reactivity available for this product or its ingredients.
 1.1 kb Gel Standard No specific test data related to reactivity available for this product or its ingredients.

Section 10. Stability and reactivity

10.2 Chemical stability	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	The product is stable. The product is stable. The product is stable. The product is stable.
10.3 Possibility of hazardous reactions	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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. Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	No specific data. No specific data. No specific data. No specific data.
10.5 Incompatible materials	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	May react or be incompatible with oxidizing materials. 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	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	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. 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
Mutazyme II Glycerol Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	LD50 Oral	Rat	12600 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-

Irritation/Corrosion

Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
Mutazyme II Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 %	-

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)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure

Mutazyme II	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
10X Mutazyme II Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
40 mM dNTP Mix (10 mM each dNTP)	Not available.
1.1 kb Gel Standard	Not available.

Potential acute health effects

Eye contact

Mutazyme II	Causes eye irritation.
10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.

Inhalation

Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.

Skin contact

Mutazyme II	No known significant effects or critical hazards.
10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
1.1 kb Gel Standard	No known significant effects or critical hazards.

Section 11. Toxicological information

Ingestion	: Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
	1.1 kb Gel Standard	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: Mutazyme II	Adverse symptoms may include the following: irritation watering redness
	10X Mutazyme II Reaction Buffer	No specific data.
	40 mM dNTP Mix (10 mM each dNTP)	No specific data.
	1.1 kb Gel Standard	No specific data.
Inhalation	: Mutazyme II	No specific data.
	10X Mutazyme II Reaction Buffer	No specific data.
	40 mM dNTP Mix (10 mM each dNTP)	No specific data.
	1.1 kb Gel Standard	No specific data.
Skin contact	: Mutazyme II	No specific data.
	10X Mutazyme II Reaction Buffer	No specific data.
	40 mM dNTP Mix (10 mM each dNTP)	No specific data.
	1.1 kb Gel Standard	No specific data.
Ingestion	: Mutazyme II	No specific data.
	10X Mutazyme II Reaction Buffer	No specific data.
	40 mM dNTP Mix (10 mM each dNTP)	No specific data.
	1.1 kb Gel Standard	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	: Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
	1.1 kb Gel Standard	No known significant effects or critical hazards.
Carcinogenicity	: Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
	1.1 kb Gel Standard	No known significant effects or critical hazards.
Mutagenicity	: Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
	1.1 kb Gel Standard	No known significant effects or critical hazards.

Section 11. Toxicological information

Reproductive toxicity	: Mutazyme II	No known significant effects or critical hazards.
	10X Mutazyme II Reaction Buffer	No known significant effects or critical hazards.
	40 mM dNTP Mix (10 mM each dNTP)	No known significant effects or critical hazards.
	1.1 kb Gel Standard	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)
Mutazyme II Glycerol Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	12600 500	N/A N/A	N/A N/A	N/A N/A	N/A N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
Mutazyme II Glycerol Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute EC50 210 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

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

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Mutazyme II Glycerol Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	-1.76 2.7	- 78.67	low low

Section 12. Ecological information

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) PAIR:** Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-
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

Section 15. Regulatory information

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

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification	: Mutazyme II 10X Mutazyme II Reaction Buffer 40 mM dNTP Mix (10 mM each dNTP) 1.1 kb Gel Standard	EYE IRRITATION - Category 2B Not applicable. Not applicable. Not applicable.
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Composition/information on ingredients

Name	%	Classification
Mutazyme II Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2B

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 : All components are listed or exempted.

China : All components are listed or exempted.

Eurasian Economic Union : **Russian Federation inventory**: All components are listed or exempted.

Section 15. Regulatory information

Japan	: Japan inventory (CSCL): Not determined. Japan inventory (ISHL): Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: All components are active or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Mutazyme II EYE IRRITATION - Category 2B	Calculation method

History

Date of issue	: 12/16/2022
Date of previous issue	: 03/27/2022
Version	: 7.1

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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