

# SAFETY DATA SHEET



Custom Enzymatic DNA Labeling Bundle -20C Parts, Part Number 930946-5

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Custom Enzymatic DNA Labeling Bundle -20C Parts, Part Number 930946-5  
**Part No. (Chemical Kit)** : 930946-5  
**Part No.** : Random Primers 930946-52  
 5X Reaction Buffer 930946-54  
 10X dNTP Mix 930946-51  
 Exo (-) Klenow 930946-53  
 Cyanine-3-dUTP FP1475  
 Cyanine-5-dUTP FP1476  
**Validation date** : 10/15/2015

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

**Material uses** : Analytical reagent.  
 Random Primers 0.7 ml  
 5X Reaction Buffer 1.5 ml  
 10X dNTP Mix 0.7 ml  
 Exo (-) Klenow 0.2 ml  
 Cyanine-3-dUTP 0.25 ml  
 Cyanine-5-dUTP 0.25 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** : Random Primers 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.  
 5X Reaction Buffer This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
 10X dNTP Mix 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.  
 Exo (-) Klenow This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
 Cyanine-3-dUTP While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

## Section 2. Hazards identification

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.

Cyanine-5-dUTP

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

#### 5X Reaction Buffer

H317

SKIN SENSITIZATION - Category 1

#### Exo (-) Klenow

H320

SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2B

#### Ingredients of unknown toxicity

Random Primers	Not applicable.
5X Reaction Buffer	Percentage of the mixture consisting of ingredient (s) of unknown toxicity: 3.5%
10X dNTP Mix	Not applicable.
Exo (-) Klenow	Not applicable.
Cyanine-3-dUTP	Not applicable.
Cyanine-5-dUTP	Not applicable.

### 2.2 GHS label elements

#### Hazard pictograms

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#### Signal word

Random Primers	No signal word.
5X Reaction Buffer	Warning
10X dNTP Mix	No signal word.
Exo (-) Klenow	Warning
Cyanine-3-dUTP	No signal word.
Cyanine-5-dUTP	No signal word.

#### Hazard statements

Random Primers	No known significant effects or critical hazards.
5X Reaction Buffer	H317 - May cause an allergic skin reaction.
10X dNTP Mix	No known significant effects or critical hazards.
Exo (-) Klenow	H320 - Causes eye irritation.
Cyanine-3-dUTP	No known significant effects or critical hazards.
Cyanine-5-dUTP	No known significant effects or critical hazards.

### Precautionary statements

#### Prevention

Random Primers	Not applicable.
5X Reaction Buffer	P280 - Wear protective gloves.
	P261 - Avoid breathing vapor.
	P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
10X dNTP Mix	Not applicable.
Exo (-) Klenow	P264 - Wash hands thoroughly after handling.
Cyanine-3-dUTP	Not applicable.
Cyanine-5-dUTP	Not applicable.

## Section 2. Hazards identification

<b>Response</b>	: Random Primers 5X Reaction Buffer	Not applicable. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical attention.
	10X dNTP Mix Exo (-) Klenow	Not applicable. 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 attention.
<b>Storage</b>	: Cyanine-3-dUTP Cyanine-5-dUTP	Not applicable. Not applicable.
	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Disposal</b>	: Random Primers 5X Reaction Buffer	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Not applicable. Not applicable. Not applicable. Not applicable.
<b>Supplemental label elements</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	None known. None known. None known. None known. None known. None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	None known. None known. None known. None known. None known. None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Mixture Mixture Mixture Mixture Mixture Mixture
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## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
<b>5X Reaction Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride 2-Mercaptoethanol	≥3 - <5 ≥0.3 - <1	1185-53-1 60-24-2
<b>Exo (-) Klenow</b> Glycerol	≥50 - <75	56-81-5

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 as hazardous to health or the environment 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

<b>Eye contact</b>	: Random Primers	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.
	5X Reaction Buffer	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. Get medical attention if irritation occurs.
	10X dNTP Mix	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.
	Exo (-) Klenow	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.
	Cyanine-3-dUTP	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.
	Cyanine-5-dUTP	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
<b>Inhalation</b>	: Random Primers	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	5X Reaction Buffer	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. In case of inhalation

## Section 4. First aid measures

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 dNTP Mix

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Exo (-) Klenow

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.

Cyanine-3-dUTP

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Cyanine-5-dUTP

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

### Skin contact

: Random Primers

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

5X Reaction Buffer

Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

10X dNTP Mix

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

Exo (-) Klenow

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.

Cyanine-3-dUTP

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

Cyanine-5-dUTP

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

### Ingestion

: Random Primers

Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.

5X Reaction Buffer

Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in

## Section 4. First aid measures

	a position comfortable for breathing. 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 dNTP Mix	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Exo (-) Klenow	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Cyanine-3-dUTP	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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.
Cyanine-5-dUTP	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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

<b>Eye contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Inhalation</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.
<b>Skin contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No known significant effects or critical hazards. May cause an allergic skin reaction. 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.
<b>Ingestion</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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

<b>Eye contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow  Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data.
<b>Inhalation</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Random Primers 5X Reaction Buffer  10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. Adverse symptoms may include the following: irritation redness No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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

<b>Notes to physician</b>	: Random Primers  5X Reaction Buffer  10X dNTP Mix  Exo (-) Klenow  Cyanine-3-dUTP  Cyanine-5-dUTP	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. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: Random Primers  5X Reaction Buffer  10X dNTP Mix  Exo (-) Klenow  Cyanine-3-dUTP  Cyanine-5-dUTP	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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. 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. 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

<b>Suitable extinguishing media</b>	: Random Primers  5X Reaction Buffer  10X dNTP Mix  Exo (-) Klenow  Cyanine-3-dUTP	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. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
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## Section 5. Fire-fighting measures

	Cyanine-5-dUTP	surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	None known. None known. None known. None known. None known. None known.

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

<b>Specific hazards arising from the chemical</b>	: Random Primers  5X Reaction Buffer  10X dNTP Mix  Exo (-) Klenow  Cyanine-3-dUTP  Cyanine-5-dUTP	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. 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.
<b>Hazardous thermal decomposition products</b>	: Random Primers 5X Reaction Buffer    10X dNTP Mix Exo (-) Klenow    Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide No specific data. No specific data.

### 5.3 Advice for firefighters

<b>Special protective actions for fire-fighters</b>	: Random Primers  5X Reaction Buffer  10X dNTP Mix  Exo (-) Klenow  Cyanine-3-dUTP	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. 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. 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. 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. 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.
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## Section 5. Fire-fighting measures

### Special protective equipment for fire-fighters

Cyanine-5-dUTP	: Random Primers	<p>action shall be taken involving any personal risk or without suitable training.</p> <p>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.</p> <p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
5X Reaction Buffer		<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
10X dNTP Mix		<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
Exo (-) Klenow		<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
Cyanine-3-dUTP		<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>
Cyanine-5-dUTP		<p>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</p>

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

: Random Primers	<p>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.</p>
5X Reaction Buffer	<p>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.</p>
10X dNTP Mix	<p>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.</p>
Exo (-) Klenow	<p>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</p>

## Section 6. Accidental release measures

		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.
	Cyanine-3-dUTP	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.
	Cyanine-5-dUTP	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
<b>For emergency responders :</b>	Random Primers	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".
	5X Reaction 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 dNTP Mix	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".
	Exo (-) Klenow	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".
	Cyanine-3-dUTP	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".
	Cyanine-5-dUTP	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>	Random Primers	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).
	5X 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).
	10X dNTP Mix	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).
	Exo (-) Klenow	Avoid dispersal of spilled material and runoff and

## Section 6. Accidental release measures

Cyanine-3-dUTP	contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). 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).
Cyanine-5-dUTP	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** : Random Primers

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.

5X Reaction 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 dNTP Mix

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.

Exo (-) Klenow

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.

Cyanine-3-dUTP

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.

Cyanine-5-dUTP

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

<b>Protective measures</b>	<b>:</b> Random Primers	Put on appropriate personal protective equipment (see Section 8).
	5X Reaction Buffer	Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not ingest. 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 dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
	Exo (-) Klenow	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.
	Cyanine-3-dUTP	Put on appropriate personal protective equipment (see Section 8).
	Cyanine-5-dUTP	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	<b>:</b> Random Primers	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.
	5X 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.
	10X dNTP Mix	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.
	Exo (-) Klenow	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.
	Cyanine-3-dUTP	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face

## Section 7. Handling and storage

	Cyanine-5-dUTP	<p>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. 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><b>7.2 Conditions for safe storage, including any incompatibilities</b></p>	<p>: Random Primers</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.</p>
	5X Reaction Buffer	<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.</p>
	10X dNTP Mix	<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.</p>
	Exo (-) Klenow	<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.</p>
	Cyanine-3-dUTP	<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</p>

## Section 7. Handling and storage

Cyanine-5-dUTP

to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.  
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.

### 7.3 Specific end use(s)

<b>Recommendations</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>5X Reaction Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride 2-Mercaptoethanol	None. <b>AIHA WEEL (United States, 10/2011).</b> <b>Absorbed through skin.</b> TWA: 0.2 ppm 8 hours.
<b>Exo (-) Klenow</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 2/2013).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust

### 8.2 Exposure controls

<b>Appropriate engineering controls</b>	: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
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## Section 8. Exposure controls/personal protection

**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: 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. 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** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

## Section 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: Random Primers	Liquid.
	5X Reaction Buffer	Liquid.
	10X dNTP Mix	Liquid.
	Exo (-) Klenow	Liquid.
	Cyanine-3-dUTP	Liquid.
	Cyanine-5-dUTP	Liquid.
<b>Color</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.



## Section 9. Physical and chemical properties

<b>Odor</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.
<b>Odor threshold</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.
<b>pH</b>	: Random Primers	8
	5X Reaction Buffer	6.8
	10X dNTP Mix	8
	Exo (-) Klenow	7.5
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.
<b>Melting point</b>	: Random Primers	0°C (32°F)
	5X Reaction Buffer	0°C (32°F)
	10X dNTP Mix	0°C (32°F)
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	0°C (32°F)
	Cyanine-5-dUTP	0°C (32°F)
<b>Boiling point</b>	: Random Primers	100°C (212°F)
	5X Reaction Buffer	100°C (212°F)
	10X dNTP Mix	100°C (212°F)
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	100°C (212°F)
	Cyanine-5-dUTP	100°C (212°F)
<b>Flash point</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.
<b>Evaporation rate</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.
<b>Flammability (solid, gas)</b>	: Random Primers	Not applicable.
	5X Reaction Buffer	Not applicable.
	10X dNTP Mix	Not applicable.
	Exo (-) Klenow	Not applicable.
	Cyanine-3-dUTP	Not applicable.
	Cyanine-5-dUTP	Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.

## Section 9. Physical and chemical properties

<b>Vapor pressure</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Vapor density</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Relative density</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Solubility</b>	: Random Primers	Easily soluble in the following materials: cold water and hot water.
	5X Reaction Buffer	Easily soluble in the following materials: cold water and hot water.
	10X dNTP Mix	Easily soluble in the following materials: cold water and hot water.
	Exo (-) Klenow	Soluble in the following materials: cold water and hot water.
	Cyanine-3-dUTP	Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Auto-ignition temperature</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Decomposition temperature</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
<b>Viscosity</b>	: Random Primers	Not available.
	5X Reaction Buffer	Not available.
	10X dNTP Mix	Not available.
	Exo (-) Klenow	Not available.
	Cyanine-3-dUTP	Not available.
	Cyanine-5-dUTP	Not available.

## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	<ul style="list-style-type: none"> <li>: Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> <li>Exo (-) Klenow</li> <li>Cyanine-3-dUTP</li> <li>Cyanine-5-dUTP</li> </ul>	<p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p> <p>No specific test data related to reactivity available for this product or its ingredients.</p>
<b>10.2 Chemical stability</b>	<ul style="list-style-type: none"> <li>: Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> <li>Exo (-) Klenow</li> <li>Cyanine-3-dUTP</li> <li>Cyanine-5-dUTP</li> </ul>	<p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p> <p>The product is stable.</p>
<b>10.3 Possibility of hazardous reactions</b>	<ul style="list-style-type: none"> <li>: Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> <li>Exo (-) Klenow</li> <li>Cyanine-3-dUTP</li> <li>Cyanine-5-dUTP</li> </ul>	<p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p> <p>Hazardous reactions or instability may occur under certain conditions of storage or use.</p> <p>Under normal conditions of storage and use, hazardous reactions will not occur.</p>
<b>10.4 Conditions to avoid</b>	<ul style="list-style-type: none"> <li>: Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> <li>Exo (-) Klenow</li> <li>Cyanine-3-dUTP</li> <li>Cyanine-5-dUTP</li> </ul>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
<b>10.5 Incompatible materials</b>	<ul style="list-style-type: none"> <li>: Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> <li>Exo (-) Klenow</li> <li>Cyanine-3-dUTP</li> <li>Cyanine-5-dUTP</li> </ul>	<p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>

## Section 10. Stability and reactivity

<b>10.6 Hazardous decomposition products</b>	: Random Primers	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	5X Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X dNTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Exo (-) Klenow	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Cyanine-3-dUTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Cyanine-5-dUTP	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
<b>5X Reaction Buffer</b> 2-Mercaptoethanol	LD50 Dermal	Rabbit	200 mg/kg	-
	LD50 Oral	Rat	244 mg/kg	-
<b>Exo (-) Klenow</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>5X Reaction Buffer</b> 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-
<b>Exo (-) Klenow</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

Not available.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

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

## Section 11. Toxicological information

Name	Category	Route of exposure	Target organs
<b>5X Reaction Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation
2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

<b>Information on the likely routes of exposure</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Not available. Not available. Not available. Not available. Not available. Not available.
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### Potential acute health effects

<b>Eye contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Inhalation</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.
<b>Skin contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No known significant effects or critical hazards. May cause an allergic skin reaction. 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.
<b>Ingestion</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.

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

<b>Eye contact</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow  Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data.
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## Section 11. Toxicological information

<b>Inhalation</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: Random Primers 5X Reaction Buffer  10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. Adverse symptoms may include the following: irritation redness No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. 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

<b>General</b>	: Random Primers 5X Reaction Buffer  10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. 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.
<b>Carcinogenicity</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.
<b>Mutagenicity</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.

## Section 11. Toxicological information

<b>Teratogenicity</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.
<b>Developmental effects</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.
<b>Fertility effects</b>	: Random Primers 5X Reaction Buffer 10X dNTP Mix Exo (-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	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.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### 12.1 Toxicity

Not available.

### 12.2 Persistence and degradability

Not available.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>5X Reaction Buffer</b> 2-Mercaptoethanol	-0.056	-	low
<b>Exo (-) Klenow</b> Glycerol	-1.76	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : 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

### Regulatory information

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

## Section 15. Regulatory information

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

**U.S. Federal regulations** : **United States inventory (TSCA 8b):** At least one component is not listed.  
**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

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard



## Section 15. Regulatory information

### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>5X Reaction Buffer</b>						
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≥3 - <5	No.	No.	No.	Yes.	No.
2-Mercaptoethanol	≥0.3 - <1	Yes.	No.	No.	Yes.	No.
<b>Exo (-) Klenow</b>						
Glycerol	≥50 - <75	No.	No.	No.	Yes.	No.

### 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; 1,2,3-PROPANETRIOL
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL
- California Prop. 65**

No products were found.

**Canada inventory** : Not determined.

### International regulations

- International lists** :
- Australia inventory (AICS)**: Not determined.
  - China inventory (IECSC)**: Not determined.
  - Japan inventory**: Not determined.
  - Korea inventory**: Not determined.
  - Malaysia Inventory (EHS Register)**: Not determined.
  - New Zealand Inventory of Chemicals (NZIoC)**: Not determined.
  - Philippines inventory (PICCS)**: Not determined.
  - Taiwan inventory (CSNN)**: All components are listed or exempted.

**Chemical Weapons Convention List Schedule I Chemicals** : Not listed

**Chemical Weapons Convention List Schedule II Chemicals** : Not listed

**Chemical Weapons Convention List Schedule III Chemicals** : Not listed

## Section 16. Other information

### History

- Date of issue** : 10/15/2015
- Date of previous issue** : No previous validation
- Version** : 1

☑ Indicates information that has changed from previously issued version.

### Notice to reader

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