

# SAFETY DATA SHEET



Custom Genomic DNA Enzymatic Labeling Kit with dUTP Dyes, Part Number 930944

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Custom Genomic DNA Enzymatic Labeling Kit with dUTP Dyes, Part Number 930944  
**Part No. (Chemical Kit)** : 930944  
**Part No.** :  
     Nuclease Free Water 5190-0439  
     Random Primers 5190-0441  
     5X Reaction Buffer 5190-0438  
     10X dNTP Mix 5190-0440  
     Exo(-) Klenow 5190-0437  
     Cyanine-3-dUTP 5190-3389  
     Cyanine-5-dUTP 5190-3390

**Validation date** : 08/03/2016

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

**Material uses** : Analytical reagent.  
     Nuclease Free Water 1.5 ml  
     Random Primers 265 µl  
     5X Reaction Buffer 0.525 ml  
     10X dNTP Mix 0.265 ml  
     Exo(-) Klenow 0.055 ml  
     Cyanine-3-dUTP 78 µl  
     Cyanine-5-dUTP 78 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** :  
     Nuclease Free Water 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.  
     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

## Section 2. Hazards identification

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), 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

EYE IRRITATION - Category 2B

#### Ingredients of unknown toxicity

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

#### Hazard pictograms



#### Signal word

Nuclease Free Water Random Primers 5X Reaction Buffer 10X dNTP Mix Exo(-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	: No signal word. No signal word. Warning No signal word. Warning No signal word. No signal word.
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#### Hazard statements

Nuclease Free Water 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. GHS SYMBOL - <b>Exclamation mark</b> - H317 - May cause an allergic skin reaction. No known significant effects or critical hazards. H320 - Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
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#### Precautionary statements

## Section 2. Hazards identification

<b>Prevention</b>	: Nuclease Free Water Random Primers 5X Reaction Buffer	Not applicable. Not applicable. P280 - Wear protective gloves. P261 - Avoid breathing vapor. P272 (OSHA) - Contaminated work clothing must not be allowed out of the workplace.
	10X dNTP Mix Exo(-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Not applicable. P264 - Wash hands thoroughly after handling. Not applicable. Not applicable.
<b>Response</b>	: Nuclease Free Water Random Primers 5X Reaction Buffer	Not applicable. 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.
	: Nuclease Free Water 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. Not applicable.
<b>Disposal</b>	: Nuclease Free Water Random Primers 5X Reaction Buffer	Not applicable. 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>	: Nuclease Free Water 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. None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: Nuclease Free Water 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. None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: <input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X Reaction Buffer 10X dNTP Mix Exo(-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	Substance Mixture Mixture Mixture Mixture Mixture Mixture
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Ingredient name	%	CAS number
<input checked="" type="checkbox"/> Nuclease Free Water Water	100	7732-18-5
<input checked="" type="checkbox"/> 5X Reaction Buffer 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride 2-Mercaptoethanol	≤5 <1	1185-53-1 60-24-2
<input checked="" type="checkbox"/> Exo(-) Klenow 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>	: <input checked="" type="checkbox"/> Nuclease Free Water	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.
	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.

## Section 4. First aid measures

<b>Inhalation</b>	: Nuclease Free Water	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	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 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.
<b>Skin contact</b>	: Nuclease Free Water	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	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

## Section 4. First aid measures

	Exo(-) Klenow	medical attention if symptoms occur. 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.
<b>Ingestion</b>	: Nuclease Free Water	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.
	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 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

## Section 4. First aid measures

Cyanine-3-dUTP

adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Wash out mouth with water. 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

##### Eye contact

:  Nuclease Free Water  
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.  
Causes eye irritation.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.

##### Inhalation

:  Nuclease Free Water  
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.  
No known significant effects or critical hazards.

##### Skin contact

:  Nuclease Free Water  
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.  
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.

##### Ingestion

:  Nuclease Free Water  
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.  
No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

## Section 4. First aid measures

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

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

<b>Notes to physician</b>	: Nuclease Free Water	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Random Primers	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X Reaction Buffer	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	10X dNTP Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Exo(-) Klenow	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Cyanine-3-dUTP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Cyanine-5-dUTP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.



## Section 4. First aid measures

<b>Specific treatments</b>	: Nuclease Free Water 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. No specific treatment.
<b>Protection of first-aiders</b>	: Nuclease Free Water  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. 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>	: Nuclease Free Water Random Primers 5X Reaction Buffer 10X dNTP Mix Exo(-) Klenow Cyanine-3-dUTP Cyanine-5-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. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Nuclease Free Water 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. None known.

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

## Section 5. Fire-fighting measures

<b>Specific hazards arising from the chemical</b>	:  Nuclease Free Water	In a fire or if heated, a pressure increase will occur and the container may burst.	
		Random Primers	In a fire or if heated, a pressure increase will occur and the container may burst.
		5X Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
		10X dNTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
		Exo(-) Klenow	In a fire or if heated, a pressure increase will occur and the container may burst.
		Cyanine-3-dUTP	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	:  Nuclease Free Water	No specific data.	
		Random Primers	No specific data.
		5X Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		Cyanine-3-dUTP	No specific data.
<b>5.3 Advice for firefighters</b>	:  Nuclease Free Water	No specific data.	
		Cyanine-5-dUTP	No specific data.
		<b>Special protective actions for fire-fighters</b>	
		Random Primers	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.
		5X 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.
		10X dNTP Mix	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.
Exo(-) Klenow	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.		
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.		
Cyanine-5-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		

## Section 5. Fire-fighting measures

### Special protective equipment for fire-fighters

: Nuclease Free Water

Random Primers

5X Reaction Buffer

10X dNTP Mix

Exo(-) Klenow

Cyanine-3-dUTP

Cyanine-5-dUTP

without suitable training.

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

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

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

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

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

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

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

: Nuclease Free Water

Random Primers

5X Reaction Buffer

10X dNTP Mix

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.

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.

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.

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

## Section 6. Accidental release measures

	Exo(-) Klenow	appropriate personal protective equipment. 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.
	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.
<p><b>For emergency responders :</b></p>	<p>☑ Nuclease Free Water</p>	<p>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".</p>
	Random Primers	<p>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".</p>
	5X Reaction Buffer	<p>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".</p>
	10X dNTP Mix	<p>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".</p>
	Exo(-) Klenow	<p>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".</p>
	Cyanine-3-dUTP	<p>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".</p>
	Cyanine-5-dUTP	<p>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".</p>
<p><b>6.2 Environmental precautions</b></p>	<p>☑ Nuclease Free Water</p>	<p>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).</p>
	Random Primers	<p>Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.</p>

## Section 6. Accidental release measures

5X Reaction Buffer	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.
10X dNTP Mix	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.
Exo(-) Klenow	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.
Cyanine-3-dUTP	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.
Cyanine-5-dUTP	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.

### 6.3 Methods and materials for containment and cleaning up

**Methods for cleaning up** : Nuclease Free Water

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.

## Section 6. Accidental release measures

Cyanine-3-dUTP	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.
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>	: Nuclease Free Water	Put on appropriate personal protective equipment (see Section 8).
	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>	: Nuclease Free Water	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.
	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

## Section 7. Handling and storage

5X Reaction Buffer

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.

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 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-5-dUTP

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

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

: Nuclease Free Water

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.

Random Primers

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.

5X Reaction Buffer

Store in accordance with local regulations. Store in original container protected from direct sunlight in a

## Section 7. Handling and storage

10X dNTP Mix	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. 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.
Exo(-) Klenow	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.
Cyanine-3-dUTP	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.
Cyanine-5-dUTP	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)

#### Recommendations

: Nuclease Free Water	Industrial applications, Professional applications.
Random Primers	Industrial applications, Professional applications.
5X Reaction Buffer	Industrial applications, Professional applications.
10X dNTP Mix	Industrial applications, Professional applications.
Exo(-) Klenow	Industrial applications, Professional applications.
Cyanine-3-dUTP	Industrial applications, Professional applications.
Cyanine-5-dUTP	Industrial applications, Professional applications.



## Section 7. Handling and storage

<b>Industrial sector specific solutions</b>	<b>Nuclease Free Water</b>	Not applicable.
	<b>Random Primers</b>	Not applicable.
	<b>5X Reaction Buffer</b>	Not applicable.
	<b>10X dNTP Mix</b>	Not applicable.
	<b>Exo(-) Klenow</b>	Not applicable.
	<b>Cyanine-3-dUTP</b>	Not applicable.
	<b>Cyanine-5-dUTP</b>	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

#### 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: 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.

## Section 8. Exposure controls/personal protection

- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: Nuclease Free Water	Liquid.
	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>	: Nuclease Free Water	Not available.
	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</b>	: Nuclease Free Water	Not available.
	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>	: Nuclease Free Water	Not available.
	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>	: Nuclease Free Water	Not available.
	Random Primers	8
	5X Reaction Buffer	6.8
	10X dNTP Mix	8
	Exo(-) Klenow	7.5
	Cyanine-3-dUTP	7.6
	Cyanine-5-dUTP	7.6
<b>Melting point</b>	: Nuclease Free Water	0°C (32°F)
	Random Primers	0°C (32°F)
	5X Reaction Buffer	Not available.
	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)

## Section 9. Physical and chemical properties

<b>Boiling point</b>	: Nuclease Free Water	100°C (212°F)
	Random Primers	100°C (212°F)
	5X Reaction Buffer	Not available.
	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>	: Nuclease Free Water	Not available.
	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>	: Nuclease Free Water	Not available.
	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>	: Nuclease Free Water	Not applicable.
	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>	: Nuclease Free Water	Not available.
	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>Vapor pressure</b>	: Nuclease Free Water	Not available.
	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>Vapor density</b>	: Nuclease Free Water	Not available.
	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>Relative density</b>	: Nuclease Free Water	Not available.
	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>Solubility</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water	Easily soluble in the following materials: cold water and hot water.
		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.
		Cyanine-5-dUTP	Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		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>Auto-ignition temperature</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		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>Decomposition temperature</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		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>Viscosity</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water	Not available.
		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>	:	<input checked="" type="checkbox"/> Nuclease Free Water	No specific test data related to reactivity available for this product or its ingredients.
		Random Primers	No specific test data related to reactivity available for this product or its ingredients.
		5X Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
		10X dNTP Mix	No specific test data related to reactivity available for this product or its ingredients.
		Exo(-) Klenow	No specific test data related to reactivity available for this product or its ingredients.
		Cyanine-3-dUTP	No specific test data related to reactivity available for this product or its ingredients.
		Cyanine-5-dUTP	No specific test data related to reactivity available for this product or its ingredients.

## Section 10. Stability and reactivity

<b>10.2 Chemical stability</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Nuclease Free Water</li> <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.                  The product is stable.                  The product is stable.                  The product is stable.                  The product is stable.                  The product is stable.                  The product is stable.</p>
<b>10.3 Possibility of hazardous reactions</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Nuclease Free Water</li> <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.                  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.                  Under normal conditions of storage and use, hazardous reactions will not occur.                  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>: <input checked="" type="checkbox"/> Nuclease Free Water</li> <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.                  No specific data.                  No specific data.                  No specific data.                  No specific data.                  No specific data.                  No specific data.</p>
<b>10.5 Incompatible materials</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Nuclease Free Water</li> <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.                  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.                  May react or be incompatible with oxidizing materials.                  May react or be incompatible with oxidizing materials.</p>
<b>10.6 Hazardous decomposition products</b>	<ul style="list-style-type: none"> <li>: <input checked="" type="checkbox"/> Nuclease Free Water</li> <li>Random Primers</li> <li>5X Reaction Buffer</li> <li>10X dNTP Mix</li> </ul>	<p>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,</p>

## Section 10. Stability and reactivity

Exo(-) Klenow	hazardous decomposition products should not be produced. 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	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>Exo(-) Klenow</b> Glycerol	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.

### Information on the likely routes of exposure

Nuclease Free Water  
 Random Primers  
 5X Reaction Buffer  
  
 10X dNTP Mix  
 Exo(-) Klenow  
  
 Cyanine-3-dUTP  
 Cyanine-5-dUTP

Not available.  
 Not available.  
 Routes of entry anticipated: Oral, Dermal, Inhalation.  
 Not available.  
 Routes of entry anticipated: Oral, Dermal, Inhalation.  
 Not available.  
 Not available.

### Potential acute health effects

#### Eye contact

Nuclease Free Water  
 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.  
 Causes eye irritation.  
 No known significant effects or critical hazards.  
 No known significant effects or critical hazards.

#### Inhalation

Nuclease Free Water  
 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.  
 No known significant effects or critical hazards.

#### Skin contact

Nuclease Free Water  
 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.  
 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.

#### Ingestion

Nuclease Free Water  
 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.  
 No known significant effects or critical hazards.

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

## Section 11. Toxicological information

<b>Eye contact</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X Reaction Buffer 10X dNTP Mix Exo(-) Klenow	No specific data. No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness
		Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data.
<b>Inhalation</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water 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. No specific data.
<b>Skin contact</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X Reaction Buffer	No specific data. No specific data. Adverse symptoms may include the following: irritation redness
		10X dNTP Mix Exo(-) Klenow Cyanine-3-dUTP Cyanine-5-dUTP	No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	:	<input checked="" type="checkbox"/> Nuclease Free Water 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. 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>	:	<input checked="" type="checkbox"/> Nuclease Free Water Random Primers 5X Reaction Buffer	No known significant effects or critical hazards. No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
		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.



## Section 11. Toxicological information

<b>Carcinogenicity</b>	: <input checked="" type="checkbox"/> Nuclease Free Water 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. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: <input checked="" type="checkbox"/> Nuclease Free Water 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. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: <input checked="" type="checkbox"/> Nuclease Free Water 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. No known significant effects or critical hazards.
<b>Developmental effects</b>	: <input checked="" type="checkbox"/> Nuclease Free Water 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. No known significant effects or critical hazards.
<b>Fertility effects</b>	: <input checked="" type="checkbox"/> Nuclease Free Water 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. No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Not available.

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<input checked="" type="checkbox"/> Exo(-) Klenow Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

### 12.2 Persistence and degradability

Not available.

### 12.3 Bioaccumulative potential

## Section 12. Ecological information

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. 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)**: All components are listed or exempted.  
**Clean Water Act (CWA) 311**: Edetic acid

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** :  **isted**

**Clean Air Act Section 602 Class I Substances** : Not listed

## Section 15. Regulatory information

**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

#### 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	≤5	No.	No.	No.	Yes.	No.
2-Mercaptoethanol	<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** : None of the components are listed.

### 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 (ENCS)**: Not determined.
- Japan inventory (ISHL)**: 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 Chemical Substances Inventory (TCSI)**: All components are listed or exempted.
- Turkey inventory**: Not determined.

## Section 15. Regulatory information

**Chemical Weapons** : Not listed

**Convention List Schedule**

**I Chemicals**

**Chemical Weapons** : Not listed

**Convention List Schedule**

**II Chemicals**

**Chemical Weapons** : Not listed

**Convention List Schedule**

**III Chemicals**

## Section 16. Other information

### History

**Date of issue** : 08/03/2016

**Date of previous issue** : 10/04/2013.

**Version** : 3

Indicates information that has changed from previously issued version.

### Notice to reader

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