SAFETY DATA SHEET

Agilent Technologies

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

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

1.1 Product identifier

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

Part No. (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

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

Identified 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

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS : pdl-msds_author@agilent.com

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition :

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

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

Not classified.

SECTION 2: Hazards identification

Ingredients of unknown toxicity	:	Nuclease Free Water	Not applicable.
		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.
Ingredients of unknown ecotoxicity	:	Nuclease Free Water	Not applicable.
		Random Primers	Not applicable.
		5X Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 3.5%
		10X dNTP Mix	Not applicable.
		Exo(-) Klenow	Not applicable.
		Cyanine-3-dUTP	Not applicable.
		Cyanine-5-dUTP	Not applicable.

See Section 16 for the full text of the H statements declared above.

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

2.2 Label elements

Signal word	:	Nuclease Free Water	No signal word.
		Random Primers	No signal word.
		5X Reaction Buffer	No signal word.
		10X dNTP Mix	No signal word.
		Exo(-) Klenow	No signal word.
		Cyanine-3-dUTP	No signal word.
		Cyanine-5-dUTP	No signal word.
Hazard statements	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.

Precautionary statements

Prevention	:	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.
Response	:	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.
Storage	:	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.

SECTION 2: Hazards identification

Disposal	:	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.
Hazardous ingredients	:	No hazardous ingredient	
Supplemental label elements	:	Nuclease Free Water	Not applicable.
		Random Primers	Not applicable.
		5X Reaction Buffer	Contains 2-mercaptoethanol. May produce an allergic reaction. Safety data sheet available on request.
		10X dNTP Mix	Not applicable.
		Exo(-) Klenow	Not applicable.
		Cyanine-3-dUTP	Not applicable.
		Cyanine-5-dUTP	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	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.

Special packaging requirements

Tactile warning of danger	:	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.

2.3 Other hazards

Other hazards which do not result in classification	:	Nuclease Free Water	None known.
		Random Primers	None known.
		5X Reaction Buffer	None known.
		10X dNTP Mix	None known.
		Exo(-) Klenow	None known.
		Cyanine-3-dUTP	None known.
		Cyanine-5-dUTP	None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures	:	Nuclease Free Water	Mono-constituent substance
		Random Primers	Mixture
		5X Reaction Buffer	Mixture
		10X dNTP Mix	Mixture
		Exo(-) Klenow	Mixture
		Cyanine-3-dUTP	Mixture
		Cyanine-5-dUTP	Mixture

Product/ingredient name	Identifiers	%	Classification	Type
Nuclease Free Water Water	7732-18-5	100	Not classified.	[A]

SECTION 3: Composition/information on ingredients

5X Reaction Buffer 2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	EC: 214-684-5 CAS: 1185-53-1	≤5	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335	[1]
Exo(-) Klenow Glycerol	EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified. **See Section 16 for the full text of the H statements declared above.**	[2]

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.

Type

[1] Substance classified with a health or environmental hazard
[2] Substance with a workplace exposure limit
[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
[5] Substance of equivalent concern
[A] Constituent
[B] Impurity
[C] Stabilising additive

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	:	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. 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. Get medical attention if irritation occurs.
		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.
Inhalation	:	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. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		10X dNTP Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if

SECTION 4: First aid measures

			symptoms occur.
		Exo(-) Klenow	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		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	:	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	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		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.
		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	:	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 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.
		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 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-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

SECTION 4: First aid measures

		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.
Protection of first-aiders :	Nuclease Free Water	No action shall be taken involving any personal risk or without suitable training.
	Random Primers	No action shall be taken involving any personal risk or without suitable training.
	5X Reaction Buffer	No action shall be taken involving any personal risk or without suitable training.
	10X dNTP Mix	No action shall be taken involving any personal risk or without suitable training.
	Exo(-) Klenow	No action shall be taken involving any personal risk or without suitable training.
	Cyanine-3-dUTP	No action shall be taken involving any personal risk or without suitable training.
	Cyanine-5-dUTP	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact :	Nuclease Free Water	No known significant effects or critical hazards.
	Random Primers	No known significant effects or critical hazards.
	5X Reaction Buffer	No known significant effects or critical hazards.
	10X dNTP Mix	No known significant effects or critical hazards.
	Exo(-) Klenow	No known significant effects or critical hazards.
	Cyanine-3-dUTP	No known significant effects or critical hazards.
	Cyanine-5-dUTP	No known significant effects or critical hazards.
Inhalation :	Nuclease Free Water	No known significant effects or critical hazards.
	Random Primers	No known significant effects or critical hazards.
	5X Reaction Buffer	No known significant effects or critical hazards.
	10X dNTP Mix	No known significant effects or critical hazards.
	Exo(-) Klenow	No known significant effects or critical hazards.
	Cyanine-3-dUTP	No known significant effects or critical hazards.
	Cyanine-5-dUTP	No known significant effects or critical hazards.
Skin contact :	Nuclease Free Water	No known significant effects or critical hazards.
	Random Primers	No known significant effects or critical hazards.
	5X Reaction Buffer	No known significant effects or critical hazards.
	10X dNTP Mix	No known significant effects or critical hazards.
	Exo(-) Klenow	No known significant effects or critical hazards.
	Cyanine-3-dUTP	No known significant effects or critical hazards.
	Cyanine-5-dUTP	No known significant effects or critical hazards.
Ingestion :	Nuclease Free Water	No known significant effects or critical hazards.
	Random Primers	No known significant effects or critical hazards.
	5X Reaction Buffer	No known significant effects or critical hazards.
	10X dNTP Mix	No known significant effects or critical hazards.
	Exo(-) Klenow	No known significant effects or critical hazards.
	Cyanine-3-dUTP	No known significant effects or critical hazards.
	Cyanine-5-dUTP	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact :	Nuclease Free Water	No specific data.
	Random Primers	No specific data.
	5X Reaction Buffer	No specific data.
	10X dNTP Mix	No specific data.
	Exo(-) Klenow	No specific data.
	Cyanine-3-dUTP	No specific data.
	Cyanine-5-dUTP	No specific data.

SECTION 4: First aid measures

Inhalation	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
Skin contact	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
Ingestion	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	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.
Specific treatments	:	Nuclease Free Water	No specific treatment.
		Random Primers	No specific treatment.
		5X Reaction Buffer	No specific treatment.
		10X dNTP Mix	No specific treatment.
		Exo(-) Klenow	No specific treatment.
		Cyanine-3-dUTP	No specific treatment.
		Cyanine-5-dUTP	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

SECTION 5: Firefighting measures

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :	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.
	Cyanine-5-dUTP	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products :	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.
	Cyanine-5-dUTP	No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters :	Nuclease Free Water	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.
	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 without suitable training.
Special protective equipment for fire-fighters :	Nuclease Free Water	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	Random Primers	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves)

SECTION 5: Firefighting measures

	conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
5X Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
10X dNTP Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Exo(-) Klenow	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Cyanine-3-dUTP	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
Cyanine-5-dUTP	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Nuclease Free Water	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	Random Primers	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	5X Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	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 spilt material. Put on appropriate personal protective equipment.
	Exo(-) Klenow	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	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.

SECTION 6: Accidental release measures

			Do not touch or walk through spilt 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 spilt material. Put on appropriate personal protective equipment.
For emergency responders	:	Nuclease Free Water	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".
		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".
6.2 Environmental precautions	:	Nuclease Free Water	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		Random Primers	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		5X Reaction Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		10X dNTP Mix	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		Exo(-) Klenow	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		Cyanine-3-dUTP	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
		Cyanine-5-dUTP	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

SECTION 6: Accidental release measures

6.3 Methods and material for containment and cleaning up

Methods for cleaning up	:	Nuclease Free Water	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.
		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.

6.4 Reference to other sections : See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	:	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).
		10X dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
		Exo(-) Klenow	Put on appropriate personal protective equipment (see Section 8).
		Cyanine-3-dUTP	Put on appropriate personal protective equipment (see Section 8).
		Cyanine-5-dUTP	Put on appropriate personal protective equipment (see Section 8).

SECTION 7: Handling and storage

Advice on general occupational hygiene	:	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 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 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 unlabelled 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 unlabelled 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 dry, cool and well-ventilated area, away from incompatible materials (see

SECTION 7: Handling and storage

	Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
10X dNTP Mix	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.
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 unlabelled 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 unlabelled 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 unlabelled 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.
Industrial sector specific solutions	:	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.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Exo(-) Klenow Glycerol	**EH40/2005 WELs (United Kingdom (UK), 12/2011).** TWA: 10 mg/m³ 8 hours. Form: Mist

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs/DMELs available.

PNECs

No PNECs available

8.2 Exposure controls

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

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	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.
Colour	:	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.
Odour	:	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.
Odour threshold	:	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.
pH	:	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
Melting point/freezing point	:	Nuclease Free Water	0°C
		Random Primers	0°C
		5X Reaction Buffer	Not available.
		10X dNTP Mix	0°C
		Exo(-) Klenow	Not available.
		Cyanine-3-dUTP	0°C
		Cyanine-5-dUTP	0°C
Initial boiling point and boiling range	:	Nuclease Free Water	100°C
		Random Primers	100°C
		5X Reaction Buffer	Not available.
		10X dNTP Mix	100°C
		Exo(-) Klenow	Not available.
		Cyanine-3-dUTP	100°C
		Cyanine-5-dUTP	100°C
Flash point	:	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

Evaporation rate	:	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.
Flammability (solid, gas)	:	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.
Upper/lower flammability or explosive limits	:	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.
Vapour pressure	:	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.
Vapour density	:	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.
Relative density	:	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.
Solubility(ies)	:	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.

SECTION 9: Physical and chemical properties

Partition coefficient: n-octanol/water	:	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.
Auto-ignition temperature	:	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.
Decomposition temperature	:	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.
Viscosity	:	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.
Explosive properties	:	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.
Oxidising properties	:	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.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	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

10.2 Chemical stability	:	Nuclease Free Water	The product is stable.
		Random Primers	The product is stable.
		5X Reaction Buffer	The product is stable.
		10X dNTP Mix	The product is stable.
		Exo(-) Klenow	The product is stable.
		Cyanine-3-dUTP	The product is stable.
		Cyanine-5-dUTP	The product is stable.
10.3 Possibility of hazardous reactions	:	Nuclease Free Water	Under normal conditions of storage and use, hazardous reactions will not occur.
		Random Primers	Under normal conditions of storage and use, hazardous reactions will not occur.
		5X Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		10X dNTP Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
		Exo(-) Klenow	Under normal conditions of storage and use, hazardous reactions will not occur.
		Cyanine-3-dUTP	Under normal conditions of storage and use, hazardous reactions will not occur.
		Cyanine-5-dUTP	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
10.5 Incompatible materials	:	Nuclease Free Water	May react or be incompatible with oxidising materials.
		Random Primers	May react or be incompatible with oxidising materials.
		5X Reaction Buffer	May react or be incompatible with oxidising materials.
		10X dNTP Mix	May react or be incompatible with oxidising materials.
		Exo(-) Klenow	May react or be incompatible with oxidising materials.
		Cyanine-3-dUTP	May react or be incompatible with oxidising materials.
		Cyanine-5-dUTP	May react or be incompatible with oxidising materials.
10.6 Hazardous decomposition products	:	Nuclease Free Water	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
		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

Not available.

Acute toxicity estimates

Route	ATE value
5X Reaction Buffer	
Oral	69714.3 mg/kg
Dermal	57142.9 mg/kg
Inhalation (vapours)	571.4 mg/l

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Category	Route of exposure	Target organs
5X Reaction Buffer			
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure :

Nuclease Free Water	Not available.
Random Primers	Not available.
5X Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
10X dNTP Mix	Not available.
Exo(-) Klenow	Routes of entry anticipated: Oral, Dermal, Inhalation.
Cyanine-3-dUTP	Not available.
Cyanine-5-dUTP	Not available.

Potential acute health effects

Inhalation :

Nuclease Free Water	No known significant effects or critical hazards.
Random Primers	No known significant effects or critical hazards.
5X Reaction Buffer	No known significant effects or critical hazards.
10X dNTP Mix	No known significant effects or critical hazards.
Exo(-) Klenow	No known significant effects or critical hazards.
Cyanine-3-dUTP	No known significant effects or critical hazards.
Cyanine-5-dUTP	No known significant effects or critical hazards.

Ingestion :

Nuclease Free Water	No known significant effects or critical hazards.
Random Primers	No known significant effects or critical hazards.
5X Reaction Buffer	No known significant effects or critical hazards.
10X dNTP Mix	No known significant effects or critical hazards.
Exo(-) Klenow	No known significant effects or critical hazards.
Cyanine-3-dUTP	No known significant effects or critical hazards.
Cyanine-5-dUTP	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Skin contact	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Eye contact	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
Ingestion	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
Skin contact	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.
Eye contact	:	Nuclease Free Water	No specific data.
		Random Primers	No specific data.
		5X Reaction Buffer	No specific data.
		10X dNTP Mix	No specific data.
		Exo(-) Klenow	No specific data.
		Cyanine-3-dUTP	No specific data.
		Cyanine-5-dUTP	No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

SECTION 11: Toxicological information

General	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Carcinogenicity	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Mutagenicity	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Teratogenicity	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Developmental effects	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.
Fertility effects	:	Nuclease Free Water	No known significant effects or critical hazards.
		Random Primers	No known significant effects or critical hazards.
		5X Reaction Buffer	No known significant effects or critical hazards.
		10X dNTP Mix	No known significant effects or critical hazards.
		Exo(-) Klenow	No known significant effects or critical hazards.
		Cyanine-3-dUTP	No known significant effects or critical hazards.
		Cyanine-5-dUTP	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

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

Mobility : Not available.

SECTION 12: Ecological information

12.5 Results of PBT and vPvB assessment

PBT : Not applicable.

vPvB : Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

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

Packaging

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

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

SECTION 14: Transport information

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

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

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.

Other EU regulations

SECTION 15: Regulatory information

Europe inventory : All components are listed or exempted.

Seveso Directive

This product is not controlled under the Seveso Directive.

National regulations

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	:	Not determined.
Canada	:	Not determined.
China	:	Not determined.
Japan	:	**Japan inventory (ENCS)**: Not determined. **Japan inventory (ISHL)**: Not determined.
Malaysia	:	Not determined.
New Zealand	:	Not determined.
Philippines	:	Not determined.
Republic of Korea	:	Not determined.
Taiwan	:	All components are listed or exempted.
Turkey	:	Not determined.
United States	:	All components are listed or exempted.

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

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Not classified.	

Full text of abbreviated H statements : **5X Reaction Buffer**

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

SECTION 16: Other information

Full text of classifications [CLP/GHS] : **5X Reaction Buffer**

Eye Irrit. 2, H319	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Skin Irrit. 2, H315	SKIN CORROSION/IRRITATION - Category 2
STOT SE 3, H335	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

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

Date of previous issue : No previous validation.

Version : 1

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.