SAFETY DATA SHEET

Agilent Technologies

Klenow Fill-In Kit, Part Number 200410

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

1.1 Product identifier

Product name : Klenow Fill-In Kit, Part Number 200410

Part no. (chemical kit) : 200410

Part no. :

Klenow Polymerase	600071-51
10× Fill-in Buffer	200410-52
pUC19/BamHI-digested control DNA	200410-51
10 mM dATP	200410-53
10 mM dGTP	200410-55
10 mM dCTP	200410-54
10 mM dTTP	200410-56

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

Material uses : Analytical reagent.

Klenow Polymerase	0.025 ml (125 U 5 U/µl)
10× Fill-in Buffer	1 ml
pUC19/BamHI-digested control DNA	0.02 ml (20 µg 1 µg/µl)
10 mM dATP	0.15 ml
10 mM dGTP	0.15 ml
10 mM dCTP	0.15 ml
10 mM dTTP	0.15 ml

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 :

Klenow Polymerase	Mixture
10× Fill-in Buffer	Mixture
pUC19/BamHI-digested control DNA	Mixture
10 mM dATP	Mixture
10 mM dGTP	Mixture
10 mM dCTP	Mixture
10 mM dTTP	Mixture

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

10× Fill-in Buffer

H412	LONG-TERM (CHRONIC) AQUATIC HAZARD	Category 3

SECTION 2: Hazards identification

Ingredients of unknown toxicity :	Klenow Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
	10× Fill-in Buffer	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

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 :	Klenow Polymerase	No signal word.
	10× Fill-in Buffer	No signal word.
	pUC19/BamHI-digested control DNA	No signal word.
	10 mM dATP	No signal word.
	10 mM dGTP	No signal word.
	10 mM dCTP	No signal word.
	10 mM dTTP	No signal word.
Hazard statements :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	H412 - Harmful to aquatic life with long lasting effects.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.

Precautionary statements

Prevention :	Klenow Polymerase	Not applicable.
	10× Fill-in Buffer	P273 - Avoid release to the environment.
	pUC19/BamHI-digested control DNA	Not applicable.
	10 mM dATP	Not applicable.
	10 mM dGTP	Not applicable.
	10 mM dCTP	Not applicable.
	10 mM dTTP	Not applicable.
Response :	Klenow Polymerase	Not applicable.
	10× Fill-in Buffer	Not applicable.
	pUC19/BamHI-digested control DNA	Not applicable.
	10 mM dATP	Not applicable.
	10 mM dGTP	Not applicable.
	10 mM dCTP	Not applicable.
	10 mM dTTP	Not applicable.
Storage :	Klenow Polymerase	Not applicable.
	10× Fill-in Buffer	Not applicable.
	pUC19/BamHI-digested control DNA	Not applicable.
	10 mM dATP	Not applicable.
	10 mM dGTP	Not applicable.
	10 mM dCTP	Not applicable.
	10 mM dTTP	Not applicable.
Disposal :	Klenow Polymerase	Not applicable.
	10× Fill-in Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	pUC19/BamHI-digested control DNA	Not applicable.
	10 mM dATP	Not applicable.
	10 mM dGTP	Not applicable.
	10 mM dCTP	Not applicable.

SECTION 2: Hazards identification

		10 mM dTTP	Not applicable.
Hazardous ingredients	:	10× Fill-in Buffer	Not applicable.
Supplemental label elements	:	Klenow Polymerase	Not applicable.
		10× Fill-in Buffer	Not applicable.
		pUC19/BamHI-digested control DNA	Not applicable.
		10 mM dATP	Not applicable.
		10 mM dGTP	Not applicable.
		10 mM dCTP	Not applicable.
		10 mM dTTP	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	Klenow Polymerase	Not applicable.
		10× Fill-in Buffer	Not applicable.
		pUC19/BamHI-digested control DNA	Not applicable.
		10 mM dATP	Not applicable.
		10 mM dGTP	Not applicable.
		10 mM dCTP	Not applicable.
		10 mM dTTP	Not applicable.
Special packaging requirements			
Tactile warning of danger	:	Klenow Polymerase	Not applicable.
		10× Fill-in Buffer	Not applicable.
		pUC19/BamHI-digested control DNA	Not applicable.
		10 mM dATP	Not applicable.
		10 mM dGTP	Not applicable.
		10 mM dCTP	Not applicable.
		10 mM dTTP	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	:	Klenow Polymerase	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		10× Fill-in Buffer	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		pUC19/BamHI-digested control DNA	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		10 mM dATP	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		10 mM dGTP	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		10 mM dCTP	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
		10 mM dTTP	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
Other hazards which do not result in classification	:	Klenow Polymerase	None known.
		10× Fill-in Buffer	None known.
		pUC19/BamHI-digested control DNA	None known.
		10 mM dATP	None known.
		10 mM dGTP	None known.
		10 mM dCTP	None known.
		10 mM dTTP	None known.

SECTION 3: Composition/information on ingredients

3.1 Substances : Klenow Polymerase — Mixture
10× Fill-in Buffer — Mixture
pUC19/BamHI-digested control DNA — Mixture
10 mM dATP — Mixture
10 mM dGTP — Mixture
10 mM dCTP — Mixture
10 mM dTTP — Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Klenow Polymerase Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
10× Fill-in Buffer Magnesium chloride	EC: 232-094-6 CAS: 7786-30-3	<2.5	Aquatic Chronic 1, H410 (M=1) **See Section 16 for the full text of the H statements declared above.**	[1]

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
[6] Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact :

Klenow Polymerase — 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.

10× Fill-in 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.

pUC19/BamHI-digested control DNA — 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.

10 mM dATP — 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.

10 mM dGTP — 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.

10 mM dCTP — 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.

10 mM dTTP — 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.

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Inhalation :	Klenow Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10× Fill-in 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.
	pUC19/BamHI-digested control DNA	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10 mM dATP	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10 mM dGTP	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10 mM dCTP	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	10 mM dTTP	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
Skin contact :	Klenow Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10× Fill-in Buffer	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.
	pUC19/BamHI-digested control DNA	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10 mM dATP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10 mM dGTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10 mM dCTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10 mM dTTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion :	Klenow Polymerase	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.
	10× Fill-in 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

SECTION 4: First aid measures

		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.
	pUC19/BamHI-digested control DNA	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.
	10 mM dATP	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.
	10 mM dGTP	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.
	10 mM dCTP	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.
	10 mM dTTP	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 :	Klenow Polymerase	No action shall be taken involving any personal risk or without suitable training.
	10× Fill-in Buffer	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.
	pUC19/BamHI-digested control DNA	No action shall be taken involving any personal risk or without suitable training.
	10 mM dATP	No action shall be taken involving any personal risk or without suitable training.
	10 mM dGTP	No action shall be taken involving any personal risk or without suitable training.
	10 mM dCTP	No action shall be taken involving any personal risk or without suitable training.
	10 mM dTTP	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

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Eye contact	:	Klenow Polymerase	No known significant effects or critical hazards.
		10× Fill-in Buffer	No known significant effects or critical hazards.
		pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
		10 mM dATP	No known significant effects or critical hazards.
		10 mM dGTP	No known significant effects or critical hazards.
		10 mM dCTP	No known significant effects or critical hazards.
		10 mM dTTP	No known significant effects or critical hazards.
Inhalation	:	Klenow Polymerase	No known significant effects or critical hazards.
		10× Fill-in Buffer	No known significant effects or critical hazards.
		pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
		10 mM dATP	No known significant effects or critical hazards.
		10 mM dGTP	No known significant effects or critical hazards.
		10 mM dCTP	No known significant effects or critical hazards.
		10 mM dTTP	No known significant effects or critical hazards.
Skin contact	:	Klenow Polymerase	No known significant effects or critical hazards.
		10× Fill-in Buffer	No known significant effects or critical hazards.
		pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
		10 mM dATP	No known significant effects or critical hazards.
		10 mM dGTP	No known significant effects or critical hazards.
		10 mM dCTP	No known significant effects or critical hazards.
		10 mM dTTP	No known significant effects or critical hazards.
Ingestion	:	Klenow Polymerase	No known significant effects or critical hazards.
		10× Fill-in Buffer	No known significant effects or critical hazards.
		pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
		10 mM dATP	No known significant effects or critical hazards.
		10 mM dGTP	No known significant effects or critical hazards.
		10 mM dCTP	No known significant effects or critical hazards.
		10 mM dTTP	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	:	Klenow Polymerase	No specific data.
		10× Fill-in Buffer	No specific data.
		pUC19/BamHI-digested control DNA	No specific data.
		10 mM dATP	No specific data.
		10 mM dGTP	No specific data.
		10 mM dCTP	No specific data.
		10 mM dTTP	No specific data.
Inhalation	:	Klenow Polymerase	No specific data.
		10× Fill-in Buffer	No specific data.
		pUC19/BamHI-digested control DNA	No specific data.
		10 mM dATP	No specific data.
		10 mM dGTP	No specific data.
		10 mM dCTP	No specific data.
		10 mM dTTP	No specific data.
Skin contact	:	Klenow Polymerase	No specific data.
		10× Fill-in Buffer	No specific data.
		pUC19/BamHI-digested control DNA	No specific data.
		10 mM dATP	No specific data.
		10 mM dGTP	No specific data.
		10 mM dCTP	No specific data.
		10 mM dTTP	No specific data.

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Ingestion :	Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician :	Klenow Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10× Fill-in Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pUC19/BamHI-digested control DNA	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10 mM dATP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10 mM dGTP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10 mM dCTP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10 mM dTTP	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	Klenow Polymerase	No specific treatment.
	10× Fill-in Buffer	No specific treatment.
	pUC19/BamHI-digested control DNA	No specific treatment.
	10 mM dATP	No specific treatment.
	10 mM dGTP	No specific treatment.
	10 mM dCTP	No specific treatment.
	10 mM dTTP	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media :	Klenow Polymerase	Use an extinguishing agent suitable for the surrounding fire.
	10× Fill-in Buffer	Use an extinguishing agent suitable for the surrounding fire.
	pUC19/BamHI-digested control DNA	Use an extinguishing agent suitable for the surrounding fire.
	10 mM dATP	Use an extinguishing agent suitable for the surrounding fire.
	10 mM dGTP	Use an extinguishing agent suitable for the surrounding fire.
	10 mM dCTP	Use an extinguishing agent suitable for the surrounding fire.
	10 mM dTTP	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media :	Klenow Polymerase	None known.
	10× Fill-in Buffer	None known.
	pUC19/BamHI-digested control DNA	None known.
	10 mM dATP	None known.
	10 mM dGTP	None known.
	10 mM dCTP	None known.
	10 mM dTTP	None known.

5.2 Special hazards arising from the substance or mixture

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Hazards from the substance or mixture	: Klenow Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
	10× Fill-in Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	pUC19/BamHI-digested control DNA	In a fire or if heated, a pressure increase will occur and the container may burst.
	10 mM dATP	In a fire or if heated, a pressure increase will occur and the container may burst.
	10 mM dGTP	In a fire or if heated, a pressure increase will occur and the container may burst.
	10 mM dCTP	In a fire or if heated, a pressure increase will occur and the container may burst.
	10 mM dTTP	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	: Klenow Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	10× Fill-in Buffer	Decomposition products may include the following materials: halogenated compounds metal oxide/oxides
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters	: Klenow Polymerase	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.
	10× Fill-in 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.
	pUC19/BamHI-digested control DNA	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.
	10 mM dATP	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.
	10 mM dGTP	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.
	10 mM dCTP	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.
	10 mM dTTP	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	: Klenow Polymerase	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.
	10× Fill-in 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

SECTION 5: Firefighting measures

	fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
pUC19/BamHI-digested control DNA	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.
10 mM dATP	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.
10 mM dGTP	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.
10 mM dCTP	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.
10 mM dTTP	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 :	Klenow Polymerase	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.
	10× Fill-in 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	pUC19/BamHI-digested control DNA	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.
	10 mM dATP	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.
	10 mM dGTP	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do

SECTION 6: Accidental release measures

		not touch or walk through spilt material. Put on appropriate personal protective equipment.
	10 mM dCTP	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.
	10 mM dTTP	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 :	Klenow Polymerase	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".
	10× Fill-in 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".
	pUC19/BamHI-digested control DNA	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".
	10 mM dATP	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".
	10 mM dGTP	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".
	10 mM dCTP	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".
	10 mM dTTP	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 :	Klenow Polymerase	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).
	10× Fill-in 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). Water polluting material. May be harmful to the environment if released in large quantities.
	pUC19/BamHI-digested control DNA	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).
	10 mM dATP	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).
	10 mM dGTP	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant

SECTION 6: Accidental release measures

	authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
10 mM dCTP	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).
10 mM dTTP	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up :

Klenow Polymerase	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.
10× Fill-in 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.
pUC19/BamHI-digested control DNA	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.
10 mM dATP	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.
10 mM dGTP	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.
10 mM dCTP	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.
10 mM dTTP	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

SECTION 7: Handling and storage

Protective measures :	Klenow Polymerase	Put on appropriate personal protective equipment (see Section 8).
	10× Fill-in Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. 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.
	pUC19/BamHI-digested control DNA	Put on appropriate personal protective equipment (see Section 8).
	10 mM dATP	Put on appropriate personal protective equipment (see Section 8).
	10 mM dGTP	Put on appropriate personal protective equipment (see Section 8).
	10 mM dCTP	Put on appropriate personal protective equipment (see Section 8).
	10 mM dTTP	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene :	Klenow Polymerase	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.
	10× Fill-in 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.
	pUC19/BamHI-digested control DNA	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.
	10 mM dATP	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.
	10 mM dGTP	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.
	10 mM dCTP	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.
	10 mM dTTP	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.

SECTION 7: Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Storage :	Klenow Polymerase	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	10× Fill-in Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	pUC19/BamHI-digested control DNA	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	10 mM dATP	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	10 mM dGTP	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	10 mM dCTP	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

SECTION 7: Handling and storage

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

7.3 Specific end use(s)

Recommendations :	Klenow Polymerase	Industrial applications, Professional applications.
	10× Fill-in Buffer	Industrial applications, Professional applications.
	pUC19/BamHI-digested control DNA	Industrial applications, Professional applications.
	10 mM dATP	Industrial applications, Professional applications.
	10 mM dGTP	Industrial applications, Professional applications.
	10 mM dCTP	Industrial applications, Professional applications.
	10 mM dTTP	Industrial applications, Professional applications.
Industrial sector specific solutions :	Klenow Polymerase	Not available.
	10× Fill-in Buffer	Not available.
	pUC19/BamHI-digested control DNA	Not available.
	10 mM dATP	Not available.
	10 mM dGTP	Not available.
	10 mM dCTP	Not available.
	10 mM dTTP	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Klenow Polymerase Glycerol	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** 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

Product/ingredient name	Type	Exposure	Value	Population	Effects
10× Fill-in Buffer Magnesium chloride	DNEL	Long term Oral	7 mg/kg bw/day	General population	Systemic

PNECs

No PNECs available

SECTION 8: Exposure controls/personal protection

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 :

Klenow Polymerase	Liquid.
10× Fill-in Buffer	Liquid.
pUC19/BamHI-digested control DNA	Liquid.
10 mM dATP	Liquid.
10 mM dGTP	Liquid.
10 mM dCTP	Liquid.
10 mM dTTP	Liquid.

Colour :

Klenow Polymerase	Not available.
10× Fill-in Buffer	Not available.
pUC19/BamHI-digested control DNA	Not available.
10 mM dATP	Not available.
10 mM dGTP	Not available.
10 mM dCTP	Not available.
10 mM dTTP	Not available.

SECTION 9: Physical and chemical properties

Odour	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Odour threshold	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
pH	:	Klenow Polymerase	7
		10× Fill-in Buffer	7.5
		pUC19/BamHI-digested control DNA	7.5
		10 mM dATP	7.5
		10 mM dGTP	7.5
		10 mM dCTP	7.5
		10 mM dTTP	7.5
Melting point/freezing point	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	0°C
		pUC19/BamHI-digested control DNA	0°C
		10 mM dATP	0°C
		10 mM dGTP	0°C
		10 mM dCTP	0°C
		10 mM dTTP	0°C
Initial boiling point and boiling range	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	100°C
		pUC19/BamHI-digested control DNA	100°C
		10 mM dATP	100°C
		10 mM dGTP	100°C
		10 mM dCTP	100°C
		10 mM dTTP	100°C
Flash point	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Evaporation rate	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.

SECTION 9: Physical and chemical properties

Flammability (solid, gas)	:	Klenow Polymerase	Not applicable.
		10× Fill-in Buffer	Not applicable.
		pUC19/BamHI-digested control DNA	Not applicable.
		10 mM dATP	Not applicable.
		10 mM dGTP	Not applicable.
		10 mM dCTP	Not applicable.
		10 mM dTTP	Not applicable.
Upper/lower flammability or explosive limits	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Vapour pressure	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Vapour density	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Relative density	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Solubility(ies)	:	Klenow Polymerase	Soluble in the following materials: cold water and hot water.
		10× Fill-in Buffer	Easily soluble in the following materials: cold water and hot water.
		pUC19/BamHI-digested control DNA	Easily soluble in the following materials: cold water and hot water.
		10 mM dATP	Easily soluble in the following materials: cold water and hot water.
		10 mM dGTP	Easily soluble in the following materials: cold water and hot water.
		10 mM dCTP	Easily soluble in the following materials: cold water and hot water.
		10 mM dTTP	Easily soluble in the following materials: cold water and hot water.

SECTION 9: Physical and chemical properties

Partition coefficient: n-octanol/water	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Auto-ignition temperature	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Decomposition temperature	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Viscosity	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Explosive properties	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.
Oxidising properties	:	Klenow Polymerase	Not available.
		10× Fill-in Buffer	Not available.
		pUC19/BamHI-digested control DNA	Not available.
		10 mM dATP	Not available.
		10 mM dGTP	Not available.
		10 mM dCTP	Not available.
		10 mM dTTP	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Klenow Polymerase	No specific test data related to reactivity available for this product or its ingredients.
	10× Fill-in Buffer	No specific test data related to reactivity available for this product or its ingredients.
	pUC19/BamHI-digested control DNA	No specific test data related to reactivity available for this product or its ingredients.
	10 mM dATP	No specific test data related to reactivity available for this product or its ingredients.
	10 mM dGTP	No specific test data related to reactivity available for this product or its ingredients.
	10 mM dCTP	No specific test data related to reactivity available for this product or its ingredients.
	10 mM dTTP	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Klenow Polymerase	The product is stable.
	10× Fill-in Buffer	The product is stable.
	pUC19/BamHI-digested control DNA	The product is stable.
	10 mM dATP	The product is stable.
	10 mM dGTP	The product is stable.
	10 mM dCTP	The product is stable.
	10 mM dTTP	The product is stable.
10.3 Possibility of hazardous reactions	: Klenow Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
	10× Fill-in Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	pUC19/BamHI-digested control DNA	Under normal conditions of storage and use, hazardous reactions will not occur.
	10 mM dATP	Under normal conditions of storage and use, hazardous reactions will not occur.
	10 mM dGTP	Under normal conditions of storage and use, hazardous reactions will not occur.
	10 mM dCTP	Under normal conditions of storage and use, hazardous reactions will not occur.
	10 mM dTTP	Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid	: Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.
10.5 Incompatible materials	: Klenow Polymerase	May react or be incompatible with oxidising materials.
	10× Fill-in Buffer	May react or be incompatible with oxidising materials.
	pUC19/BamHI-digested control DNA	May react or be incompatible with oxidising materials.
	10 mM dATP	May react or be incompatible with oxidising materials.
	10 mM dGTP	May react or be incompatible with oxidising materials.
	10 mM dCTP	May react or be incompatible with oxidising materials.
	10 mM dTTP	May react or be incompatible with oxidising materials.

SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products :

Klenow Polymerase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10× Fill-in Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
pUC19/BamHI-digested control DNA	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10 mM dATP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10 mM dGTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10 mM dCTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
10 mM dTTP	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
10× Fill-in Buffer Magnesium chloride	LD50 Dermal LD50 Oral	Rat - Male, Female Rat	>2000 mg/kg 2800 mg/kg	- -

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
10× Fill-in Buffer Magnesium chloride	2800	N/A	N/A	N/A	N/A

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Skin : **10x Fill-in Buffer**: May cause skin sensitisation.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

SECTION 11: Toxicological information

Information on likely routes of exposure :	Klenow Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation.
	10× Fill-in Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
	pUC19/BamHI-digested control DNA	Not available.
	10 mM dATP	Not available.
	10 mM dGTP	Not available.
	10 mM dCTP	Not available.
	10 mM dTTP	Not available.

Potential acute health effects

Inhalation :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.
Ingestion :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.
Skin contact :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.
Eye contact :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation :	Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.
Ingestion :	Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.

SECTION 11: Toxicological information

Skin contact :	Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	No specific data.
Eye contact :	Klenow Polymerase	No specific data.
	10× Fill-in Buffer	No specific data.
	pUC19/BamHI-digested control DNA	No specific data.
	10 mM dATP	No specific data.
	10 mM dGTP	No specific data.
	10 mM dCTP	No specific data.
	10 mM dTTP	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

General :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.
Carcinogenicity :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.
Mutagenicity :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Reproductive toxicity :	Klenow Polymerase	No known significant effects or critical hazards.
	10× Fill-in Buffer	No known significant effects or critical hazards.
	pUC19/BamHI-digested control DNA	No known significant effects or critical hazards.
	10 mM dATP	No known significant effects or critical hazards.
	10 mM dGTP	No known significant effects or critical hazards.
	10 mM dCTP	No known significant effects or critical hazards.
	10 mM dTTP	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
10× Fill-in Buffer			
Magnesium chloride	Acute EC50 >100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 180000 µg/l Fresh water	Crustaceans - Eudiaptomus padanus ssp. padanus - Adult	48 hours
	Acute IC50 6.8 mg/l Fresh water	Aquatic plants - Lemna aequinoctialis	96 hours
	Acute LC50 32000 µg/l Fresh water	Daphnia - Daphnia hyalina - Adult	48 hours
	Acute LC50 2120 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute NOEC 100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Chronic NOEC 0.1 mg/l Fresh water	Fish - Cyprinus carpio	35 days

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.

12.5 Results of PBT and vPvB assessment

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

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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.

SECTION 13: Disposal considerations

Packaging

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

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

SECTION 14: Transport information

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

Additional information

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

14.7 Transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

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

Label :

Klenow Polymerase	Not applicable.
10× Fill-in Buffer	Not applicable.
pUC19/BamHI-digested control DNA	Not applicable.
10 mM dATP	Not applicable.
10 mM dGTP	Not applicable.
10 mM dCTP	Not applicable.
10 mM dTTP	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

SECTION 15: Regulatory information

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

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

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]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
N/A = Not available
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number
vPvB = Very Persistent and Very Bioaccumulative

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

SECTION 16: Other information

Classification	Justification
10× Fill-in Buffer Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

10× Fill-in Buffer H410 H412	Very toxic to aquatic life with long lasting effects. Harmful to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]

10× Fill-in Buffer Aquatic Chronic 1 Aquatic Chronic 3	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

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