

SAFETY DATA SHEET



Quick Amp Labeling Kit, Part Number 5190-0424

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

1.1 Product identifier

Product name	:	Quick Amp Labeling Kit, Part Number 5190-0424
Part no. (chemical kit)	:	5190-0424
Part no.	:	Inorganic Pyrophosphatase 5062-9581
		T7 RNA Polymerase 5062-9582
		PEG 5062-9583
		T7 Primer 5062-9572
		5X First Strand Buffer 5062-9573
		0.1 M DTT 5062-9574
		10 mM dNTP Mix 5062-9575
		RNase Inhibitor 5062-9576
		MMLV-RT 5062-9577
		4X Transcription Buffer 5062-9578
		NTP Mix 5062-9579

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

Material uses	:	<input checked="" type="checkbox"/> For research use only. Not for use in diagnostic procedures (RUO).
		<input checked="" type="checkbox"/> Inorganic Pyrophosphatase 0.015 ml
		T7 RNA Polymerase 0.02 ml
		PEG 0.14 ml
		T7 Primer 0.03 ml
		5X First Strand Buffer 0.195 ml
		0.1 M DTT 0.23 ml
		10 mM dNTP Mix 0.025 ml
		RNase Inhibitor 0.025 ml
		MMLV-RT 300 U/ μ l 25 μ l
		4X Transcription Buffer 0.43 ml
		NTP Mix 0.175 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

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SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	:	Inorganic Pyrophosphatase	Mixture
		T7 RNA Polymerase	Mixture
		PEG	Mixture
		T7 Primer	Mixture
		5X First Strand Buffer	Mixture
		0.1 M DTT	Mixture
		10 mM dNTP Mix	Mixture
		RNase Inhibitor	Mixture
		MMLV-RT	Mixture
		4X Transcription Buffer	Mixture
		NTP Mix	Mixture

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

Not classified.

Ingredients of unknown toxicity	:	Inorganic Pyrophosphatase	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%
		T7 RNA Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%
		PEG	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%
		5X First Strand Buffer	Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
		0.1 M DTT	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: > 60%
			Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
		RNase Inhibitor	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
		MMLV-RT	Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 30 - 60%
		4X Transcription Buffer	Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
			Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
			Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%
		NTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
			Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
			Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%
Ingredients of unknown ecotoxicity	:	4X Transcription Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.5%
		NTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4%

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

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SECTION 2: Hazards identification

Signal word	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. No signal word.
Hazard statements	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Response	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Storage	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

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SECTION 2: Hazards identification

Disposal	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Hazardous ingredients	: <input checked="" type="checkbox"/> 5X First Strand Buffer 0.1 M DTT MMLV-RT 4X Transcription Buffer	Not applicable. Not applicable. Not applicable. Not applicable.
Supplemental label elements	: <input checked="" type="checkbox"/> Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Safety data sheet available on request. Not applicable. Not applicable. Not applicable. Safety data sheet available on request. Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Special packaging requirements		
Tactile warning of danger	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

2.3 Other hazards

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SECTION 2: Hazards identification

Other hazards which do not result in classification	Inorganic Pyrophosphatase	None known.
	T7 RNA Polymerase	None known.
	PEG	None known.
	T7 Primer	None known.
	5X First Strand Buffer	None known.
	0.1 M DTT	None known.
	10 mM dNTP Mix	None known.
	RNase Inhibitor	None known.
	MMLV-RT	None known.
	4X Transcription Buffer	None known.
NTP Mix	None known.	

SECTION 3: Composition/information on ingredients

3.1 Substances	Inorganic Pyrophosphatase	Mixture
	T7 RNA Polymerase	Mixture
	PEG	Mixture
	T7 Primer	Mixture
	5X First Strand Buffer	Mixture
	0.1 M DTT	Mixture
	10 mM dNTP Mix	Mixture
	RNase Inhibitor	Mixture
	MMLV-RT	Mixture
	4X Transcription Buffer	Mixture
	NTP Mix	Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
Inorganic Pyrophosphatase Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
T7 RNA Polymerase Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	CAS: 9002-93-1	≤0.3	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Aquatic Chronic 2, H411	[1] [5]
0.1 M DTT (R*,R*)-1,4-Dimercaptobutane-2,3-diol	EC: 222-468-7 CAS: 3483-12-3	≤3	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 Aquatic Chronic 3, H412	[1]
RNase Inhibitor Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
MMLV-RT Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
Poly(oxy-1,2-ethanediyl), .alpha.-[CAS: 9036-19-5	<0.25	Eye Irrit. 2, H319	[1] [5]

Date of issue/Date of revision : 29/06/2018

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SECTION 3: Composition/information on ingredients

(1,1,3,3-tetramethylbutyl)phenyl]- omega.-hydroxy-			Aquatic Acute 1, H400 (M=1) Aquatic Chronic 1, H410 (M=1)	
4X Transcription Buffer 2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	EC: 214-684-5 CAS: 1185-53-1	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 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	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP 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. 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. 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. 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. 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. 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. 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. 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. 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. 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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SECTION 4: First aid measures

Inhalation	:	Inorganic Pyrophosphatase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		T7 RNA Polymerase	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.
		PEG	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		T7 Primer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		5X First Strand Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		0.1 M DTT	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		10 mM dNTP Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		RNase Inhibitor	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.
		MMLV-RT	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.
		4X Transcription 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.
		NTP Mix	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.
	Skin contact	:	Inorganic Pyrophosphatase
		T7 RNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		PEG	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		T7 Primer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		5X First Strand Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if

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	0.1 M DTT	symptoms occur. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10 mM dNTP Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	RNase Inhibitor	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	MMLV-RT	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	4X Transcription Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	NTP Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: Inorganic Pyrophosphatase	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.
	T7 RNA 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.
	PEG	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.
	T7 Primer	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 First Strand 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.
	0.1 M DTT	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 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.
	RNase Inhibitor	Wash out mouth with water. Remove victim to fresh air and

SECTION 4: First aid measures

		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.
	MMLV-RT	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.
	4X Transcription 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.
	NTP 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.
Protection of first-aiders	: Inorganic Pyrophosphatase	No action shall be taken involving any personal risk or without suitable training.
	T7 RNA Polymerase	No action shall be taken involving any personal risk or without suitable training.
	PEG	No action shall be taken involving any personal risk or without suitable training.
	T7 Primer	No action shall be taken involving any personal risk or without suitable training.
	5X First Strand Buffer	No action shall be taken involving any personal risk or without suitable training.
	0.1 M DTT	No action shall be taken involving any personal risk or without suitable training.
	10 mM dNTP Mix	No action shall be taken involving any personal risk or without suitable training.
	RNase Inhibitor	No action shall be taken involving any personal risk or without suitable training.
	MMLV-RT	No action shall be taken involving any personal risk or without suitable training.
	4X Transcription Buffer	No action shall be taken involving any personal risk or without suitable training.
	NTP Mix	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	: Inorganic Pyrophosphatase	No known significant effects or critical hazards.
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.

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Inhalation	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
Inhalation	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

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	NTP Mix	No specific data.
Skin contact	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.
	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	No specific data.
Ingestion	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.
	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: Inorganic	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Pyrophosphatase	
	T7 RNA Polymerase	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.
	PEG	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	T7 Primer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X First Strand Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	0.1 M DTT	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10 mM dNTP Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	RNase Inhibitor	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.
	MMLV-RT	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.
	4X Transcription 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.
	NTP Mix	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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Specific treatments	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
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SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	None known. None known. None known. None known. None known. None known. None known. None known. None known. None known. None known. None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
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SECTION 5: Firefighting measures

Hazardous combustion products	:	NTP Mix	container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
		Inorganic Pyrophosphatase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		T7 RNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
		PEG	Decomposition products may include the following materials: carbon dioxide carbon monoxide
		T7 Primer 5X First Strand Buffer	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
		0.1 M DTT	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
		10 mM dNTP Mix RNase Inhibitor	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
		MMLV-RT	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
		4X Transcription Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
		NTP Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	:	Inorganic Pyrophosphatase	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.
		T7 RNA 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.
		PEG	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.
		T7 Primer	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

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SECTION 5: Firefighting measures

	5X First Strand 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.
	0.1 M DTT	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 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.
	RNase Inhibitor	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.
	MMLV-RT	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.
	4X Transcription 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.
	NTP 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.
Special protective equipment for fire-fighters	: Inorganic Pyrophosphatase	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.
	T7 RNA 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.
	PEG	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.
	T7 Primer	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.
	5X First Strand 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.
	0.1 M DTT	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 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

SECTION 5: Firefighting measures

RNase Inhibitor	basic level of protection for chemical incidents. 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.
MMLV-RT	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.
4X Transcription 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.
NTP 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.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: Inorganic Pyrophosphatase	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.
	T7 RNA 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.
	PEG	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.
	T7 Primer	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 First Strand 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.
	0.1 M DTT	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 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.

SECTION 6: Accidental release measures

		Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	RNase Inhibitor	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.
	MMLV-RT	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.
	4X Transcription 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.
	NTP 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.
For emergency responders	: Inorganic Pyrophosphatase	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".
	T7 RNA 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".
	PEG	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".
	T7 Primer	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 First Strand 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".
	0.1 M DTT	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 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".
	RNase Inhibitor	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".
	MMLV-RT	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".
	4X Transcription 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".

SECTION 6: Accidental release measures

NTP 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".

6.2 Environmental precautions

: Inorganic Pyrophosphatase
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).

T7 RNA 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).

PEG
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).

T7 Primer
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 First Strand 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).

0.1 M DTT
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 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).

RNase Inhibitor
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).

MMLV-RT
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).

4X Transcription 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).

NTP 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).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Inorganic Pyrophosphatase
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.

T7 RNA 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.

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PEG	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.
T7 Primer	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 First Strand 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.
0.1 M DTT	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 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.
RNase Inhibitor	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.
MMLV-RT	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.
4X Transcription 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.
NTP 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.

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	: Inorganic Pyrophosphatase T7 RNA Polymerase	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8).
	PEG	Put on appropriate personal protective equipment (see Section 8).
	T7 Primer	Put on appropriate personal protective equipment (see Section 8).

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	5X First Strand Buffer	Put on appropriate personal protective equipment (see Section 8).
	0.1 M DTT	Put on appropriate personal protective equipment (see Section 8).
	10 mM dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
	RNase Inhibitor	Put on appropriate personal protective equipment (see Section 8).
	MMLV-RT	Put on appropriate personal protective equipment (see Section 8).
	4X Transcription Buffer	Put on appropriate personal protective equipment (see Section 8).
	NTP Mix	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene	: Inorganic Pyrophosphatase	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.
	T7 RNA 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.
	PEG	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.
	T7 Primer	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 First Strand 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.
	0.1 M DTT	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 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.
	RNase Inhibitor	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

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MMLV-RT	Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
4X Transcription 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.
NTP 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.

7.2 Conditions for safe storage, including any incompatibilities

Storage

Inorganic Pyrophosphatase	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.
T7 RNA 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.
PEG	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.
T7 Primer	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.

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5X First Strand 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.
0.1 M DTT	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 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. See Section 10 for incompatible materials before handling or use.
RNase Inhibitor	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.
MMLV-RT	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.
4X Transcription 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.
NTP Mix	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and

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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	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
Industrial sector specific solutions	: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Inorganic Pyrophosphatase Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist
T7 RNA Polymerase Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist
RNase Inhibitor Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist
MMLV-RT Glycerol	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist

SECTION 8: Exposure controls/personal protection

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.

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SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	: Inorganic	Liquid.
	Pyrophosphatase	
	T7 RNA Polymerase	Liquid.
	PEG	Liquid.
	T7 Primer	Liquid.
	5X First Strand Buffer	Liquid.
	0.1 M DTT	Liquid.
	10 mM dNTP Mix	Liquid.
	RNase Inhibitor	Liquid.
	MMLV-RT	Liquid.
Colour	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Clear.
Odour	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
Odour threshold	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
pH	: Inorganic	7.5
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	8.3
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.

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SECTION 9: Physical and chemical properties

	4X Transcription Buffer	8
	NTP Mix	Not available.
Melting point/freezing point	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	0°C
	5X First Strand Buffer	Not available.
	0.1 M DTT	0°C
	10 mM dNTP Mix	0°C
	RNase Inhibitor	Not available.
	MMLV-RT	17.8°C
	4X Transcription Buffer	0°C
	NTP Mix	0°C
Initial boiling point and boiling range	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	100°C
	5X First Strand Buffer	Not available.
	0.1 M DTT	100°C
	10 mM dNTP Mix	100°C
	RNase Inhibitor	Not available.
	MMLV-RT	289.7°C
	4X Transcription Buffer	100°C
	NTP Mix	100°C
Flash point	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Evaporation rate	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Flammability (solid, gas)	: Inorganic	Not applicable.
	Pyrophosphatase	
	T7 RNA Polymerase	Not applicable.
	PEG	Not applicable.
	T7 Primer	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	10 mM dNTP Mix	Not applicable.
	RNase Inhibitor	Not applicable.
	MMLV-RT	Not applicable.
	4X Transcription Buffer	Not applicable.

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SECTION 9: Physical and chemical properties

	NTP Mix	Not applicable.
Upper/lower flammability or explosive limits	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Vapour pressure	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Vapour density	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Relative density	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Solubility(ies)	: Inorganic	Soluble in the following materials: cold water and hot water.
	Pyrophosphatase	
	T7 RNA Polymerase	Soluble in the following materials: cold water and hot water.
	PEG	Soluble in the following materials: cold water and hot water.
	T7 Primer	Easily soluble in the following materials: cold water and hot water.
	5X First Strand Buffer	Easily soluble in the following materials: cold water and hot water.
	0.1 M DTT	Easily soluble in the following materials: cold water and

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SECTION 9: Physical and chemical properties

	10 mM dNTP Mix	hot water. Easily soluble in the following materials: cold water and hot water.
	RNase Inhibitor	Soluble in the following materials: cold water and hot water.
	MMLV-RT	Soluble in the following materials: cold water and hot water.
	4X Transcription Buffer	Easily soluble in the following materials: cold water and hot water.
	NTP Mix	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: Inorganic	Not available.
	Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Auto-ignition temperature	: Inorganic	Not available.
	Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Decomposition temperature	: Inorganic	Not available.
	Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Viscosity	: Inorganic	Not available.
	Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.

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SECTION 9: Physical and chemical properties

Explosive properties	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Oxidising properties	: Inorganic	Not available.
	Pyrophosphatase	
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	T7 Primer	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	10 mM dNTP Mix	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: Inorganic	No specific test data related to reactivity available for this product or its ingredients.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
	PEG	No specific test data related to reactivity available for this product or its ingredients.
	T7 Primer	No specific test data related to reactivity available for this product or its ingredients.
	5X First Strand Buffer	No specific test data related to reactivity available for this product or its ingredients.
	0.1 M DTT	No specific test data related to reactivity available for this product or its ingredients.
	10 mM dNTP Mix	No specific test data related to reactivity available for this product or its ingredients.
	RNase Inhibitor	No specific test data related to reactivity available for this product or its ingredients.
	MMLV-RT	No specific test data related to reactivity available for this product or its ingredients.
	4X Transcription Buffer	No specific test data related to reactivity available for this product or its ingredients.
	NTP Mix	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: Inorganic	The product is stable.
	Pyrophosphatase	
	T7 RNA Polymerase	The product is stable.
	PEG	The product is stable.
	T7 Primer	The product is stable.
	5X First Strand Buffer	The product is stable.
	0.1 M DTT	The product is stable.
	10 mM dNTP Mix	The product is stable.

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SECTION 10: Stability and reactivity

RNase Inhibitor	The product is stable.
MMLV-RT	The product is stable.
4X Transcription Buffer	The product is stable.
NTP Mix	The product is stable.

10.3 Possibility of hazardous reactions

: Inorganic Pyrophosphatase T7 RNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
PEG	Under normal conditions of storage and use, hazardous reactions will not occur.
T7 Primer	Under normal conditions of storage and use, hazardous reactions will not occur.
5X First Strand Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
0.1 M DTT	Under normal conditions of storage and use, hazardous reactions will not occur.
10 mM dNTP Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
RNase Inhibitor	Under normal conditions of storage and use, hazardous reactions will not occur.
MMLV-RT	Under normal conditions of storage and use, hazardous reactions will not occur.
4X Transcription Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
NTP Mix	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
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10.5 Incompatible materials

: Inorganic Pyrophosphatase T7 RNA Polymerase PEG T7 Primer 5X First Strand Buffer 0.1 M DTT 10 mM dNTP Mix RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
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SECTION 10: Stability and reactivity

10.6 Hazardous decomposition products	Inorganic	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Pyrophosphatase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	T7 RNA Polymerase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	PEG	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	T7 Primer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	5X First Strand Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	0.1 M DTT	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10 mM dNTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	RNase Inhibitor	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
MMLV-RT	Under normal conditions of storage and use, hazardous decomposition products should not be produced.	
4X Transcription Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.	
NTP Mix	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
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
MMLV-RT Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-

Acute toxicity estimates

Route	ATE value
0.1 M DTT Oral	32467.5 mg/kg

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	Eyes - Moderate irritant	Rabbit	-	24 hours 10 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 microliters	-
MMLV-RT Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 Percent	-

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

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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)

Product/ingredient name	Category	Route of exposure	Target organs
0.1 M DTT (R*,R*)-1,4-Dimercaptobutane-2,3-diol	Category 3	Not applicable.	Respiratory tract irritation
4X Transcription 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

Inorganic	Routes of entry anticipated: Oral, Dermal, Inhalation.
Pyrophosphatase	Routes of entry anticipated: Oral, Dermal, Inhalation.
T7 RNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation.
PEG	Routes of entry anticipated: Oral, Dermal, Inhalation.
T7 Primer	Not available.
5X First Strand Buffer	Not available.
0.1 M DTT	Routes of entry anticipated: Oral, Dermal, Inhalation.
10 mM dNTP Mix	Not available.
RNase Inhibitor	Routes of entry anticipated: Oral, Dermal, Inhalation.
MMLV-RT	Routes of entry anticipated: Oral, Dermal, Inhalation.
4X Transcription Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
NTP Mix	Not available.

Potential acute health effects

Inhalation	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	No known significant effects or critical hazards.
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Ingestion	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	No known significant effects or critical hazards.
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.

SECTION 11: Toxicological information

	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Skin contact	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Eye contact	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.
	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	No specific data.
Ingestion	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.
	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	No specific data.
Skin contact	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.

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	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	No specific data.
Eye contact	: Inorganic	No specific data.
	Pyrophosphatase	
	T7 RNA Polymerase	No specific data.
	PEG	No specific data.
	T7 Primer	No specific data.
	5X First Strand Buffer	No specific data.
	0.1 M DTT	No specific data.
	10 mM dNTP Mix	No specific data.
	RNase Inhibitor	No specific data.
	MMLV-RT	No specific data.
	4X Transcription Buffer	No specific data.
	NTP Mix	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	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Carcinogenicity	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Mutagenicity	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.

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SECTION 11: Toxicological information

	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Teratogenicity	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Developmental effects	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.
Fertility effects	: Inorganic	No known significant effects or critical hazards.
	Pyrophosphatase	
	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	T7 Primer	No known significant effects or critical hazards.
	5X First Strand Buffer	No known significant effects or critical hazards.
	0.1 M DTT	No known significant effects or critical hazards.
	10 mM dNTP Mix	No known significant effects or critical hazards.
	RNase Inhibitor	No known significant effects or critical hazards.
	MMLV-RT	No known significant effects or critical hazards.
	4X Transcription Buffer	No known significant effects or critical hazards.
	NTP Mix	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
0.1 M DTT (R*,R*)-1,4-Dimercaptobutane-2,3-diol	Acute LC50 27000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
MMLV-RT Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.	Acute EC50 210 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	96 hours

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SECTION 12: Ecological information

omega.-hydroxy-	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	4.86	-	high
MMLV-RT Poly(oxy-1,2-ethanediyl), . alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-. omega.-hydroxy-	3.77	78.67	low

12.4 Mobility in soil

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

Mobility : Not available.

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.

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SECTION 13: Disposal considerations

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 : 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

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	Substance of equivalent concern for environment	Listed	42	7/3/2017

Substances of very high concern

Ingredient name	Intrinsic property	Status	Reference number	Date of revision
5X First Strand Buffer Polyoxyethylene octyl phenyl ether	Substance of equivalent concern for environment	Recommended	ED/169/2012	2/10/2014
MMLV-RT Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	Substance of equivalent concern for environment	Recommended	ED/169/2012	2/10/2014

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

Inorganic Pyrophosphatase	Not applicable.
T7 RNA Polymerase	Not applicable.
PEG	Not applicable.
T7 Primer	Not applicable.
5X First Strand Buffer	Not applicable.
0.1 M DTT	Not applicable.
10 mM dNTP Mix	Not applicable.
RNase Inhibitor	Not applicable.
MMLV-RT	Not applicable.
4X Transcription Buffer	Not applicable.
NTP Mix	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

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

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SECTION 15: Regulatory information

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 (Annexes A, B, C, E)

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	: Not determined.
China	: Not determined.
Europe	: <input checked="" type="checkbox"/> 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	: <input checked="" type="checkbox"/> Not determined.
Thailand	: <input checked="" type="checkbox"/> Not determined.
Turkey	: Not determined.
United States	: Not determined.
Viet Nam	: <input checked="" type="checkbox"/> 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]
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

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SECTION 16: Other information

<p>5X First Strand Buffer H302 H315 H319 H411</p> <p>0.1 M DTT H302 H315 H319 H335 H412</p> <p>MMLV-RT H319 H400 H410</p> <p>4X Transcription Buffer H315 H319 H335</p>	<p>Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.</p> <p>Harmful if swallowed. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.</p> <p>Causes serious eye irritation. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects.</p> <p>Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.</p>
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[Full text of classifications \[CLP/GHS\]](#)

<p>5X First Strand Buffer Acute Tox. 4, H302 Aquatic Chronic 2, H411 Eye Irrit. 2, H319 Skin Irrit. 2, H315</p> <p>0.1 M DTT Acute Tox. 4, H302 Aquatic Chronic 3, H412 Eye Irrit. 2, H319 Skin Irrit. 2, H315 STOT SE 3, H335</p> <p>MMLV-RT Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Eye Irrit. 2, H319</p> <p>4X Transcription Buffer Eye Irrit. 2, H319 Skin Irrit. 2, H315 STOT SE 3, H335</p>	<p>ACUTE TOXICITY (oral) - Category 4 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2</p> <p>ACUTE TOXICITY (oral) - Category 4 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3</p> <p>SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2</p> <p>SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2 SKIN CORROSION/IRRITATION - Category 2 SPECIFIC TARGET ORGAN TOXICITY - SINGLE EXPOSURE (Respiratory tract irritation) - Category 3</p>
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Date of previous issue : 31/01/2016

Version : 2

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