Conforms to Code of Practice for the Preparation of Safety Data Sheets for Hazardous Chemicals

SAFETY DATA SHEET

Agilent Technologies

Quick Amp Labeling Kit, Part Number 5190-0424

Section 1. Identification

Product identifier : 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

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

Identified uses : Analytical reagent.
For research use only.

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/µl	25 µl
4X Transcription Buffer	0.43 ml	
NTP Mix	0.175 ml	

Uses advised against : Not for use in diagnostic procedures (RUO).

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture

Inorganic Pyrophosphatase
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

T7 RNA Polymerase
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

PEG
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

5X First Strand Buffer
H412 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Section 2. Hazard(s) identification

RNase Inhibitor
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

MMLV-RT
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

5X First Strand Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 59%
4X Transcription Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2.4%
NTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 4%

GHS label elements

Signal word

Inorganic Pyrophosphatase	WARNING
T7 RNA Polymerase	WARNING
PEG	WARNING
T7 Primer	No signal word.
5X First Strand Buffer	No signal word.
0.1 M DTT	No signal word.
10 mM dNTP Mix	No signal word.
RNase Inhibitor	WARNING
MMLV-RT	WARNING
4X Transcription Buffer	No signal word.
NTP Mix	No signal word.

Hazard statements

Inorganic Pyrophosphatase	H320 - Causes eye irritation.
T7 RNA Polymerase	H320 - Causes eye irritation.
PEG	H320 - Causes eye irritation.
T7 Primer	No known significant effects or critical hazards.
5X First Strand Buffer	H412 - Harmful to aquatic life with long lasting effects.
0.1 M DTT	No known significant effects or critical hazards.
10 mM dNTP Mix	No known significant effects or critical hazards.
RNase Inhibitor	H320 - Causes eye irritation.
MMLV-RT	H320 - Causes eye irritation.
4X Transcription Buffer	No known significant effects or critical hazards.
NTP Mix	No known significant effects or critical hazards.

Precautionary statements

Prevention

Inorganic Pyrophosphatase	Not applicable.
T7 RNA Polymerase	Not applicable.
PEG	Not applicable.
T7 Primer	Not applicable.
5X First Strand Buffer	P273 - Avoid release to the environment.
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.

Response

Inorganic Pyrophosphatase	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
T7 RNA Polymerase	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
PEG	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Section 2. Hazard(s) identification

			P337 + P313 - If eye irritation persists: Get medical advice or attention.
		T7 Primer	Not applicable.
		5X First Strand Buffer	Not applicable.
		0.1 M DTT	Not applicable.
		10 mM dNTP Mix	Not applicable.
		RNase Inhibitor	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		MMLV-RT	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
		4X Transcription Buffer	Not applicable.
		NTP Mix	Not applicable.
Storage	:	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.
Disposal	:	Inorganic Pyrophosphatase	Not applicable.
		T7 RNA Polymerase	Not applicable.
		PEG	Not applicable.
		T7 Primer	Not applicable.
		5X First Strand Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		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.

Supplemental label elements

Additional warning phrases	:	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.

Section 2. Hazard(s) 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 and ingredient information

Substance/mixture	:	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

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
Inorganic Pyrophosphatase		
Glycerol	≥30 - ≤60	56-81-5
T7 RNA Polymerase		
Glycerol	≥30 - ≤60	56-81-5
PEG		
Polyethylene glycol	≥30 - ≤60	25322-68-3
5X First Strand Buffer		
Magnesium chloride	≤0.3	7786-30-3
Polyoxyethylene octyl phenyl ether	≤0.3	9002-93-1
RNase Inhibitor		
Glycerol	≥30 - ≤60	56-81-5
MMLV-RT		
Glycerol	≥30 - ≤60	56-81-5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

Section 3. Composition and ingredient information

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	:	Inorganic Pyrophosphatase	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		T7 RNA Polymerase	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		PEG	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		T7 Primer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		5X First Strand Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		0.1 M DTT	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		10 mM dNTP Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		RNase Inhibitor	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		MMLV-RT	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
		4X Transcription Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		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.
Inhalation	:	Inorganic Pyrophosphatase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately.

Section 4. First aid measures

	Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
T7 RNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
PEG	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
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.
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. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
MMLV-RT	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately.

Section 4. First aid measures

			Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		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	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		T7 RNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		PEG	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		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 symptoms occur.
		0.1 M DTT	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. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		MMLV-RT	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
		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.

Section 4. First aid measures

Ingestion	:	Inorganic Pyrophosphatase	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		T7 RNA Polymerase	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		PEG	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
		T7 Primer	Wash out mouth with water. 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. 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.
		0.1 M DTT	Wash out mouth with water. 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. 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 dentures if any.

Section 4. First aid measures

		If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	MMLV-RT	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	4X Transcription Buffer	Wash out mouth with water. 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. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	:	Inorganic Pyrophosphatase	Causes eye irritation.
		T7 RNA Polymerase	Causes eye irritation.
		PEG	Causes eye irritation.
		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	Causes eye irritation.
		MMLV-RT	Causes eye irritation.
		4X Transcription Buffer	No known significant effects or critical hazards.
		NTP Mix	No known significant effects or critical hazards.
Inhalation	:	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.

Section 4. First aid measures

Skin 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.
Ingestion	:	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.

Over-exposure signs/symptoms

Eye contact	:	Inorganic Pyrophosphatase	Adverse symptoms may include the following: irritation watering redness
		T7 RNA Polymerase	Adverse symptoms may include the following: irritation watering redness
		PEG	Adverse symptoms may include the following: irritation watering redness
		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	Adverse symptoms may include the following: irritation watering redness
		MMLV-RT	Adverse symptoms may include the following: irritation watering redness
		4X Transcription Buffer	No specific data.
		NTP Mix	No specific data.
Inhalation	:	Inorganic Pyrophosphatase	No specific data.
		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.

Section 4. First aid measures

Skin contact	:	Inorganic Pyrophosphatase	No specific data.
		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 Pyrophosphatase	No specific data.
		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.

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

Notes to physician	:	Inorganic Pyrophosphatase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		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.

Section 4. First aid measures

Specific treatments	:	Inorganic Pyrophosphatase	No specific treatment.
		T7 RNA Polymerase	No specific treatment.
		PEG	No specific treatment.
		T7 Primer	No specific treatment.
		5X First Strand Buffer	No specific treatment.
		0.1 M DTT	No specific treatment.
		10 mM dNTP Mix	No specific treatment.
		RNase Inhibitor	No specific treatment.
		MMLV-RT	No specific treatment.
		4X Transcription Buffer	No specific treatment.
		NTP Mix	No specific treatment.
Protection of first-aiders	:	Inorganic Pyrophosphatase	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		T7 RNA Polymerase	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		PEG	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		MMLV-RT	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
		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.

See toxicological information (Section 11)

Section 5. Firefighting measures

Extinguishing media

Suitable extinguishing media	:	Inorganic Pyrophosphatase	Use an extinguishing agent suitable for the surrounding fire.
		T7 RNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
		PEG	Use an extinguishing agent suitable for the surrounding fire.
		T7 Primer	Use an extinguishing agent suitable for the surrounding fire.
		5X First Strand Buffer	Use an extinguishing agent suitable for the surrounding fire.
		0.1 M DTT	Use an extinguishing agent suitable for the surrounding fire.
		10 mM dNTP Mix	Use an extinguishing agent suitable for the surrounding fire.

Section 5. Firefighting measures

	RNase Inhibitor	Use an extinguishing agent suitable for the surrounding fire.
	MMLV-RT	Use an extinguishing agent suitable for the surrounding fire.
	4X Transcription Buffer	Use an extinguishing agent suitable for the surrounding fire.
	NTP Mix	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media :	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.
Specific hazards arising from the chemical :	Inorganic Pyrophosphatase	In a fire or if heated, a pressure increase will occur and the container may burst.
	T7 RNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
	PEG	In a fire or if heated, a pressure increase will occur and the container may burst.
	T7 Primer	In a fire or if heated, a pressure increase will occur and the container may burst.
	5X First Strand Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	0.1 M DTT	In a fire or if heated, a pressure increase will occur and the container may burst.
	10 mM dNTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	RNase Inhibitor	In a fire or if heated, a pressure increase will occur and the container may burst.
	MMLV-RT	In a fire or if heated, a pressure increase will occur and the container may burst.
	4X Transcription Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	NTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products :	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	No specific data.
	5X First Strand Buffer	Decomposition products may include the following materials:

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		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	No specific data.
	RNase Inhibitor	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
Special protective actions 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.
	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

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

Section 6. Accidental release measures

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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate

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		respirator when ventilation is inadequate. 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".
	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".

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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). Water polluting material. May be harmful to the environment if released in large quantities.
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).

Methods and material for containment and cleaning up

Section 6. Accidental release measures

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.
		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

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inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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Precautions for safe handling

Protective measures :

Inorganic Pyrophosphatase	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
T7 RNA Polymerase	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
PEG	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
T7 Primer	Put on appropriate personal protective equipment (see Section 8).
5X First Strand Buffer	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
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). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
MMLV-RT	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
4X Transcription Buffer	Put on appropriate personal protective equipment (see Section 8).

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	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 Section 8 for additional information on hygiene measures.
	MMLV-RT	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

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		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.
Conditions for safe storage, including any incompatibilities :	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.
	5X First Strand Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a

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	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

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

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Inorganic Pyrophosphatase Glycerol	**Safe Work Australia (Australia, 12/2019).** TWA: 10 mg/m³ 8 hours.
T7 RNA Polymerase Glycerol	**Safe Work Australia (Australia, 12/2019).** TWA: 10 mg/m³ 8 hours.
PEG Polyethylene glycol	**DFG MAC-values list (Germany, 10/2021).** PEAK: 400 mg/m³, 4 times per shift, 15 minutes. Form: inhalable fraction TWA: 200 mg/m³ 8 hours. Form: inhalable fraction
RNase Inhibitor Glycerol	**Safe Work Australia (Australia, 12/2019).** TWA: 10 mg/m³ 8 hours.
MMLV-RT Glycerol	**Safe Work Australia (Australia, 12/2019).** TWA: 10 mg/m³ 8 hours.

Biological exposure indices

No exposure indices known.

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

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

Individual protection measures

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

Section 8. Exposure controls and personal protection

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: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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

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

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

Section 9. Physical and chemical properties and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state :	Inorganic Pyrophosphatase	Liquid.
	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.
	4X Transcription Buffer	Liquid.
	NTP Mix	Liquid.
Colour :	Inorganic 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	Clear.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
Odour :	Inorganic 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.

Section 9. Physical and chemical properties and safety characteristics

		MMLV-RT	Not available.
		4X Transcription Buffer	Not available.
		NTP Mix	Not available.
Odour threshold	:	Inorganic 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.
pH	:	Inorganic Pyrophosphatase	7.5
		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.
		4X Transcription Buffer	8
		NTP Mix	Not available.
Melting point/freezing point	:	Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		T7 Primer	0°C (32°F)
		5X First Strand Buffer	Not available.
		0.1 M DTT	0°C (32°F)
		10 mM dNTP Mix	0°C (32°F)
		RNase Inhibitor	Not available.
		MMLV-RT	17.8°C (64°F)
		4X Transcription Buffer	0°C (32°F)
		NTP Mix	0°C (32°F)
Boiling point, initial boiling point, and boiling range	:	Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		T7 Primer	100°C (212°F)
		5X First Strand Buffer	Not available.
		0.1 M DTT	100°C (212°F)
		10 mM dNTP Mix	100°C (212°F)
		RNase Inhibitor	Not available.
		MMLV-RT	289.7°C (553.5°F)
		4X Transcription Buffer	100°C (212°F)
		NTP Mix	100°C (212°F)

Flash point :

	Closed cup			Open cup		
Ingredient name	**°C**	**°F**	**Method**	**°C**	**°F**	**Method**
Inorganic Pyrophosphatase						
Glycerol				177	350.6	
T7 RNA Polymerase						
Glycerol				177	350.6	

Section 9. Physical and chemical properties and safety characteristics

PEG						
Polyethylene glycol	171 to 235	339.8 to 455		199 to 238	390.2 to 460.4	
0.1 M DTT						
(R*,R*) -1,4-Dimercaptobutane-2,3-diol	>110	>230				
RNase Inhibitor						
Glycerol				177	350.6	
MMLV-RT						
Glycerol				177	350.6	

Evaporation rate :

Inorganic 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.

Flammability :

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.

Lower and upper explosion limit/flammability limit :

Inorganic 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.

Vapour pressure :

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Vapour Pressure at 20˚C			Vapour pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Inorganic Pyrophosphatase						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
T7 RNA Polymerase						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
PEG						
water	23.8	3.2		92.258	12.3	
Polyethylene glycol	0	0				
T7 Primer						
water	23.8	3.2		92.258	12.3	
5X First Strand Buffer						
water	23.8	3.2		92.258	12.3	
0.1 M DTT						
water	23.8	3.2		92.258	12.3	
10 mM dNTP Mix						
water	23.8	3.2		92.258	12.3	
RNase Inhibitor						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
MMLV-RT						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
4X Transcription Buffer						

Section 9. Physical and chemical properties and safety characteristics

water	23.8	3.2		92.258	12.3	
2-Amino-2-(hydroxymethyl) propane-1,3-diol hydrochloride	0.000027	0.0000036		0.000007501	0.000001	
NTP Mix						
water	23.8	3.2		92.258	12.3	

Relative vapour density :

Inorganic 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.

Relative density :

Inorganic 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.

Solubility(ies) :

Media	Result
Inorganic Pyrophosphatase	
water	Soluble
T7 RNA Polymerase	
water	Soluble
PEG	
water	Soluble
T7 Primer	
water	Soluble
5X First Strand Buffer	
water	Soluble
0.1 M DTT	
water	Soluble
10 mM dNTP Mix	
water	Soluble
RNase Inhibitor	
water	Soluble
MMLV-RT	
water	Soluble
4X Transcription Buffer	
water	Soluble
NTP Mix	
water	Soluble

Section 9. Physical and chemical properties and safety characteristics

Partition coefficient: n-octanol/water :

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.

Auto-ignition temperature :

Ingredient name	°C	°F	Method
Inorganic Pyrophosphatase			
Glycerol	370	698	
T7 RNA Polymerase			
Glycerol	370	698	
PEG			
Polyethylene glycol	360	680	
RNase Inhibitor			
Glycerol	370	698	
MMLV-RT			
Glycerol	370	698	

Decomposition temperature :

Inorganic 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 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.

Particle characteristics

Section 9. Physical and chemical properties and safety characteristics

Median particle size :

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.

Section 10. Stability and reactivity

Reactivity :

Inorganic Pyrophosphatase	No specific test data related to reactivity available for this product or its ingredients.
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.

Chemical stability :

Inorganic Pyrophosphatase	The product is stable.
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.
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.

Possibility of hazardous reactions :

Inorganic Pyrophosphatase	Under normal conditions of storage and use, hazardous reactions will not occur.
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.

Section 10. Stability and reactivity

	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.

Conditions to avoid :

Inorganic Pyrophosphatase	No specific data.
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.

Incompatible materials :

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

Hazardous decomposition products :

Inorganic 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.

Section 10. Stability and reactivity

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

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Inorganic Pyrophosphatase				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
T7 RNA Polymerase				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
5X First Strand Buffer				
Magnesium chloride	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-
Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
RNase Inhibitor				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
MMLV-RT				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Inorganic Pyrophosphatase					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
T7 RNA Polymerase					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
PEG					
Polyethylene glycol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
5X First Strand Buffer					
Polyoxyethylene octyl phenyl ether	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
RNase Inhibitor					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500	-

Section 11. Toxicological information

	Skin - Mild irritant	Rabbit	-	mg 24 hours 500 mg	-
MMLV-RT Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure :

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

Potential acute health effects

Eye contact :

Inorganic Pyrophosphatase	Causes eye irritation.
T7 RNA Polymerase	Causes eye irritation.
PEG	Causes eye irritation.
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	Causes eye irritation.
MMLV-RT	Causes eye irritation.
4X Transcription Buffer	No known significant effects or critical hazards.

Section 11. Toxicological information

		NTP Mix	No known significant effects or critical hazards.
Inhalation	:	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.
Skin 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.
Ingestion	:	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.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	Inorganic Pyrophosphatase	Adverse symptoms may include the following: irritation watering redness
		T7 RNA Polymerase	Adverse symptoms may include the following: irritation watering redness
		PEG	Adverse symptoms may include the following: irritation watering redness
		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	Adverse symptoms may include the following: irritation watering redness
		MMLV-RT	Adverse symptoms may include the following: irritation watering redness
		4X Transcription Buffer	No specific data.
		NTP Mix	No specific data.

Section 11. Toxicological information

Inhalation	:	Inorganic Pyrophosphatase	No specific data.
		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 Pyrophosphatase	No specific data.
		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 Pyrophosphatase	No specific data.
		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 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.

Section 11. Toxicological information

Carcinogenicity	:	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.
Mutagenicity	:	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.
Reproductive toxicity	:	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.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
Inorganic Pyrophosphatase					
Glycerol	12600	N/A	N/A	N/A	N/A
T7 RNA Polymerase					
Glycerol	12600	N/A	N/A	N/A	N/A
PEG					
Polyethylene glycol	28000	N/A	N/A	N/A	N/A
5X First Strand Buffer					
Magnesium chloride	2800	N/A	N/A	N/A	N/A
Polyoxyethylene octyl phenyl ether	1800	N/A	N/A	N/A	N/A
0.1 M DTT					
0.1 M DTT	32467.5	N/A	N/A	N/A	N/A
RNase Inhibitor					
Glycerol	12600	N/A	N/A	N/A	N/A
MMLV-RT					
Glycerol	12600	N/A	N/A	N/A	N/A

Section 11. Toxicological information

Other information :

Inorganic Pyrophosphatase	Not available.
T7 RNA Polymerase	Adverse symptoms may include the following: May cause skin sensitisation.
PEG	Not available.
T7 Primer	Not available.
5X First Strand Buffer	Not available.
0.1 M DTT	Adverse symptoms may include the following: May cause skin sensitisation.
10 mM dNTP Mix	Not available.
RNase Inhibitor	Adverse symptoms may include the following: May cause skin sensitisation.
MMLV-RT	Adverse symptoms may include the following: May cause skin sensitisation.
4X Transcription Buffer	Adverse symptoms may include the following: May cause skin sensitisation.
NTP Mix	Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Inorganic Pyrophosphatase			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
T7 RNA Polymerase			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
PEG			
Polyethylene glycol	Acute LC50 >1000000 µg/l Fresh water	Fish - Salmo salar - Parr	96 hours
5X First Strand Buffer			
Magnesium chloride	Acute EC50 >100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 180000 µg/l Fresh water	Crustaceans - Eudiaptomus padanus ssp. padanus - Adult	48 hours
	Acute IC50 6.8 mg/l Fresh water	Aquatic plants - Lemna aequinoctialis	96 hours
	Acute LC50 32000 µg/l Fresh water	Daphnia - Daphnia hyalina - Adult	48 hours
	Acute LC50 2120 mg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute NOEC 100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Chronic NOEC 0.1 mg/l Fresh water	Fish - Cyprinus carpio	35 days
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
RNase Inhibitor			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
MMLV-RT			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours

Persistence and degradability

Section 12. Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
Inorganic Pyrophosphatase				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
T7 RNA Polymerase				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
PEG				
Polyethylene glycol	OECD 301D Ready Biodegradability - Closed Bottle Test	74.85 % - Readily - 28 days	4 mg/l	-
RNase Inhibitor				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
MMLV-RT				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

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

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Inorganic Pyrophosphatase			
Glycerol	-1.76	-	low
T7 RNA Polymerase			
Glycerol	-1.76	-	low
PEG			
Polyethylene glycol	-	3.2	low
5X First Strand Buffer			
Polyoxyethylene octyl phenyl ether	4.86	-	high
RNase Inhibitor			
Glycerol	-1.76	-	low

Section 12. Ecological information

MMLV-RT Glycerol	-1.76	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

Disposal methods : 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code .

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.

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

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Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Section 15. Regulatory information

Canada : Not determined.

China : Not determined.

Eurasian Economic Union : **Russian Federation inventory**: Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : Not determined.

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Thailand : Not determined.

Turkey : Not determined.

United States : At least one component is inactive.

Viet Nam : Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision : 29/11/2022

Date of previous issue : 01/12/2020

Version : 6

Key to abbreviations : ADG = Australian Dangerous Goods
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available
SUSMP = Standard Uniform Schedule of Medicine and Poisons
UN = United Nations

Procedure used to derive the classification

Classification	Justification
Inorganic Pyrophosphatase SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
T7 RNA Polymerase SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
PEG SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
5X First Strand Buffer LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3	Calculation method
RNase Inhibitor SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
MMLV-RT SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method

Indicates information that has changed from previously issued version.

Section 16. Any other relevant information

Notice to reader

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