

# SAFETY DATA SHEET

Quick Amp Labeling Kit, Part Number 5190-0445

## Section 1. Identification

### 1.1 Product identifier

**Product name** : Quick Amp Labeling Kit, Part Number 5190-0445

**Part No. (Chemical Kit)** : 5190-0445

**Part No.** :

T7 Primer	930442-51
10 mM dNTP Mix	5062-9575
5X First Strand Buffer	5062-9573
0.1 M DTT	5062-9574
RNase Inhibitor	5062-9576
MMLV-RT	5062-9577
4X Transcription Buffer	5062-9578
NTP Mix	5062-9579
Inorganic Pyrophosphatase	5062-9581
T7 RNA Polymerase	5062-9582
PEG	5062-9583
Cyanine 5-CTP	FP1310

**Validation date** : 8/2/2017

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

**Material uses** : Analytical reagent.

T7 Primer	195 µl
10 mM dNTP Mix	25 µl
5X First Strand Buffer	195 µl
0.1 M DTT	230 µl
RNase Inhibitor	25 µl
MMLV-RT	300 U/µl    25 µl
4X Transcription Buffer	430 µl
NTP Mix	175 µl
Inorganic Pyrophosphatase	15 µl
T7 RNA Polymerase	20 µl
PEG	140 µl
Cyanine 5-CTP	24 µl

### 1.3 Details of the supplier of the safety data sheet

**Supplier/Manufacturer** : Agilent Technologies, Inc.  
 5301 Stevens Creek Blvd  
 Santa Clara, CA 95051, USA  
 800-227-9770

### 1.4 Emergency telephone number

**In case of emergency** : CHEMTREC®: 1-800-424-9300

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

## Section 2. Hazards identification

<b>OSHA/HCS status</b>	: T7 Primer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	10 mM dNTP Mix	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	5X First Strand Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	0.1 M DTT	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	RNase Inhibitor	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	MMLV-RT	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	4X Transcription Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	NTP Mix	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	Inorganic Pyrophosphatase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	T7 RNA Polymerase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	PEG	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Cyanine 5-CTP	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

## Section 2. Hazards identification

### RNase Inhibitor

H320 EYE IRRITATION - Category 2B

### MMLV-RT

H320 EYE IRRITATION - Category 2B

### Inorganic Pyrophosphatase

H320 EYE IRRITATION - Category 2B

### T7 RNA Polymerase

H320 EYE IRRITATION - Category 2B

### PEG

H320 EYE IRRITATION - Category 2B

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

### 2.2 GHS label elements

Signal word :

## Section 2. Hazards identification

	T7 Primer	No signal word.
	10 mM dNTP Mix	No signal word.
	5X First Strand Buffer	No signal word.
	0.1 M DTT	No signal word.
	RNase Inhibitor	Warning
	MMLV-RT	Warning
	4X Transcription Buffer	No signal word.
	NTP Mix	No signal word.
	Inorganic Pyrophosphatase	Warning
	T7 RNA Polymerase	Warning
	PEG	Warning
	Cyanine 5-CTP	No signal word.
<b>Hazard statements</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	Inorganic Pyrophosphatase	H320 - Causes eye irritation.
	T7 RNA Polymerase	H320 - Causes eye irritation.
	PEG	H320 - Causes eye irritation.
	Cyanine 5-CTP	No known significant effects or critical hazards.
<b>Precautionary statements</b>		
<b>Prevention</b>	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	RNase Inhibitor	P264 - Wash hands thoroughly after handling.
	MMLV-RT	P264 - Wash hands thoroughly after handling.
	4X Transcription Buffer	Not applicable.
	NTP Mix	Not applicable.
	Inorganic Pyrophosphatase	P264 - Wash hands thoroughly after handling.
	T7 RNA Polymerase	P264 - Wash hands thoroughly after handling.
	PEG	P264 - Wash hands thoroughly after handling.
	Cyanine 5-CTP	Not applicable.
<b>Response</b>	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	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 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 attention.
	4X Transcription Buffer	Not applicable.
	NTP Mix	Not applicable.
	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

## Section 2. Hazards identification

	T7 RNA Polymerase	rinsing. P337 + P313 - If eye irritation persists: Get medical attention. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
	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. P337 + P313 - If eye irritation persists: Get medical attention.
<b>Storage</b>	Cyanine 5-CTP	Not applicable.
	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	RNase Inhibitor	Not applicable.
	MMLV-RT	Not applicable.
	4X Transcription Buffer	Not applicable.
	NTP Mix	Not applicable.
	Inorganic Pyrophosphatase	Not applicable.
<b>Disposal</b>	T7 RNA Polymerase	Not applicable.
	PEG	Not applicable.
	Cyanine 5-CTP	Not applicable.
	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	RNase Inhibitor	Not applicable.
	MMLV-RT	Not applicable.
	4X Transcription Buffer	Not applicable.
<b>Supplemental label elements</b>	NTP Mix	Not applicable.
	Inorganic Pyrophosphatase	Not applicable.
	T7 RNA Polymerase	Not applicable.
	PEG	Not applicable.
	Cyanine 5-CTP	Not applicable.
	: T7 Primer	None known.
	10 mM dNTP Mix	None known.
	5X First Strand Buffer	None known.
	0.1 M DTT	None known.
	RNase Inhibitor	None known.
MMLV-RT	None known.	
4X Transcription Buffer	None known.	
NTP Mix	None known.	
Inorganic Pyrophosphatase	None known.	
T7 RNA Polymerase	None known.	
PEG	None known.	
Cyanine 5-CTP	None known.	

### 2.3 Other hazards

## Section 2. Hazards identification

<b>Hazards not otherwise classified</b>	:	T7 Primer	None known.
		10 mM dNTP Mix	None known.
		5X First Strand Buffer	None known.
		0.1 M DTT	None known.
		RNase Inhibitor	None known.
		MMLV-RT	None known.
		4X Transcription Buffer	None known.
		NTP Mix	None known.
		Inorganic Pyrophosphatase	None known.
		T7 RNA Polymerase	None known.
		PEG	None known.
		Cyanine 5-CTP	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	:	T7 Primer	Mixture
		10 mM dNTP Mix	Mixture
		5X First Strand Buffer	Mixture
		0.1 M DTT	Mixture
		RNase Inhibitor	Mixture
		MMLV-RT	Mixture
		4X Transcription Buffer	Mixture
		NTP Mix	Mixture
		Inorganic Pyrophosphatase	Mixture
		T7 RNA Polymerase	Mixture
		PEG	Mixture
		Cyanine 5-CTP	Mixture

Ingredient name	%	CAS number
<b>5X First Strand Buffer</b> Potassium chloride	≤3	7447-40-7
<b>0.1 M DTT</b> (R*,R*)-1,4-Dimercaptobutane-2,3-diol	≤3	3483-12-3
<b>RNase Inhibitor</b> Glycerol	≥50 - ≤75	56-81-5
<b>MMLV-RT</b> Glycerol	≥50 - ≤75	56-81-5
<b>4X Transcription Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤3	1185-53-1
<b>Inorganic Pyrophosphatase</b> Glycerol	≥50 - ≤75	56-81-5
<b>T7 RNA Polymerase</b> Glycerol	≥50 - ≤75	56-81-5
<b>PEG</b> Polyethylene glycol	≥50 - ≤75	25322-68-3

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

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

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: 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.
	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.
	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.
	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.
	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.
	Cyanine 5-CTP	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.



## Section 4. First aid measures

<b>Inhalation</b>	: T7 Primer	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.
	5X First Strand Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	0.1 M DTT	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
	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. 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.
	Inorganic Pyrophosphatase	Remove victim to fresh air and keep at rest in a



## Section 4. First aid measures

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 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.

Cyanine 5-CTP

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

### Skin contact

: T7 Primer

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.

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.

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.

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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.
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.
Cyanine 5-CTP	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
<b>Ingestion</b> : T7 Primer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
10 mM dNTP Mix	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
5X First Strand Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
0.1 M DTT	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
RNase Inhibitor	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in

## Section 4. First aid measures

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

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T7 RNA Polymerase	<p>belt or waistband.</p> <p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
PEG	<p>Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p>
Cyanine 5-CTP	<p>Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.</p>

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes eye irritation.</p> <p>Causes eye irritation.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>Causes eye irritation.</p> <p>Causes eye irritation.</p> <p>Causes eye irritation.</p> <p>No known significant effects or critical hazards.</p>
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<b>Inhalation</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor  MMLV-RT  4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase  T7 RNA Polymerase	No specific data. No specific data. No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation
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## Section 4. First aid measures

	PEG	watering redness Adverse symptoms may include the following: irritation watering redness
<b>Inhalation</b>	: Cyanine 5-CTP T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Skin contact</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
<b>Ingestion</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

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

<b>Notes to physician</b>	: T7 Primer	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.
	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.
	RNase Inhibitor	In case of inhalation of decomposition products in a



## Section 4. First aid measures

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.

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.

Cyanine 5-CTP  
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

### Specific treatments

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

### Protection of first-aiders

:	T7 Primer	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.
	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.
	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.



## Section 4. First aid measures

NTP Mix	No action shall be taken involving any personal risk or without suitable training.
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.
Cyanine 5-CTP	No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

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

## Section 5. Fire-fighting measures

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

<b>Specific hazards arising from the chemical</b>	:	T7 Primer	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.
		5X First Strand Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
		0.1 M DTT	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.
		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.
		Cyanine 5-CTP	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	:	T7 Primer	No specific data.
		10 mM dNTP Mix	No specific data.
		5X First Strand Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
		0.1 M DTT	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
		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

## Section 5. Fire-fighting measures

NTP Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
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
Cyanine 5-CTP	No specific data.

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

: 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.
10 mM dNTP Mix	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
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.
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.
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

## Section 5. Fire-fighting measures

	T7 RNA Polymerase	without suitable training. 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.
	Cyanine 5-CTP	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.
<b>Special protective equipment for fire-fighters</b>	: 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.
	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.
	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.
	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.
	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.
	Cyanine 5-CTP	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus

## Section 5. Fire-fighting measures

(SCBA) with a full face-piece operated in positive pressure mode.

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**

: 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 spilled 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 spilled 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 spilled 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 spilled 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 spilled material. Avoid breathing vapor 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate 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 spilled 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 spilled material. Put on

## Section 6. Accidental release measures

Inorganic Pyrophosphatase	appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
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 spilled material. Avoid breathing vapor 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Cyanine 5-CTP	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
<b>For emergency responders :</b> T7 Primer	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
10 mM dNTP Mix	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
5X First Strand Buffer	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
0.1 M DTT	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
RNase Inhibitor	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
MMLV-RT	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
4X Transcription Buffer	If specialized clothing is required to deal with the



## Section 6. Accidental release measures

NTP Mix	spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Inorganic Pyrophosphatase	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
T7 RNA Polymerase	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
PEG	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Cyanine 5-CTP	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

: T7 Primer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
10 mM dNTP Mix	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
5X First Strand Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
0.1 M DTT	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
RNase Inhibitor	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
MMLV-RT	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
4X Transcription Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).



## Section 6. Accidental release measures

NTP Mix	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Inorganic Pyrophosphatase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
T7 RNA Polymerase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
PEG	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Cyanine 5-CTP	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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

**Methods for cleaning up** : 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.

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.

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.

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

## Section 6. Accidental release measures

	area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
4X Transcription Buffer	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
NTP Mix	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
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.
Cyanine 5-CTP	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	:	T7 Primer	Put on appropriate personal protective equipment (see Section 8).
		10 mM dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
		5X First Strand Buffer	Put on appropriate personal protective equipment (see Section 8).
		0.1 M DTT	Put on appropriate personal protective equipment (see Section 8).
		RNase Inhibitor	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers

## Section 7. Handling and storage

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 vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

4X Transcription Buffer

Put on appropriate personal protective equipment (see Section 8).

NTP Mix

Put on appropriate personal protective equipment (see Section 8).

Inorganic Pyrophosphatase

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

T7 RNA Polymerase

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

PEG

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Cyanine 5-CTP

Put on appropriate personal protective equipment (see Section 8).

### Advice on general occupational hygiene

: 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.

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.

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

## Section 7. Handling and storage

0.1 M DTT	before entering eating areas. See also Section 8 for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
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 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.
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.
Cyanine 5-CTP	Eating, drinking and smoking should be prohibited

## Section 7. Handling and storage

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

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

: 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 unlabeled 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 unlabeled 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 dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. 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 unlabeled 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 unlabeled

## Section 7. Handling and storage

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



## Section 7. Handling and storage

### Cyanine 5-CTP

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

### 7.3 Specific end use(s)

#### Recommendations

: T7 Primer	Industrial applications, Professional applications.
10 mM dNTP Mix	Industrial applications, Professional applications.
5X First Strand Buffer	Industrial applications, Professional applications.
0.1 M DTT	Industrial applications, Professional applications.
RNase Inhibitor	Industrial applications, Professional applications.
MMLV-RT	Industrial applications, Professional applications.
4X Transcription Buffer	Industrial applications, Professional applications.
NTP Mix	Industrial applications, Professional applications.
Inorganic Pyrophosphatase	Industrial applications, Professional applications.
T7 RNA Polymerase	Industrial applications, Professional applications.
PEG	Industrial applications, Professional applications.
Cyanine 5-CTP	Industrial applications, Professional applications.

#### Industrial sector specific solutions

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

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits



## Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
<b>5X First Strand Buffer</b> Potassium chloride	None.
<b>0.1 M DTT</b> (R*,R*)-1,4-Dimercaptobutane-2,3-diol	None.
<b>RNase Inhibitor</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>MMLV-RT</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>4X Transcription Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	None.
<b>Inorganic Pyrophosphatase</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>T7 RNA Polymerase</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 6/2016).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>PEG</b> Polyethylene glycol	<b>AIHA WEEL (United States, 10/2011).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Aerosol

### [8.2 Exposure controls](#)

## Section 8. Exposure controls/personal protection

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

### Individual protection measures

- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: 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

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	:	T7 Primer	Liquid.
		10 mM dNTP Mix	Liquid.
		5X First Strand Buffer	Liquid.
		0.1 M DTT	Liquid.
		RNase Inhibitor	Liquid.
		MMLV-RT	Liquid.
		4X Transcription Buffer	Liquid.
		NTP Mix	Liquid.
		Inorganic Pyrophosphatase	Liquid.
		T7 RNA Polymerase	Liquid.
		PEG	Liquid.
		Cyanine 5-CTP	Liquid.

## Section 9. Physical and chemical properties

<b>Color</b>	:	T7 Primer	Not available.
		10 mM dNTP Mix	Not available.
		5X First Strand Buffer	Not available.
		0.1 M DTT	Not available.
		RNase Inhibitor	Not available.
		MMLV-RT	Clear.
		4X Transcription Buffer	Not available.
		NTP Mix	Not available.
		Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		Cyanine 5-CTP	Not available.
<b>Odor</b>	:	T7 Primer	Not available.
		10 mM dNTP Mix	Not available.
		5X First Strand Buffer	Not available.
		0.1 M DTT	Not available.
		RNase Inhibitor	Not available.
		MMLV-RT	Not available.
		4X Transcription Buffer	Not available.
		NTP Mix	Not available.
		Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		Cyanine 5-CTP	Not available.
<b>Odor threshold</b>	:	T7 Primer	Not available.
		10 mM dNTP Mix	Not available.
		5X First Strand Buffer	Not available.
		0.1 M DTT	Not available.
		RNase Inhibitor	Not available.
		MMLV-RT	Not available.
		4X Transcription Buffer	Not available.
		NTP Mix	Not available.
		Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		Cyanine 5-CTP	Not available.
<b>pH</b>	:	T7 Primer	Not available.
		10 mM dNTP Mix	Not available.
		5X First Strand Buffer	8.3
		0.1 M DTT	Not available.
		RNase Inhibitor	Not available.
		MMLV-RT	Not available.
		4X Transcription Buffer	8
		NTP Mix	Not available.
		Inorganic Pyrophosphatase	7.5
		T7 RNA Polymerase	Not available.
		PEG	Not available.
		Cyanine 5-CTP	7.6
<b>Melting point</b>	:	T7 Primer	0°C (32°F)
		10 mM dNTP Mix	0°C (32°F)
		5X First Strand Buffer	Not available.
		0.1 M DTT	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)
		Inorganic Pyrophosphatase	Not available.
		T7 RNA Polymerase	Not available.

## Section 9. Physical and chemical properties

	PEG	Not available.
	Cyanine 5-CTP	0°C (32°F)
<b>Boiling point</b>	: T7 Primer	100°C (212°F)
	10 mM dNTP Mix	100°C (212°F)
	5X First Strand Buffer	Not available.
	0.1 M DTT	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)
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	100°C (212°F)
<b>Flash point</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Evaporation rate</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Flammability (solid, gas)</b>	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	RNase Inhibitor	Not applicable.
	MMLV-RT	Not applicable.
	4X Transcription Buffer	Not applicable.
	NTP Mix	Not applicable.
	Inorganic Pyrophosphatase	Not applicable.
	T7 RNA Polymerase	Not applicable.
	PEG	Not applicable.
	Cyanine 5-CTP	Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.

## Section 9. Physical and chemical properties

	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Vapor pressure</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Vapor density</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Relative density</b>	: T7 Primer	Not available.
	10 mM dNTP Mix	Not available.
	5X First Strand Buffer	Not available.
	0.1 M DTT	Not available.
	RNase Inhibitor	Not available.
	MMLV-RT	Not available.
	4X Transcription Buffer	Not available.
	NTP Mix	Not available.
	Inorganic Pyrophosphatase	Not available.
	T7 RNA Polymerase	Not available.
	PEG	Not available.
	Cyanine 5-CTP	Not available.
<b>Solubility</b>	: T7 Primer	Easily soluble in the following materials: cold water and hot water.
	10 mM dNTP Mix	Easily soluble in the following materials: cold water and hot water.
	5X First Strand Buffer	Easily soluble in the following materials: cold water and hot water.
	0.1 M DTT	Easily soluble in the following materials: cold water and hot water.
	RNase Inhibitor	Soluble in the following materials: cold water and hot water.
	MMLV-RT	Soluble in the following materials: cold water and hot water.
	4X Transcription Buffer	Easily soluble in the following materials: cold water and hot water.
	NTP Mix	Easily soluble in the following materials: cold water and hot water.
	Inorganic Pyrophosphatase	Soluble in the following materials: cold water and hot water.

## Section 9. Physical and chemical properties

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



## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients. No specific test data related to reactivity available for this product or its ingredients.
<b>10.2 Chemical stability</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase PEG Cyanine 5-CTP	The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable. The product is stable.
<b>10.3 Possibility of hazardous reactions</b>	: T7 Primer 10 mM dNTP Mix 5X First Strand Buffer 0.1 M DTT RNase Inhibitor MMLV-RT 4X Transcription Buffer NTP Mix Inorganic Pyrophosphatase T7 RNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.

## Section 10. Stability and reactivity

PEG	hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
Cyanine 5-CTP	Under normal conditions of storage and use, hazardous reactions will not occur.

<b>10.4 Conditions to avoid</b>	:	T7 Primer	No specific data.
		10 mM dNTP Mix	No specific data.
		5X First Strand Buffer	No specific data.
		0.1 M DTT	No specific data.
		RNase Inhibitor	No specific data.
		MMLV-RT	No specific data.
		4X Transcription Buffer	No specific data.
		NTP Mix	No specific data.
		Inorganic Pyrophosphatase	No specific data.
		T7 RNA Polymerase	No specific data.
		PEG	No specific data.
		Cyanine 5-CTP	No specific data.

<b>10.5 Incompatible materials</b>	:	T7 Primer	May react or be incompatible with oxidizing materials.
		10 mM dNTP Mix	May react or be incompatible with oxidizing materials.
		5X First Strand Buffer	May react or be incompatible with oxidizing materials.
		0.1 M DTT	May react or be incompatible with oxidizing materials.
		RNase Inhibitor	May react or be incompatible with oxidizing materials.
		MMLV-RT	May react or be incompatible with oxidizing materials.
		4X Transcription Buffer	May react or be incompatible with oxidizing materials.
		NTP Mix	May react or be incompatible with oxidizing materials.
		Inorganic Pyrophosphatase	May react or be incompatible with oxidizing materials.
		T7 RNA Polymerase	May react or be incompatible with oxidizing materials.
		PEG	May react or be incompatible with oxidizing materials.
		Cyanine 5-CTP	May react or be incompatible with oxidizing materials.

<b>10.6 Hazardous decomposition products</b>	:	T7 Primer	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.
		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.
		RNase Inhibitor	Under normal conditions of storage and use,

## Section 10. Stability and reactivity

MMLV-RT	hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
4X Transcription Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
NTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
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.
Cyanine 5-CTP	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>5X First Strand Buffer</b> Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
<b>RNase Inhibitor</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>MMLV-RT</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>Inorganic Pyrophosphatase</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>T7 RNA Polymerase</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>5X First Strand Buffer</b> Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>RNase Inhibitor</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>MMLV-RT</b>					

## Section 11. Toxicological information

Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>Inorganic Pyrophosphatase</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>T7 RNA Polymerase</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
<b>PEG</b> Polyethylene glycol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	500 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
<b>0.1 M DTT</b> (R*,R*)-1,4-Dimercaptobutane-2,3-diol	Category 3	Not applicable.	Respiratory tract irritation
<b>4X Transcription Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

## Section 11. Toxicological information

<b>Information on the likely routes of exposure</b>	<ul style="list-style-type: none"> <li>: T7 Primer</li> <li>10 mM dNTP Mix</li> <li>5X First Strand Buffer</li> <li>0.1 M DTT</li>   <li>RNase Inhibitor</li>   <li>MMLV-RT</li>   <li>4X Transcription Buffer</li>   <li>NTP Mix</li> <li>Inorganic Pyrophosphatase</li>   <li>T7 RNA Polymerase</li>   <li>PEG</li>   <li>Cyanine 5-CTP</li> </ul>	<ul style="list-style-type: none"> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Not available.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Routes of entry anticipated: Oral, Dermal, Inhalation.</li> <li>Not available.</li> </ul>
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### Potential acute health effects

#### **Eye contact**

<ul style="list-style-type: none"> <li>: T7 Primer</li> <li>10 mM dNTP Mix</li> <li>5X First Strand Buffer</li> <li>0.1 M DTT</li> <li>RNase Inhibitor</li> <li>MMLV-RT</li> <li>4X Transcription Buffer</li> <li>NTP Mix</li> <li>Inorganic Pyrophosphatase</li> <li>T7 RNA Polymerase</li> <li>PEG</li> <li>Cyanine 5-CTP</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>Causes eye irritation.</li> <li>Causes eye irritation.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>Causes eye irritation.</li> <li>Causes eye irritation.</li> <li>Causes eye irritation.</li> <li>No known significant effects or critical hazards.</li> </ul>
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#### **Inhalation**

<ul style="list-style-type: none"> <li>: T7 Primer</li> <li>10 mM dNTP Mix</li> <li>5X First Strand Buffer</li> <li>0.1 M DTT</li> <li>RNase Inhibitor</li> <li>MMLV-RT</li> <li>4X Transcription Buffer</li> <li>NTP Mix</li> <li>Inorganic Pyrophosphatase</li> <li>T7 RNA Polymerase</li> <li>PEG</li> <li>Cyanine 5-CTP</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
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#### **Skin contact**

<ul style="list-style-type: none"> <li>: T7 Primer</li> <li>10 mM dNTP Mix</li> <li>5X First Strand Buffer</li> <li>0.1 M DTT</li> <li>RNase Inhibitor</li> <li>MMLV-RT</li> <li>4X Transcription Buffer</li> <li>NTP Mix</li> <li>Inorganic Pyrophosphatase</li> <li>T7 RNA Polymerase</li> <li>PEG</li> <li>Cyanine 5-CTP</li> </ul>	<ul style="list-style-type: none"> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> <li>No known significant effects or critical hazards.</li> </ul>
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## Section 11. Toxicological information

<b>Ingestion</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	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.
	Cyanine 5-CTP	No known significant effects or critical hazards.

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

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

## Section 11. Toxicological information

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

### Delayed and immediate effects and also chronic effects from short and long term exposure

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

<b>General</b>	:	T7 Primer	No known significant effects or critical hazards.
		10 mM dNTP Mix	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.
		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.
		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.
<b>Carcinogenicity</b>	:	Cyanine 5-CTP	No known significant effects or critical hazards.
		T7 Primer	No known significant effects or critical hazards.
		10 mM dNTP Mix	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.
		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.
		Inorganic Pyrophosphatase	No known significant effects or critical hazards.
			No known significant effects or critical hazards.



## Section 11. Toxicological information

	T7 RNA Polymerase	No known significant effects or critical hazards.
	PEG	No known significant effects or critical hazards.
	Cyanine 5-CTP	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	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.
	Cyanine 5-CTP	No known significant effects or critical hazards.
<b>Teratogenicity</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	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.
	Cyanine 5-CTP	No known significant effects or critical hazards.
<b>Developmental effects</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	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.
	Cyanine 5-CTP	No known significant effects or critical hazards.
<b>Fertility effects</b>	: T7 Primer	No known significant effects or critical hazards.
	10 mM dNTP Mix	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.
	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.
	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.
	Cyanine 5-CTP	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Route	ATE value
<b>5X First Strand Buffer</b> Oral	92526.7 mg/kg
<b>0.1 M DTT</b> Oral	32467.5 mg/kg

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>5X First Strand Buffer</b> Potassium chloride	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 141460 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.92 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	48 hours
	Acute LC50 880000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
<b>0.1 M DTT</b> (R*,R*)-1, 4-Dimercaptobutane-2,3-diol	Acute LC50 27000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
<b>RNase Inhibitor</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>MMLV-RT</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>Inorganic Pyrophosphatase</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>T7 RNA Polymerase</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>PEG</b> Polyethylene glycol	Acute LC50 >1000000 µg/l Fresh water	Fish - Salmo salar - Parr	96 hours

### 12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>5X First Strand Buffer</b> Potassium chloride	-	-	Readily

### 12.3 Bioaccumulative potential

## Section 12. Ecological information

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>5X First Strand Buffer</b> Potassium chloride	-0.46	-	low
<b>RNase Inhibitor</b> Glycerol	-1.76	-	low
<b>MMLV-RT</b> Glycerol	-1.76	-	low
<b>Inorganic Pyrophosphatase</b> Glycerol	-1.76	-	low
<b>T7 RNA Polymerase</b> Glycerol	-1.76	-	low
<b>PEG</b> Polyethylene glycol	-	3.2	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. 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 spilled material and runoff and contact with soil, waterways, drains and sewers.

**Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.**

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## Section 14. Transport information

**DOT / TDG / Mexico / IMDG / IATA** : Not regulated.

**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 Annex II of MARPOL and the IBC Code** : Not available.

## Section 15. Regulatory information

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

**U.S. Federal regulations** : **TSCA 8(a) PAIR:** Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-; Polyoxyethylene octyl phenyl ether  
**TSCA 8(a) CDR Exempt/Partial exemption:** Not determined  
**Clean Water Act (CWA) 311:** Edetic acid; Potassium hydroxide

**Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs)** : Not listed

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

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

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

#### SARA 302/304

##### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

#### SARA 311/312

<b>Classification</b>	: T7 Primer	Not applicable.
	10 mM dNTP Mix	Not applicable.
	5X First Strand Buffer	Not applicable.
	0.1 M DTT	Not applicable.
	RNase Inhibitor	Immediate (acute) health hazard
	MMLV-RT	Immediate (acute) health hazard
	4X Transcription Buffer	Not applicable.
	NTP Mix	Not applicable.
	Inorganic Pyrophosphatase	Immediate (acute) health hazard
	T7 RNA Polymerase	Immediate (acute) health hazard
	PEG	Immediate (acute) health hazard
	Cyanine 5-CTP	Not applicable.

##### Composition/information on ingredients

## Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>5X First Strand Buffer</b> Potassium chloride	≤3	No.	No.	No.	Yes.	No.
<b>0.1 M DTT</b> (R*,R*)-1,4-Dimercaptobutane-2,3-diol	≤3	No.	No.	No.	Yes.	No.
<b>RNase Inhibitor</b> Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
<b>MMLV-RT</b> Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
<b>4X Transcription Buffer</b> 2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	≤3	No.	No.	No.	Yes.	No.
<b>Inorganic Pyrophosphatase</b> Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
<b>T7 RNA Polymerase</b> Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
<b>PEG</b> Polyethylene glycol	≥50 - ≤75	No.	No.	No.	Yes.	No.

### State regulations

- Massachusetts** : The following components are listed: GLYCERINE MIST
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

- Australia** : Not determined.
- Canada** : Not determined.
- China** : Not determined.

## Section 15. Regulatory information

<b>Europe</b>	: Not determined.
<b>Japan</b>	: <b>Japan inventory (ENCS):</b> Not determined. <b>Japan inventory (ISHL):</b> Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: Not determined.
<b>Thailand</b>	: Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: Not determined.
<b>Viet Nam</b>	: Not determined.

## Section 16. Other information

### History

<b>Date of issue</b>	: 08/02/2017
<b>Date of previous issue</b>	: No previous validation.
<b>Version</b>	: 1

✔ Indicates information that has changed from previously issued version.

### Notice to reader

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