

SAFETY DATA SHEET



SuperCos 1 Cosmid Vector Kit, Part Number 251301

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

1.1 Product identifier

Product name	: SuperCos 1 Cosmid Vector Kit, Part Number 251301
Part no. (chemical kit)	: 251301
Part no.	: T3 RNA Polymerase 600110-51
	T7 RNA Polymerase 600120-51
	RNA Polymerase 600110-83
	Dilution Buffer
	5X Transcription Buffer 600110-82
	XL1-Blue MR E. coli 200300-81
	Strain
	SuperCos 1 Cosmid 251301-51

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

Material uses	: Analytical reagent.
	T3 RNA Polymerase 20 µl (1000 U 50 U/µl)
	T7 RNA Polymerase 20 µl (1000 U 50 U/µl)
	RNA Polymerase Dilution Buffer 1000 µl
	5X Transcription Buffer 1000 µl
	XL1-Blue MR E. coli Strain 500 µl
	SuperCos 1 Cosmid 25 µl (25 µg 1 µg/µl)

1.3 Details of the supplier of the safety data sheet

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

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

1.4 Emergency telephone number

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

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition	: T3 RNA Polymerase Mixture
	T7 RNA Polymerase Mixture
	RNA Polymerase Mixture
	Dilution Buffer
	5X Transcription Buffer Mixture
	XL1-Blue MR E. coli Mixture
	Strain
	SuperCos 1 Cosmid Mixture

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

5X Transcription Buffer
H412

LONG-TERM (CHRONIC) AQUATIC HAZARD

Category 3

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SECTION 2: Hazards identification

Ingredients of unknown toxicity	: T3 RNA Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
	T7 RNA Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
	RNA Polymerase Dilution Buffer	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
	5X Transcription Buffer	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%
	XL1-Blue MR E. coli Strain	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%

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

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

2.2 Label elements

Signal word	: T3 RNA Polymerase	No signal word.
	T7 RNA Polymerase	No signal word.
	RNA Polymerase Dilution Buffer	No signal word.
	5X Transcription Buffer	No signal word.
	XL1-Blue MR E. coli Strain	No signal word.
	SuperCos 1 Cosmid	No signal word.
Hazard statements	: T3 RNA Polymerase	No known significant effects or critical hazards.
	T7 RNA Polymerase	No known significant effects or critical hazards.
	RNA Polymerase Dilution Buffer	No known significant effects or critical hazards.
	5X Transcription Buffer	H412 - Harmful to aquatic life with long lasting effects.
	XL1-Blue MR E. coli Strain	No known significant effects or critical hazards.
	SuperCos 1 Cosmid	No known significant effects or critical hazards.
<u>Precautionary statements</u>		
Prevention	: T3 RNA Polymerase	Not applicable.
	T7 RNA Polymerase	Not applicable.
	RNA Polymerase Dilution Buffer	Not applicable.
	5X Transcription Buffer	P273 - Avoid release to the environment.
	XL1-Blue MR E. coli Strain	Not applicable.
	SuperCos 1 Cosmid	Not applicable.
Response	: T3 RNA Polymerase	Not applicable.
	T7 RNA Polymerase	Not applicable.
	RNA Polymerase Dilution Buffer	Not applicable.
	5X Transcription Buffer	Not applicable.
	XL1-Blue MR E. coli Strain	Not applicable.
	SuperCos 1 Cosmid	Not applicable.
Storage	: T3 RNA Polymerase	Not applicable.
	T7 RNA Polymerase	Not applicable.
	RNA Polymerase Dilution Buffer	Not applicable.
	5X Transcription Buffer	Not applicable.
	XL1-Blue MR E. coli Strain	Not applicable.
	SuperCos 1 Cosmid	Not applicable.

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SECTION 2: Hazards identification

Disposal	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not applicable. Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable.
Hazardous ingredients	: 5X Transcription Buffer	Not applicable.
Supplemental label elements	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<u>Special packaging requirements</u>		
Tactile warning of danger	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
2.3 Other hazards		
Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB. This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
Other hazards which do not result in classification	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	None known. None known. None known. None known. None known. None known. None known.

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SECTION 3: Composition/information on ingredients

3.1 Substances	:	T3 RNA Polymerase	Mixture
		T7 RNA Polymerase	Mixture
		RNA Polymerase Dilution Buffer	Mixture
		5X Transcription Buffer	Mixture
		XL1-Blue MR E. coli Strain	Mixture
		SuperCos 1 Cosmid	Mixture

Product/ingredient name	Identifiers	%	Regulation (EC) No. 1272/2008 [CLP]	Type
T3 RNA Polymerase Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
T7 RNA Polymerase Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
RNA Polymerase Dilution Buffer Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[2]
5X Transcription Buffer Trometamol	EC: 201-064-4 CAS: 77-86-1	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1]
Sodium chloride	EC: 231-598-3 CAS: 7647-14-5	≤3	Eye Irrit. 2, H319	[1]
Magnesium chloride	EC: 232-094-6 CAS: 7786-30-3	≤1	Aquatic Chronic 1, H410 (M=1)	[1]
XL1-Blue MR E. coli Strain Glycerol	REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥10 - ≤25	Not classified.	[2]
			See Section 16 for the full text of the H statements declared above.	

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

Type

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
- [4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
- [5] Substance of equivalent concern
- [6] Additional disclosure due to company policy


SECTION 4: First aid measures

4.1 Description of first aid measures


Eye contact	:	T3 RNA Polymerase	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		T7 RNA Polymerase	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
		RNA Polymerase Dilution 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.

SECTION 4: First aid measures

Inhalation

5X Transcription Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
XL1-Blue MR E. coli Strain	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.
SuperCos 1 Cosmid	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.
:  T3 RNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
T7 RNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
RNA Polymerase Dilution Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
5X Transcription Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
XL1-Blue MR E. coli Strain	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
SuperCos 1 Cosmid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact

:  T3 RNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
T7 RNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
RNA Polymerase Dilution Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
5X Transcription Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
XL1-Blue MR E. coli Strain	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
SuperCos 1 Cosmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

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Ingestion	: T3 RNA Polymerase	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	T7 RNA Polymerase	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	RNA Polymerase Dilution 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.
	5X Transcription Buffer	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless 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.
	XL1-Blue MR E. coli Strain	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.
	SuperCos 1 Cosmid	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Protection of first-aiders	: T3 RNA Polymerase	No action shall be taken involving any personal risk or without suitable training.
	T7 RNA Polymerase	No action shall be taken involving any personal risk or without suitable training.
	RNA Polymerase Dilution Buffer	No action shall be taken involving any personal risk or without suitable training.
	5X Transcription Buffer	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	XL1-Blue MR E. coli Strain	No action shall be taken involving any personal risk or without suitable training.
	SuperCos 1 Cosmid	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

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SECTION 4: First aid measures

Eye contact	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	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.
Inhalation	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Skin contact	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Ingestion	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
Inhalation	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
Skin contact	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.

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SECTION 4: First aid measures

Ingestion	:	T3 RNA Polymerase	No specific data.
		T7 RNA Polymerase	No specific data.
		RNA Polymerase	No specific data.
		Dilution Buffer	
		5X Transcription Buffer	No specific data.
		XL1-Blue MR E. coli Strain	No specific data.
		SuperCos 1 Cosmid	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	T3 RNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		T7 RNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		RNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Dilution Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		5X 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.
		XL1-Blue MR E. coli Strain	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	:	T3 RNA Polymerase	No specific treatment.
		T7 RNA Polymerase	No specific treatment.
		RNA Polymerase	No specific treatment.
		Dilution Buffer	
		5X Transcription Buffer	No specific treatment.
		XL1-Blue MR E. coli Strain	No specific treatment.
	SuperCos 1 Cosmid	No specific treatment.	

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	T3 RNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
		T7 RNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
		RNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
		Dilution Buffer	
		5X Transcription Buffer	Use an extinguishing agent suitable for the surrounding fire.
		XL1-Blue MR E. coli Strain	Use an extinguishing agent suitable for the surrounding fire.
		SuperCos 1 Cosmid	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	T3 RNA Polymerase	None known.
		T7 RNA Polymerase	None known.
		RNA Polymerase	None known.
		Dilution Buffer	
		5X Transcription Buffer	None known.
		XL1-Blue MR E. coli Strain	None known.
	SuperCos 1 Cosmid	None known.	

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	:	T3 RNA Polymerase	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.
		RNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
		Dilution Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
		5X Transcription Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this

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SECTION 5: Firefighting measures

	XL1-Blue MR E. coli Strain	material must be contained and prevented from being discharged to any waterway, sewer or drain.
	SuperCos 1 Cosmid	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous combustion products	: T3 RNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
	T7 RNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	RNA Polymerase Dilution Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	5X Transcription Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
	XL1-Blue MR E. coli Strain	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	SuperCos 1 Cosmid	No specific data.

5.3 Advice for firefighters

Special precautions for fire-fighters	: T3 RNA Polymerase	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	T7 RNA Polymerase	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
	RNA Polymerase Dilution 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.
	5X 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.
	XL1-Blue MR E. coli Strain	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.
	SuperCos 1 Cosmid	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Special protective equipment for fire-fighters	: T3 RNA Polymerase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	T7 RNA Polymerase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	RNA Polymerase Dilution Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for


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5X Transcription Buffer	fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
XL1-Blue MR E. coli Strain	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
SuperCos 1 Cosmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:  RNA Polymerase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	T7 RNA Polymerase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	RNA Polymerase Dilution Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	5X Transcription Buffer	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
	XL1-Blue MR E. coli Strain	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
	SuperCos 1 Cosmid	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

SECTION 6: Accidental release measures

For emergency responders	T3 RNA Polymerase	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	T7 RNA Polymerase	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	RNA Polymerase Dilution Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	5X Transcription Buffer	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	XL1-Blue MR E. coli Strain	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	SuperCos 1 Cosmid	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
6.2 Environmental precautions	T3 RNA Polymerase	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	T7 RNA Polymerase	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	RNA Polymerase Dilution Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	5X Transcription Buffer	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
	XL1-Blue MR E. coli Strain	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	SuperCos 1 Cosmid	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
6.3 Methods and material for containment and cleaning up	Methods for cleaning up	
	T3 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.
	T7 RNA Polymerase	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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RNA Polymerase Dilution 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.
5X 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.
XL1-Blue MR E. coli Strain	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.
SuperCos 1 Cosmid	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). 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. 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. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also

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SECTION 7: Handling and storage

5X Transcription Buffer	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.
XL1-Blue MR E. coli Strain	Potentially biohazardous material. 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.
SuperCos 1 Cosmid	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

Storage	: T3 RNA Polymerase	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	T7 RNA Polymerase	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	RNA Polymerase Dilution Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	5X Transcription Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
	XL1-Blue MR E. coli	Store in accordance with local regulations. Store in original

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SECTION 7: Handling and storage

Strain	container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
SuperCos 1 Cosmid	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations	T3 RNA Polymerase	Industrial applications, Professional applications.
	T7 RNA Polymerase	Industrial applications, Professional applications.
Industrial sector specific solutions	RNA Polymerase	Industrial applications, Professional applications.
	Dilution Buffer	
	5X Transcription Buffer	Industrial applications, Professional applications.
	XL1-Blue MR E. coli Strain	Industrial applications, Professional applications.
	SuperCos 1 Cosmid	Industrial applications, Professional applications.
	T3 RNA Polymerase	Not available.
	T7 RNA Polymerase	Not available.
	RNA Polymerase	Not available.
	Dilution Buffer	
	5X Transcription Buffer	Not available.
	XL1-Blue MR E. coli Strain	Not available.
	SuperCos 1 Cosmid	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
T3 RNA Polymerase Glycerol	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 mg/m ³ 8 hours. Form: Mist
T7 RNA Polymerase Glycerol	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 mg/m ³ 8 hours. Form: Mist
RNA Polymerase Dilution Buffer Glycerol	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 mg/m ³ 8 hours. Form: Mist
XL1-Blue MR E. coli Strain Glycerol	EH40/2005 WELs (United Kingdom (UK), 1/2020). TWA: 10 mg/m ³ 8 hours. Form: Mist

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SECTION 8: Exposure controls/personal protection

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

DNELs/DMELs

Product/ingredient name	Type	Exposure	Value	Population	Effects
5X Transcription Buffer Trometamol	DNEL	Long term Oral	8.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	29 mg/m ³	General population	Systemic
	DNEL	Long term Dermal	83.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	117.5 mg/ m ³	Workers	Systemic
	DNEL	Long term Dermal	166.7 mg/ kg bw/day	Workers	Systemic
Sodium chloride	DNEL	Short term Oral	126.65 mg/ kg bw/day	General population	Systemic
	DNEL	Long term Oral	126.65 mg/ kg bw/day	General population	Systemic
	DNEL	Short term Dermal	126.65 mg/ kg bw/day	General population	Systemic
	DNEL	Long term Dermal	126.65 mg/ kg bw/day	General population	Systemic
	DNEL	Short term Dermal	295.52 mg/ kg bw/day	Workers	Systemic
	DNEL	Long term Dermal	295.52 mg/ kg bw/day	Workers	Systemic
	DNEL	Short term Inhalation	443.28 mg/ m ³	General population	Systemic
	DNEL	Long term Inhalation	443.28 mg/ m ³	General population	Systemic
	DNEL	Short term Inhalation	2068.62 mg/m ³	Workers	Systemic
	DNEL	Long term Inhalation	2068.62 mg/m ³	Workers	Systemic
Magnesium chloride	DNEL	Long term Oral	7 mg/kg bw/day	General population	Systemic

PNECs

No PNECs available

8.2 Exposure controls

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

Individual protection measures

Hygiene measures : Handle as biohazard material (Biosafety level 1). 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.

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SECTION 8: Exposure controls/personal protection

- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**
- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	:	T3 RNA Polymerase	Liquid.
		T7 RNA Polymerase	Liquid.
		RNA Polymerase	Liquid.
		Dilution Buffer	
		5X Transcription Buffer	Liquid.
		XL1-Blue MR E. coli Strain	Liquid.
		SuperCos 1 Cosmid	Liquid.
Colour	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
Odour	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
Odour threshold	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.

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SECTION 9: Physical and chemical properties

pH	:	T3 RNA Polymerase	7.7
		T7 RNA Polymerase	7.7
		RNA Polymerase	7.7
		Dilution Buffer	
		5X Transcription Buffer	8
		XL1-Blue MR E. coli Strain	7
		SuperCos 1 Cosmid	7.5
Melting point/freezing point	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	0°C
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	0°C
Initial boiling point and boiling range	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	100°C
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	100°C
Flash point	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
Evaporation rate	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
Flammability (solid, gas)	:	T3 RNA Polymerase	Not applicable.
		T7 RNA Polymerase	Not applicable.
		RNA Polymerase	Not applicable.
		Dilution Buffer	
		5X Transcription Buffer	Not applicable.
		XL1-Blue MR E. coli Strain	Not applicable.
		SuperCos 1 Cosmid	Not applicable.
Upper/lower flammability or explosive limits	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.

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SECTION 9: Physical and chemical properties

Vapour pressure	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Vapour density	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Relative density	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Solubility(ies)	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Auto-ignition temperature	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.
Decomposition temperature	:	T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Not available. Not available. Not available. Not available. Not available. Not available. Not available.

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Viscosity	:	T3 RNA Polymerase	Not available.
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
	Explosive properties	:	T3 RNA Polymerase
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.
Oxidising properties		:	T3 RNA Polymerase
		T7 RNA Polymerase	Not available.
		RNA Polymerase	Not available.
		Dilution Buffer	
		5X Transcription Buffer	Not available.
		XL1-Blue MR E. coli Strain	Not available.
		SuperCos 1 Cosmid	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	:	T3 RNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
		T7 RNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
		RNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
		Dilution Buffer	No specific test data related to reactivity available for this product or its ingredients.
		5X Transcription Buffer	No specific test data related to reactivity available for this product or its ingredients.
		XL1-Blue MR E. coli Strain	No specific test data related to reactivity available for this product or its ingredients.
		SuperCos 1 Cosmid	No specific test data related to reactivity available for this product or its ingredients.
	10.2 Chemical stability	:	T3 RNA Polymerase
		T7 RNA Polymerase	The product is stable.
		RNA Polymerase	The product is stable.
		Dilution Buffer	
		5X Transcription Buffer	The product is stable.
		XL1-Blue MR E. coli Strain	The product is stable.
		SuperCos 1 Cosmid	The product is stable.
10.3 Possibility of hazardous reactions		:	T3 RNA Polymerase
		T7 RNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
		RNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
		Dilution Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		5X Transcription Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
		XL1-Blue MR E. coli Strain	Under normal conditions of storage and use, hazardous reactions will not occur.

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SECTION 10: Stability and reactivity

SuperCos 1 Cosmid Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : T3 RNA Polymerase No specific data.
 T7 RNA Polymerase No specific data.
 RNA Polymerase No specific data.
 Dilution Buffer
 5X Transcription Buffer No specific data.
 XL1-Blue MR E. coli Strain No specific data.
 SuperCos 1 Cosmid No specific data.

10.5 Incompatible materials : T3 RNA Polymerase May react or be incompatible with oxidising materials.
 T7 RNA Polymerase May react or be incompatible with oxidising materials.
 RNA Polymerase May react or be incompatible with oxidising materials.
 Dilution Buffer
 5X Transcription Buffer May react or be incompatible with oxidising materials.
 XL1-Blue MR E. coli Strain May react or be incompatible with oxidising materials.
 SuperCos 1 Cosmid May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products : T3 RNA Polymerase Under normal conditions of storage and use, hazardous decomposition products should not be produced.
 5X Transcription Buffer Under normal conditions of storage and use, hazardous decomposition products should not be produced.
 RNA Polymerase Under normal conditions of storage and use, hazardous decomposition products should not be produced.
 Dilution Buffer 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.
 XL1-Blue MR strain Under normal conditions of storage and use, hazardous decomposition products should not be produced.
 SuperCos 1 cosmid DNA Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
5X Transcription Buffer Trometamol Sodium chloride Magnesium chloride	LD50 Dermal	Rat	>5000 mg/kg	-
	LD50 Oral	Rat	3000 mg/kg	-
	LD50 Dermal	Rat - Male, Female	>2000 mg/kg	-
	LD50 Oral	Rat	2800 mg/kg	-

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
5X Transcription Buffer Trometamol Sodium chloride Magnesium chloride	5900 3000 2800	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A

Irritation/Corrosion

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SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
5X Transcription Buffer Trometamol	Skin - Moderate irritant	Rabbit	-	25 %	-
	Skin - Severe irritant	Rabbit	-	500 mg	-
Sodium chloride	Eyes - Moderate irritant	Rabbit	-	24 hours 100 mg	-
	Eyes - Moderate irritant	Rabbit	-	10 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

Sensitiser

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

T3 RNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation.
T7 RNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation.
RNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation.
Dilution Buffer	
5X Transcription Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation.
XL1-Blue MR E. coli Strain	Routes of entry anticipated: Oral, Dermal, Inhalation.
SuperCos 1 Cosmid	Not available.

Potential acute health effects

Inhalation	: T3 RNA Polymerase	No known significant effects or critical hazards.
	: T7 RNA Polymerase	No known significant effects or critical hazards.
	: RNA Polymerase	No known significant effects or critical hazards.
	: Dilution Buffer	
	: 5X Transcription Buffer	No known significant effects or critical hazards.
	: XL1-Blue MR E. coli Strain	No known significant effects or critical hazards.
	: SuperCos 1 Cosmid	No known significant effects or critical hazards.
Ingestion	: T3 RNA Polymerase	No known significant effects or critical hazards.
	: T7 RNA Polymerase	No known significant effects or critical hazards.
	: RNA Polymerase	No known significant effects or critical hazards.
	: Dilution Buffer	
	: 5X Transcription Buffer	No known significant effects or critical hazards.
	: XL1-Blue MR E. coli Strain	No known significant effects or critical hazards.
	: SuperCos 1 Cosmid	No known significant effects or critical hazards.

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Skin contact	:	T3 RNA Polymerase	No known significant effects or critical hazards.
		T7 RNA Polymerase	No known significant effects or critical hazards.
		RNA Polymerase	No known significant effects or critical hazards.
		Dilution Buffer	
		5X Transcription Buffer	No known significant effects or critical hazards.
		XL1-Blue MR E. coli Strain	No known significant effects or critical hazards.
		SuperCos 1 Cosmid	No known significant effects or critical hazards.
Eye contact	:	T3 RNA Polymerase	No known significant effects or critical hazards.
		T7 RNA Polymerase	No known significant effects or critical hazards.
		RNA Polymerase	No known significant effects or critical hazards.
		Dilution Buffer	
		5X Transcription Buffer	No known significant effects or critical hazards.
		XL1-Blue MR E. coli Strain	No known significant effects or critical hazards.
		SuperCos 1 Cosmid	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	T3 RNA Polymerase	No specific data.
		T7 RNA Polymerase	No specific data.
		RNA Polymerase	No specific data.
		Dilution Buffer	
		5X Transcription Buffer	No specific data.
		XL1-Blue MR E. coli Strain	No specific data.
		SuperCos 1 Cosmid	No specific data.
Ingestion	:	T3 RNA Polymerase	No specific data.
		T7 RNA Polymerase	No specific data.
		RNA Polymerase	No specific data.
		Dilution Buffer	
		5X Transcription Buffer	No specific data.
		XL1-Blue MR E. coli Strain	No specific data.
		SuperCos 1 Cosmid	No specific data.
Skin contact	:	T3 RNA Polymerase	No specific data.
		T7 RNA Polymerase	No specific data.
		RNA Polymerase	No specific data.
		Dilution Buffer	
		5X Transcription Buffer	No specific data.
		XL1-Blue MR E. coli Strain	No specific data.
		SuperCos 1 Cosmid	No specific data.
Eye contact	:	T3 RNA Polymerase	No specific data.
		T7 RNA Polymerase	No specific data.
		RNA Polymerase	No specific data.
		Dilution Buffer	
		5X Transcription Buffer	No specific data.
		XL1-Blue MR E. coli Strain	No specific data.
		SuperCos 1 Cosmid	No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

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SECTION 11: Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

General	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	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.
Carcinogenicity	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	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.
Mutagenicity	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	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.
Reproductive toxicity	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	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.
Other information	: T3 RNA Polymerase T7 RNA Polymerase RNA Polymerase Dilution Buffer 5X Transcription Buffer XL1-Blue MR E. coli Strain SuperCos 1 Cosmid	Adverse symptoms may include the following: May cause skin sensitisation. Adverse symptoms may include the following: May cause skin sensitisation. Not available. Adverse symptoms may include the following: May cause skin sensitisation. Not available. Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
5X Transcription Buffer Trometamol Sodium chloride	Acute EC50 >980 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 520 mg/l Fresh water	Daphnia	48 hours
	Acute EC50 4.74 g/L Fresh water	Algae - Chlamydomonas reinhardtii	96 hours
	Acute EC50 519.6 mg/l Fresh water	Crustaceans - Cypris subglobosa	48 hours
	Acute IC50 6.87 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Acute LC50 1000000 µg/l Fresh water	Fish - Morone saxatilis - Larvae	96 hours
	Chronic LC10 781 mg/l Fresh water	Crustaceans - Hyalella azteca -	3 weeks

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SECTION 12: Ecological information

Magnesium chloride	Chronic NOEC 6 g/L Fresh water	Juvenile (Fledgling, Hatchling, Weanling)	
	Chronic NOEC 0.314 g/L Fresh water	Aquatic plants - Lemna minor	96 hours
	Chronic NOEC 100 mg/l Fresh water	Daphnia - Daphnia pulex	21 days
		Fish - Gambusia holbrooki - Adult	8 weeks
	Acute EC50 >100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 180000 µg/l Fresh water	Crustaceans - Eudiaptomus padanus ssp. padanus - Adult	48 hours
	Acute IC50 6.8 mg/l Fresh water	Aquatic plants - Lemna aequinoctialis	96 hours
	Acute LC50 32000 µg/l Fresh water	Daphnia - Daphnia hyalina - Adult	48 hours
Acute LC50 2120 mg/l Fresh water	Fish - Pimephales promelas	96 hours	
Acute NOEC 100 mg/l Fresh water	Algae - Desmodesmus subspicatus	72 hours	
Chronic NOEC 0.1 mg/l Fresh water	Fish - Cyprinus carpio	35 days	

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
5X Transcription Buffer Trometamol	-2.31	-	low

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

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

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

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

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

Packaging

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

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

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SECTION 14: Transport information

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

Additional information

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

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

SECTION 15: Regulatory information

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

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

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

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

Label	:	T3 RNA Polymerase	Not applicable.
		T7 RNA Polymerase	Not applicable.
		RNA Polymerase Dilution Buffer	Not applicable.
		5X Transcription Buffer	Not applicable.
		XL1-Blue MR E. coli Strain	Not applicable.
		SuperCos 1 Cosmid	Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

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

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

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SECTION 15: Regulatory information

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: At least one component is not listed in DSL but all such components are listed in NDSL.
China	: All components are listed or exempted.
Europe	: Not determined.
Japan	: Japan inventory (ENCS) : Not determined. Japan inventory (ISHL) : Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: <input checked="" type="checkbox"/> All components are active or exempted.
Viet Nam	: <input checked="" type="checkbox"/> All components are listed or exempted.

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

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms	: ATE = Acute Toxicity Estimate CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] DMEL = Derived Minimal Effect Level DNEL = Derived No Effect Level EUH statement = CLP-specific Hazard statement N/A = Not available PBT = Persistent, Bioaccumulative and Toxic PNEC = Predicted No Effect Concentration RRN = REACH Registration Number vPvB = Very Persistent and Very Bioaccumulative
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Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
<input checked="" type="checkbox"/> TX Transcription Buffer Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

SuperCos 1 Cosmid Vector Kit, Part Number 251301

SECTION 16: Other information

5X Transcription Buffer

H315
H319
H410
H412

Causes skin irritation.
Causes serious eye irritation.
Very toxic to aquatic life with long lasting effects.
Harmful to aquatic life with long lasting effects.

[Full text of classifications \[CLP/GHS\]](#)

5X Transcription Buffer

Aquatic Chronic 1
Aquatic Chronic 3
Eye Irrit. 2
Skin Irrit. 2

LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1
LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
SKIN CORROSION/IRRITATION - Category 2

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Version : 3

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