

# SAFETY DATA SHEET

SureSelect XT HS2 RNA Library Preparation Kit for ILM (Pre PCR), 96 Reactions, Part Number 5500-0151

## Section 1. Identification

**Product identifier** : SureSelect XT HS2 RNA Library Preparation Kit for ILM (Pre PCR), 96 Reactions, Part Number 5500-0151

**Part no. (chemical kit)** : 5500-0151

**Part no.** :

End Repair-A Tailing Enzyme Mix	5190-6435
End Repair-A Tailing Buffer	5190-6436
T4 DNA Ligase	5190-6437
Ligation Buffer	5190-6438
XT HS2 RNA Adaptor Oligo Mix	5191-6844
Herculase II Fusion DNA Polymerase	5600-3761
5X Herculase II Reaction Buffer with dNTPs	5191-6681

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

**Material uses** : Analytical reagent.  
For Research Use Only. Not for use in diagnostic procedures.

<input checked="" type="checkbox"/> End Repair-A Tailing Enzyme Mix	0.512 ml (96 reactions)
End Repair-A Tailing Buffer	2.048 ml (96 reactions)
T4 DNA Ligase	0.256 ml (96 reactions)
Ligation Buffer	2.944 ml (96 reactions)
XT HS2 RNA Adaptor Oligo Mix	0.64 ml (96 reactions)
Herculase II Fusion DNA Polymerase	0.14 ml (96 reactions)
5X Herculase II Reaction Buffer with dNTPs	1.5 ml (96 reactions)

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

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

## Section 2. Hazard(s) identification

### Classification of the substance or mixture

Herculase II Reaction Buffer with dNTPs  
H319

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A

<input checked="" type="checkbox"/> Herculase II Reaction Buffer with dNTPs	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.3%
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### GHS label elements

#### Hazard pictograms

:  Herculase II Reaction Buffer with dNTPs



## Section 2. Hazard(s) identification

<b>Signal word</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	No signal word. No signal word. No signal word. No signal word. No signal word. No signal word. WARNING
<b>Hazard statements</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	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. H319 - Causes serious eye irritation.
<b>Precautionary statements</b>		
<b>Prevention</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P280 - Wear eye or face protection.
<b>Response</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
<b>Storage</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

## Section 2. Hazard(s) identification

<b>Disposal</b>	:	End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Supplemental label elements</b>			
<b>Additional warning phrases</b>	:	End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Other hazards which do not result in classification</b>	:	End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	None known. None known. None known. None known. None known. None known. None known.

## Section 3. Composition and ingredient information

<b>Substance/mixture</b>	:	End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Mixture Mixture Mixture Mixture Mixture Mixture Mixture
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### CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	≥30 - ≤60	56-81-5
<b>T4 DNA Ligase</b> Glycerol	≥30 - ≤60	56-81-5
<b>Ligation Buffer</b> Polyethylene glycol	≥10 - ≤30	25322-68-3

## Section 3. Composition and ingredient information

Glycerol	≥10 - ≤30	56-81-5
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	≥30 - ≤60	56-81-5
<b>5X Herculase II Reaction Buffer with dNTPs</b> Hexadecan-1-ol, ethoxylated	<3	9004-95-9

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

### Description of necessary first aid measures

<b>Eye contact</b>	:	End Repair-A Tailing Enzyme 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.
		End Repair-A Tailing 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.
		T4 DNA Ligase	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.
		Ligation 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.
		XT HS2 RNA Adaptor Oligo 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.
		Herculase II Fusion DNA 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.
		5X Herculase II Reaction Buffer with dNTPs	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.
<b>Inhalation</b>	:	End Repair-A Tailing Enzyme Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		End Repair-A Tailing 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.
		T4 DNA Ligase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Ligation Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		XT HS2 RNA Adaptor Oligo Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Herculase II Fusion DNA	Remove victim to fresh air and keep at rest in a

## Section 4. First aid measures

	Polymerase	position comfortable for breathing. Get medical attention if symptoms occur.
	5X Herculase II Reaction Buffer with dNTPs	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.
<b>Skin contact</b>	: End Repair-A Tailing Enzyme Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	End Repair-A Tailing Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	T4 DNA Ligase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Ligation Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XT HS2 RNA Adaptor Oligo Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Herculase II Fusion DNA Polymerase	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	5X Herculase II Reaction Buffer with dNTPs	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.
<b>Ingestion</b>	: End Repair-A Tailing Enzyme Mix	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	End Repair-A Tailing Buffer	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	T4 DNA Ligase	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	Ligation Buffer	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	XT HS2 RNA Adaptor Oligo Mix	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical

## Section 4. First aid measures

Herculase II Fusion DNA Polymerase	personnel. Get medical attention if symptoms occur. Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
5X Herculase II Reaction Buffer with dNTPs	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

#### Potential acute health effects

<b>Eye contact</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	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. Causes serious eye irritation.
<b>Inhalation</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	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>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	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.

## Section 4. First aid measures

<b>Ingestion</b>	:	End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
		End Repair-A Tailing Buffer	No known significant effects or critical hazards.
		T4 DNA Ligase	No known significant effects or critical hazards.
		Ligation Buffer	No known significant effects or critical hazards.
		XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
		Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
		5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	:	End Repair-A Tailing Enzyme Mix	No specific data.
		End Repair-A Tailing Buffer	No specific data.
		T4 DNA Ligase	No specific data.
		Ligation Buffer	No specific data.
		XT HS2 RNA Adaptor Oligo Mix	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer with dNTPs	Adverse symptoms may include the following:

pain or irritation  
watering  
redness

<b>Inhalation</b>	:	End Repair-A Tailing Enzyme Mix	No specific data.
		End Repair-A Tailing Buffer	No specific data.
		T4 DNA Ligase	No specific data.
		Ligation Buffer	No specific data.
		XT HS2 RNA Adaptor Oligo Mix	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer with dNTPs	No specific data.

<b>Skin contact</b>	:	End Repair-A Tailing Enzyme Mix	No specific data.
		End Repair-A Tailing Buffer	No specific data.
		T4 DNA Ligase	No specific data.
		Ligation Buffer	No specific data.
		XT HS2 RNA Adaptor Oligo Mix	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer with dNTPs	No specific data.

<b>Ingestion</b>	:	End Repair-A Tailing Enzyme Mix	No specific data.
		End Repair-A Tailing Buffer	No specific data.
		T4 DNA Ligase	No specific data.
		Ligation Buffer	No specific data.
		XT HS2 RNA Adaptor Oligo Mix	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer with dNTPs	No specific data.

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

## Section 4. First aid measures

<b>Notes to physician</b>	: End Repair-A Tailing Enzyme Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	End Repair-A Tailing 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.
	T4 DNA Ligase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Ligation Buffer	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XT HS2 RNA Adaptor Oligo Mix	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Herculase II Fusion DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	5X Herculase II Reaction Buffer with dNTPs	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.
<b>Specific treatments</b>	: End Repair-A Tailing Enzyme Mix	No specific treatment.
	End Repair-A Tailing Buffer	No specific treatment.
	T4 DNA Ligase	No specific treatment.
	Ligation Buffer	No specific treatment.
	XT HS2 RNA Adaptor Oligo Mix	No specific treatment.
	Herculase II Fusion DNA Polymerase	No specific treatment.
	5X Herculase II Reaction Buffer with dNTPs	No specific treatment.
<b>Protection of first-aiders</b>	: End Repair-A Tailing Enzyme Mix	No action shall be taken involving any personal risk or without suitable training.
	End Repair-A Tailing Buffer	No action shall be taken involving any personal risk or without suitable training.
	T4 DNA Ligase	No action shall be taken involving any personal risk or without suitable training.
	Ligation Buffer	No action shall be taken involving any personal risk or without suitable training.
	XT HS2 RNA Adaptor Oligo Mix	No action shall be taken involving any personal risk or without suitable training.
	Herculase II Fusion DNA Polymerase	No action shall be taken involving any personal risk or without suitable training.
	5X Herculase II Reaction Buffer with dNTPs	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.

See toxicological information (Section 11)

## Section 5. Firefighting measures

### Extinguishing media



## Section 5. Firefighting measures

<b>Suitable extinguishing media</b>	: End Repair-A Tailing Enzyme Mix	Use an extinguishing agent suitable for the surrounding fire.
	End Repair-A Tailing Buffer	Use an extinguishing agent suitable for the surrounding fire.
	T4 DNA Ligase	Use an extinguishing agent suitable for the surrounding fire.
	Ligation Buffer	Use an extinguishing agent suitable for the surrounding fire.
	XT HS2 RNA Adaptor Oligo Mix	Use an extinguishing agent suitable for the surrounding fire.
	Herculase II Fusion DNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.
	5X Herculase II Reaction Buffer with dNTPs	Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: End Repair-A Tailing Enzyme Mix	None known.
	End Repair-A Tailing Buffer	None known.
	T4 DNA Ligase	None known.
	Ligation Buffer	None known.
	XT HS2 RNA Adaptor Oligo Mix	None known.
	Herculase II Fusion DNA Polymerase	None known.
	5X Herculase II Reaction Buffer with dNTPs	None known.
<b>Specific hazards arising from the chemical</b>	: End Repair-A Tailing Enzyme Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	End Repair-A Tailing Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	T4 DNA Ligase	In a fire or if heated, a pressure increase will occur and the container may burst.
	Ligation Buffer	In a fire or if heated, a pressure increase will occur and the container may burst.
	XT HS2 RNA Adaptor Oligo Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	Herculase II Fusion DNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
	5X Herculase II Reaction Buffer with dNTPs	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: End Repair-A Tailing Enzyme Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	End Repair-A Tailing Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides halogenated compounds metal oxide/oxides
	T4 DNA Ligase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	Ligation Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	XT HS2 RNA Adaptor Oligo Mix	No specific data.
	Herculase II Fusion DNA	Decomposition products may include the following

## Section 5. Firefighting measures

Polymerase		materials: carbon dioxide carbon monoxide
5X Herculase II Reaction Buffer with dNTPs		Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides phosphorus oxides metal oxide/oxides
<b>Special protective actions for fire-fighters</b>	: End Repair-A Tailing Enzyme 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.
	End Repair-A Tailing 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.
	T4 DNA Ligase	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.
	Ligation 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.
	XT HS2 RNA Adaptor Oligo 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.
	Herculase II Fusion DNA 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.
	5X Herculase II Reaction Buffer with dNTPs	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>	: End Repair-A Tailing Enzyme Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	End Repair-A Tailing Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	T4 DNA Ligase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Ligation Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	XT HS2 RNA Adaptor Oligo Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Herculase II Fusion DNA Polymerase	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus

## Section 5. Firefighting measures

5X Herculase II Reaction Buffer with dNTPs

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

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

**For non-emergency personnel**

: End Repair-A Tailing Enzyme Mix

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

End Repair-A Tailing 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.

T4 DNA Ligase

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.

Ligation 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.

XT HS2 RNA Adaptor Oligo Mix

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

Herculase II Fusion DNA 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.

5X Herculase II Reaction Buffer with dNTPs

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.

**For emergency responders**

: End Repair-A Tailing Enzyme Mix

If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

End Repair-A Tailing 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".

T4 DNA Ligase

If specialised clothing is required to deal with the

## Section 6. Accidental release measures

Ligation Buffer	spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XT HS2 RNA Adaptor Oligo Mix	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Herculase II Fusion DNA 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".
5X Herculase II Reaction Buffer with dNTPs	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".

<b>Environmental precautions</b>	: End Repair-A Tailing Enzyme Mix	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	End Repair-A Tailing 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).
	T4 DNA Ligase	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).
	Ligation 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).
	XT HS2 RNA Adaptor Oligo Mix	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
	Herculase II Fusion DNA 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).
	5X Herculase II Reaction Buffer with dNTPs	Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

### Methods and material for containment and cleaning up

## Section 6. Accidental release measures

<b>Methods for cleaning up</b>	: End Repair-A Tailing Enzyme 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.
	End Repair-A Tailing 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.
	T4 DNA Ligase	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.
	Ligation 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.
	XT HS2 RNA Adaptor Oligo 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.
	Herculase II Fusion DNA 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.
	5X Herculase II Reaction Buffer with dNTPs	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

### Precautions for safe handling

<b>Protective measures</b>	: End Repair-A Tailing Enzyme Mix	Put on appropriate personal protective equipment (see Section 8).
	End Repair-A Tailing Buffer	Put on appropriate personal protective equipment (see Section 8).
	T4 DNA Ligase	Put on appropriate personal protective equipment (see Section 8).
	Ligation Buffer	Put on appropriate personal protective equipment (see Section 8).
	XT HS2 RNA Adaptor Oligo Mix	Put on appropriate personal protective equipment (see Section 8).
	Herculase II Fusion DNA Polymerase	Put on appropriate personal protective equipment (see Section 8).
	5X Herculase II Reaction Buffer with dNTPs	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept

## Section 7. Handling and storage

<b>Advice on general occupational hygiene</b>	: End Repair-A Tailing Enzyme Mix	tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	End Repair-A Tailing 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.
	T4 DNA Ligase	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.
	Ligation 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.
	XT HS2 RNA Adaptor Oligo 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.
	Herculase II Fusion DNA 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.
	5X Herculase II Reaction Buffer with dNTPs	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.
<b>Conditions for safe storage, including any incompatibilities</b>	: End Repair-A Tailing Enzyme Mix	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for

## Section 7. Handling and storage

End Repair-A Tailing Buffer	incompatible materials before handling or use. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
T4 DNA Ligase	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.
Ligation 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.
XT HS2 RNA Adaptor Oligo Mix	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
Herculase II Fusion DNA 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.
5X Herculase II Reaction Buffer with dNTPs	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

## Section 7. Handling and storage

prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls and personal protection

### [Control parameters](#)

### [Occupational exposure limits](#)

Ingredient name	Exposure limits
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	<b>Safe Work Australia (Australia, 12/2019).</b> TWA: 10 mg/m <sup>3</sup> 8 hours.
<b>T4 DNA Ligase</b> Glycerol	<b>Safe Work Australia (Australia, 12/2019).</b> TWA: 10 mg/m <sup>3</sup> 8 hours.
<b>Ligation Buffer</b> Polyethylene glycol	<b>DFG MAC-values list (Germany, 8/2020).</b> PEAK: 400 mg/m <sup>3</sup> , 4 times per shift, 15 minutes. Form: inhalable fraction TWA: 200 mg/m <sup>3</sup> 8 hours. Form: inhalable fraction
Glycerol	<b>Safe Work Australia (Australia, 12/2019).</b> TWA: 10 mg/m <sup>3</sup> 8 hours.
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	<b>Safe Work Australia (Australia, 12/2019).</b> TWA: 10 mg/m <sup>3</sup> 8 hours.

- 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: 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.



## Section 8. Exposure controls and personal protection

- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

## Section 9. Physical and chemical properties and safety characteristics

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

### Appearance

<b>Physical state</b>	: End Repair-A Tailing Enzyme Mix	Liquid.	
	: End Repair-A Tailing Buffer	Liquid.	
	: T4 DNA Ligase	Liquid.	
	: Ligation Buffer	Liquid.	
	: XT HS2 RNA Adaptor Oligo Mix	Liquid.	
	: Herculase II Fusion DNA Polymerase	Liquid.	
	: 5X Herculase II Reaction Buffer with dNTPs	Liquid.	
	<b>Colour</b>	: End Repair-A Tailing Enzyme Mix	Not available.
		: End Repair-A Tailing Buffer	Not available.
		: T4 DNA Ligase	Not available.
: Ligation Buffer		Not available.	
: XT HS2 RNA Adaptor Oligo Mix		Not available.	
: Herculase II Fusion DNA Polymerase		Not available.	
: 5X Herculase II Reaction Buffer with dNTPs		Not available.	
<b>Odour</b>		: End Repair-A Tailing Enzyme Mix	Not available.
		: End Repair-A Tailing Buffer	Not available.
		: T4 DNA Ligase	Not available.
	: Ligation Buffer	Not available.	
	: XT HS2 RNA Adaptor Oligo Mix	Not available.	
	: Herculase II Fusion DNA Polymerase	Not available.	
	: 5X Herculase II Reaction Buffer with dNTPs	Not available.	
	<b>Odour threshold</b>	: End Repair-A Tailing Enzyme Mix	Not available.
		: End Repair-A Tailing Buffer	Not available.
		: T4 DNA Ligase	Not available.
: Ligation Buffer		Not available.	
: XT HS2 RNA Adaptor Oligo Mix		Not available.	
: Herculase II Fusion DNA Polymerase		Not available.	
: 5X Herculase II Reaction Buffer with dNTPs		Not available.	

## Section 9. Physical and chemical properties and safety characteristics

<b>pH</b>	:	End Repair-A Tailing Enzyme Mix	6.5	
		End Repair-A Tailing Buffer	8	
		T4 DNA Ligase	7.5	
		Ligation Buffer	8	
		XT HS2 RNA Adaptor Oligo Mix	7.5	
		Herculase II Fusion DNA Polymerase	8.2	
		5X Herculase II Reaction Buffer with dNTPs	10	
	<b>Melting point/freezing point</b>	:	End Repair-A Tailing Enzyme Mix	Not available.
			End Repair-A Tailing Buffer	0°C (32°F)
			T4 DNA Ligase	Not available.
		Ligation Buffer	Not available.	
		XT HS2 RNA Adaptor Oligo Mix	0°C (32°F)	
		Herculase II Fusion DNA Polymerase	Not available.	
		5X Herculase II Reaction Buffer with dNTPs	Not available.	
<b>Boiling point, initial boiling point, and boiling range</b>		:	End Repair-A Tailing Enzyme Mix	Not available.
			End Repair-A Tailing Buffer	100°C (212°F)
			T4 DNA Ligase	Not available.
		Ligation Buffer	Not available.	
		XT HS2 RNA Adaptor Oligo Mix	100°C (212°F)	
		Herculase II Fusion DNA Polymerase	Not available.	
		5X Herculase II Reaction Buffer with dNTPs	Not available.	

<b>Flash point</b>	<b>:</b>	<b>Ingredient name</b>	<b>Closed cup</b>			<b>Open cup</b>		
			<b>°C</b>	<b>°F</b>	<b>Method</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>
		<b>End Repair-A Tailing Enzyme Mix</b>						
		(R*,R*) -1,4-Dimercaptobutane-2,3-diol	>110	>230				
		Glycerol			Pensky-Martens	177	350.6	
		<b>End Repair-A Tailing Buffer</b>						
		(R*,R*) -1,4-Dimercaptobutane-2,3-diol	>110	>230				
		<b>T4 DNA Ligase</b>						
		(R*,R*) -1,4-Dimercaptobutane-2,3-diol	>110	>230				
		Glycerol			Pensky-Martens	177	350.6	
		<b>Ligation Buffer</b>						
		(R*,R*)	>110	>230				

## Section 9. Physical and chemical properties and safety characteristics

-1,4-Dimercaptobutane-2,3-diol					
Polyethylene glycol	171 to 235	339.8 to 455		199 to 238	390.2 to 460.4
<b>XT HS2 RNA Adaptor Oligo Mix</b>					
Edetic acid	>100	>212	DIN 51758		
<b>Herculase II Fusion DNA Polymerase</b>					
Edetic acid	>100	>212	DIN 51758		
(R*,R*) -1,4-Dimercaptobutane-2,3-diol	>110	>230			

**Evaporation rate** : End Repair-A Tailing Enzyme Mix Not available.

End Repair-A Tailing Buffer Not available.  
 T4 DNA Ligase Not available.  
 Ligation Buffer Not available.  
 XT HS2 RNA Adaptor Oligo Mix Not available.  
 Herculase II Fusion DNA Polymerase Not available.  
 5X Herculase II Reaction Buffer with dNTPs Not available.

**Flammability** : End Repair-A Tailing Enzyme Mix Not applicable.

End Repair-A Tailing Buffer Not applicable.  
 T4 DNA Ligase Not applicable.  
 Ligation Buffer Not applicable.  
 XT HS2 RNA Adaptor Oligo Mix Not applicable.  
 Herculase II Fusion DNA Polymerase Not applicable.  
 5X Herculase II Reaction Buffer with dNTPs Not applicable.

**Lower and upper explosion limit/flammability limit** : End Repair-A Tailing Enzyme Mix Not available.

End Repair-A Tailing Buffer Not available.  
 T4 DNA Ligase Not available.  
 Ligation Buffer Not available.  
 XT HS2 RNA Adaptor Oligo Mix Not available.  
 Herculase II Fusion DNA Polymerase Not available.  
 5X Herculase II Reaction Buffer with dNTPs Not available.

**Vapour pressure** :

Ingredient name	Vapour Pressure at 20°C			Vapour pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
<b>End Repair-A Tailing Enzyme Mix</b>						
Water	23.8	3.2		92.258	12.3	
Adenosine 5'-(tetrahydrogen triphosphate), disodium salt	<0.00075006	<0.0001		<0.00075006	<0.0001	

## Section 9. Physical and chemical properties and safety characteristics

<b>End Repair-A Tailing Buffer</b>						
Water	23.8	3.2		92.258	12.3	
Adenosine 5'-(tetrahydrogen triphosphate), disodium salt	<0.00075006	<0.0001		<0.00075006	<0.0001	
<b>T4 DNA Ligase</b>						
Water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
<b>Ligation Buffer</b>						
Water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
<b>XT HS2 RNA Adaptor Oligo Mix</b>						
Water	23.8	3.2		92.258	12.3	
2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride	0.000027	0.0000036		0.000007501	0.000001	
<b>Herculase II Fusion DNA Polymerase</b>						
Water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
<b>5X Herculase II Reaction Buffer with dNTPs</b>						
Water	23.8	3.2		92.258	12.3	
Sulfuric acid, magnesium salt, hydrate (1:1:7)	<0.1	<0.013				

**Relative vapour density** :

- End Repair-A Tailing Enzyme Mix Not available.
- End Repair-A Tailing Buffer Not available.
- T4 DNA Ligase Not available.
- Ligation Buffer Not available.
- XT HS2 RNA Adaptor Oligo Mix Not available.
- Herculase II Fusion DNA Polymerase Not available.
- 5X Herculase II Reaction Buffer with dNTPs Not available.

**Relative density** :

- End Repair-A Tailing Enzyme Mix Not available.
- End Repair-A Tailing Buffer Not available.
- T4 DNA Ligase Not available.
- Ligation Buffer Not available.
- XT HS2 RNA Adaptor Oligo Mix Not available.
- Herculase II Fusion DNA Polymerase Not available.

## Section 9. Physical and chemical properties and safety characteristics

<b>Solubility</b>	5X Herculase II Reaction Buffer with dNTPs : <b>End Repair-A Tailing Enzyme Mix</b> End Repair-A Tailing Buffer  T4 DNA Ligase  Ligation Buffer  XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not available.  Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.  Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: <b>End Repair-A Tailing Enzyme Mix</b> End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not applicable.  Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

<b>Auto-ignition temperature</b>	<b>Ingredient name</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>
	<b>End Repair-A Tailing Enzyme Mix</b>			
	Glycerol	370	698	
	<b>T4 DNA Ligase</b>			
	Glycerol	370	698	
	<b>Ligation Buffer</b>			
	Polyethylene glycol	360	680	
	Glycerol	370	698	
	<b>XT HS2 RNA Adaptor Oligo Mix</b>			
	Edetic acid	>400	>752	VDI 2263
	<b>Herculase II Fusion DNA Polymerase</b>			
	Glycerol	370	698	
	Edetic acid	>400	>752	VDI 2263

<b>Decomposition temperature</b>	: End Repair-A Tailing Enzyme Mix End Repair-A Tailing Buffer T4 DNA Ligase Ligation Buffer XT HS2 RNA Adaptor Oligo Mix Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer with dNTPs	Not available.  Not available. Not available. Not available. Not available. Not available. Not available.
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## Section 9. Physical and chemical properties and safety characteristics

<b>Viscosity</b>	: End Repair-A Tailing Enzyme Mix	Not available.
	End Repair-A Tailing Buffer	Not available.
	T4 DNA Ligase	Not available.
	Ligation Buffer	Not available.
	XT HS2 RNA Adaptor Oligo Mix	Not available.
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer with dNTPs	Not available.

### Particle characteristics

<b>Median particle size</b>	: End Repair-A Tailing Enzyme Mix	Not applicable.
	End Repair-A Tailing Buffer	Not applicable.
	T4 DNA Ligase	Not applicable.
	Ligation Buffer	Not applicable.
	XT HS2 RNA Adaptor Oligo Mix	Not applicable.
	Herculase II Fusion DNA Polymerase	Not applicable.
	5X Herculase II Reaction Buffer with dNTPs	Not applicable.

## Section 10. Stability and reactivity

<b>Reactivity</b>	: End Repair-A Tailing Enzyme Mix	No specific test data related to reactivity available for this product or its ingredients.
	End Repair-A Tailing Buffer	No specific test data related to reactivity available for this product or its ingredients.
	T4 DNA Ligase	No specific test data related to reactivity available for this product or its ingredients.
	Ligation Buffer	No specific test data related to reactivity available for this product or its ingredients.
	XT HS2 RNA Adaptor Oligo Mix	No specific test data related to reactivity available for this product or its ingredients.
	Herculase II Fusion DNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.
	5X Herculase II Reaction Buffer with dNTPs	No specific test data related to reactivity available for this product or its ingredients.

<b>Chemical stability</b>	: End Repair-A Tailing Enzyme Mix	The product is stable.
	End Repair-A Tailing Buffer	The product is stable.
	T4 DNA Ligase	The product is stable.
	Ligation Buffer	The product is stable.
	XT HS2 RNA Adaptor Oligo Mix	The product is stable.
	Herculase II Fusion DNA Polymerase	The product is stable.
	5X Herculase II Reaction Buffer with dNTPs	The product is stable.

<b>Possibility of hazardous reactions</b>	: End Repair-A Tailing Enzyme Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
	End Repair-A Tailing Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	T4 DNA Ligase	Under normal conditions of storage and use, hazardous reactions will not occur.
	Ligation Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.

## Section 10. Stability and reactivity

XT HS2 RNA Adaptor Oligo Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
Herculase II Fusion DNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
5X Herculase II Reaction Buffer with dNTPs	Under normal conditions of storage and use, hazardous reactions will not occur.

### Conditions to avoid

: End Repair-A Tailing Enzyme Mix	No specific data.
End Repair-A Tailing Buffer	No specific data.
T4 DNA Ligase	No specific data.
Ligation Buffer	No specific data.
XT HS2 RNA Adaptor Oligo Mix	No specific data.
Herculase II Fusion DNA Polymerase	No specific data.
5X Herculase II Reaction Buffer with dNTPs	No specific data.

### Incompatible materials

: End Repair-A Tailing Enzyme Mix	May react or be incompatible with oxidising materials.
End Repair-A Tailing Buffer	May react or be incompatible with oxidising materials.
T4 DNA Ligase	May react or be incompatible with oxidising materials.
Ligation Buffer	May react or be incompatible with oxidising materials.
XT HS2 RNA Adaptor Oligo Mix	May react or be incompatible with oxidising materials.
Herculase II Fusion DNA Polymerase	May react or be incompatible with oxidising materials.
5X Herculase II Reaction Buffer with dNTPs	May react or be incompatible with oxidising materials.

### Hazardous decomposition products

: End Repair-A Tailing Enzyme Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
End Repair-A Tailing Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
T4 DNA Ligase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Ligation Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
XT HS2 RNA Adaptor Oligo Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Herculase II Fusion DNA Polymerase	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
5X Herculase II Reaction Buffer with dNTPs	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### [Information on toxicological effects](#)

#### [Acute toxicity](#)

**Section 11. Toxicological information**

Product/ingredient name	Result	Species	Dose	Exposure
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>T4 DNA Ligase</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>Ligation Buffer</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>5X Herculase II Reaction Buffer with dNTPs</b> Hexadecan-1-ol, ethoxylated	LD50 Oral	Rat	2500 mg/kg	-

**Irritation/Corrosion**

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
<b>T4 DNA Ligase</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
<b>Ligation Buffer</b> Polyethylene glycol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Mild irritant	Rabbit	-	500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	500 mg	-
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-

**Sensitisation**

Not available.

**Mutagenicity****Conclusion/Summary** : Not available.**Carcinogenicity****Conclusion/Summary** : Not available.**Reproductive toxicity**



## Section 11. Toxicological information

**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.

<b>Information on likely routes of exposure</b>	<ul style="list-style-type: none"> <li>: End Repair-A Tailing Enzyme Mix</li> <li>End Repair-A Tailing Buffer</li> <li>T4 DNA Ligase</li> <li>Ligation Buffer</li> <li>XT HS2 RNA Adaptor Oligo Mix</li> <li>Herculase II Fusion DNA Polymerase</li> <li>5X Herculase II Reaction Buffer with dNTPs</li> </ul>	<ul style="list-style-type: none"> <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> </ul>
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### Potential acute health effects

<b>Eye contact</b>	<ul style="list-style-type: none"> <li>: End Repair-A Tailing Enzyme Mix</li> <li>End Repair-A Tailing Buffer</li> <li>T4 DNA Ligase</li> <li>Ligation Buffer</li> <li>XT HS2 RNA Adaptor Oligo Mix</li> <li>Herculase II Fusion DNA Polymerase</li> <li>5X Herculase II Reaction Buffer with dNTPs</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>Causes serious eye irritation.</li> </ul>
<b>Inhalation</b>	<ul style="list-style-type: none"> <li>: End Repair-A Tailing Enzyme Mix</li> <li>End Repair-A Tailing Buffer</li> <li>T4 DNA Ligase</li> <li>Ligation Buffer</li> <li>XT HS2 RNA Adaptor Oligo Mix</li> <li>Herculase II Fusion DNA Polymerase</li> <li>5X Herculase II Reaction Buffer with dNTPs</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> </ul>
<b>Skin contact</b>	<ul style="list-style-type: none"> <li>: End Repair-A Tailing Enzyme Mix</li> <li>End Repair-A Tailing Buffer</li> <li>T4 DNA Ligase</li> <li>Ligation Buffer</li> <li>XT HS2 RNA Adaptor Oligo Mix</li> <li>Herculase II Fusion DNA Polymerase</li> <li>5X Herculase II Reaction Buffer with dNTPs</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> </ul>

## Section 11. Toxicological information

<b>Ingestion</b>	: End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
	End Repair-A Tailing Buffer	No known significant effects or critical hazards.
	T4 DNA Ligase	No known significant effects or critical hazards.
	Ligation Buffer	No known significant effects or critical hazards.
	XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.

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

<b>Eye contact</b>	: End Repair-A Tailing Enzyme Mix	No specific data.
	End Repair-A Tailing Buffer	No specific data.
	T4 DNA Ligase	No specific data.
	Ligation Buffer	No specific data.
	XT HS2 RNA Adaptor Oligo Mix	No specific data.
	Herculase II Fusion DNA Polymerase	No specific data.
	5X Herculase II Reaction Buffer with dNTPs	Adverse symptoms may include the following: pain or irritation watering redness

<b>Inhalation</b>	: End Repair-A Tailing Enzyme Mix	No specific data.
	End Repair-A Tailing Buffer	No specific data.
	T4 DNA Ligase	No specific data.
	Ligation Buffer	No specific data.
	XT HS2 RNA Adaptor Oligo Mix	No specific data.
	Herculase II Fusion DNA Polymerase	No specific data.
	5X Herculase II Reaction Buffer with dNTPs	No specific data.

<b>Skin contact</b>	: End Repair-A Tailing Enzyme Mix	No specific data.
	End Repair-A Tailing Buffer	No specific data.
	T4 DNA Ligase	No specific data.
	Ligation Buffer	No specific data.
	XT HS2 RNA Adaptor Oligo Mix	No specific data.
	Herculase II Fusion DNA Polymerase	No specific data.
	5X Herculase II Reaction Buffer with dNTPs	No specific data.

<b>Ingestion</b>	: End Repair-A Tailing Enzyme Mix	No specific data.
	End Repair-A Tailing Buffer	No specific data.
	T4 DNA Ligase	No specific data.
	Ligation Buffer	No specific data.
	XT HS2 RNA Adaptor Oligo Mix	No specific data.
	Herculase II Fusion DNA Polymerase	No specific data.
	5X Herculase II Reaction Buffer with dNTPs	No specific data.

## Section 11. Toxicological information

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

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

<b>General</b>	: End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
	End Repair-A Tailing Buffer	No known significant effects or critical hazards.
	T4 DNA Ligase	No known significant effects or critical hazards.
	Ligation Buffer	No known significant effects or critical hazards.
	XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
	End Repair-A Tailing Buffer	No known significant effects or critical hazards.
	T4 DNA Ligase	No known significant effects or critical hazards.
	Ligation Buffer	No known significant effects or critical hazards.
	XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.
<b>Mutagenicity</b>	: End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
	End Repair-A Tailing Buffer	No known significant effects or critical hazards.
	T4 DNA Ligase	No known significant effects or critical hazards.
	Ligation Buffer	No known significant effects or critical hazards.
	XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: End Repair-A Tailing Enzyme Mix	No known significant effects or critical hazards.
	End Repair-A Tailing Buffer	No known significant effects or critical hazards.
	T4 DNA Ligase	No known significant effects or critical hazards.
	Ligation Buffer	No known significant effects or critical hazards.
	XT HS2 RNA Adaptor Oligo Mix	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer with dNTPs	No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	12600	N/A	N/A	N/A	N/A
<b>T4 DNA Ligase</b> Glycerol	12600	N/A	N/A	N/A	N/A
<b>Ligation Buffer</b> Polyethylene glycol Glycerol	28000 12600	N/A N/A	N/A N/A	N/A N/A	N/A N/A
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	12600	N/A	N/A	N/A	N/A
<b>5X Herculase II Reaction Buffer with dNTPs</b> 5X Herculase II Reaction Buffer with dNTPs Hexadecan-1-ol, ethoxylated	55000 500	N/A N/A	N/A N/A	N/A N/A	N/A N/A

<b>Other information</b>	: <b>End Repair-A Tailing Enzyme Mix</b>	Not available.
	: <b>End Repair-A Tailing Buffer</b>	Adverse symptoms may include the following: May cause skin sensitisation.
	: <b>T4 DNA Ligase</b>	Not available.
	: <b>Ligation Buffer</b>	Not available.
	: <b>XT HS2 RNA Adaptor Oligo Mix</b>	Not available.
	: <b>Herculase II Fusion DNA Polymerase</b>	Not available.
	: <b>5X Herculase II Reaction Buffer with dNTPs</b>	Not available.

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>T4 DNA Ligase</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>Ligation Buffer</b> Polyethylene glycol Glycerol	Acute LC50 >1000000 µg/l Fresh water Acute LC50 54000 mg/l Fresh water	Fish - Salmo salar - Parr Fish - Oncorhynchus mykiss	96 hours 96 hours
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
<b>5X Herculase II Reaction Buffer with dNTPs</b> Hexadecan-1-ol, ethoxylated	Acute LC50 330000 to 1000000 µg/l Marine water	Crustaceans - Crangon crangon - Adult	48 hours

### Persistence and degradability

## Section 12. Ecological information

Product/ingredient name	Test	Result	Dose	Inoculum
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
<b>T4 DNA Ligase</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
<b>Ligation Buffer</b> Polyethylene glycol	OECD 301D Ready Biodegradability - Closed Bottle Test	74.85 % - Readily - 28 days	4 mg/l	-
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>Ligation Buffer</b> Polyethylene glycol	-	-	Readily
<b>5X Herculase II Reaction Buffer with dNTPs</b> Hexadecan-1-ol, ethoxylated	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>End Repair-A Tailing Enzyme Mix</b> Glycerol	-1.76	-	low
<b>T4 DNA Ligase</b> Glycerol	-1.76	-	low
<b>Ligation Buffer</b> Polyethylene glycol	-	3.2	low
Glycerol	-1.76	-	low
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	-1.76	-	low

### Mobility in soil

## Section 12. Ecological information

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

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

## Section 13. Disposal considerations

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

## Section 14. Transport information

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

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

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

## Section 15. Regulatory information

### Standard for the Uniform Scheduling of Medicines and Poisons

5

### Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

### International regulations

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

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

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

Not listed.

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

Not listed.

### Inventory list

**Australia** : Not determined.

**Canada** : Not determined.

**China** : Not determined.

**Europe** : Not determined.

## Section 15. Regulatory information

<b>Japan</b>	: <b>Japan inventory (CSCL):</b> Not determined. <b>Japan inventory (ISHL):</b> Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: Not determined.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Thailand</b>	: Not determined.
<b>Turkey</b>	: Not determined.
<b>United States</b>	: Not determined.
<b>Viet Nam</b>	: Not determined.

## Section 16. Any other relevant information

### History

<b>Date of issue/Date of revision</b>	: 29/04/2022
<b>Date of previous issue</b>	: 27/07/2020
<b>Version</b>	: 2

### Key to abbreviations

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

### Procedure used to derive the classification

Classification	Justification
<b>5X</b> Herculase II Reaction Buffer with dNTPs SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A	Calculation method

**References** : Not available.

✔ Indicates information that has changed from previously issued version.

### Notice to reader

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