SAFETY DATA SHEET

Agilent Technologies

SureGuide Custom CRISPR Guide Library (Unamplified), Part Number G7555B

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

1.1 Product identifier

Product name : SureGuide Custom CRISPR Guide Library (Unamplified), Part Number G7555B

CAS number :

DMSO	67-68-5
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not applicable.
5X Herculase II Reaction Buffer	Not applicable.
100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

Part no. (chemical kit) : G7555B

Part no. :

DMSO	600260-53
Custom CRISPR Guide Library (UnAmplified)	5190-9532
Herculase II Fusion DNA Polymerase	600675-51
5X Herculase II Reaction Buffer	600675-52
100 mM dNTP Mix (25 mM each dNTP)	200820-55

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

Identified uses : Analytical reagent.

DMSO	1 ml
Custom CRISPR Guide Library (UnAmplified)	10 pmol
Herculase II Fusion DNA Polymerase	0.04 ml (40 reactions)
5X Herculase II Reaction Buffer	1.5 ml
100 mM dNTP Mix (25 mM each dNTP)	0.04 ml

Uses advised against : None known.

1.3 Details of the supplier of the safety data sheet

Agilent Technologies LDA UK Ltd.
5500 Lakeside Cheadle Royal Business Park,
Cheadle, Cheshire, SK8 3GR
United Kingdom
Tel: +44 (0) 345 712 5292

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 :

DMSO	Mono-constituent substance
Custom CRISPR Guide Library (UnAmplified)	Mixture
Herculase II Fusion DNA Polymerase	Mixture
5X Herculase II Reaction Buffer	Mixture
100 mM dNTP Mix (25 mM each dNTP)	Mixture

SECTION 2: Hazards identification

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

Not classified.

DMSO	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
Custom CRISPR Guide Library (UnAmplified)	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
Herculase II Fusion DNA Polymerase	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
5X Herculase II Reaction Buffer	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.
100 mM dNTP Mix (25 mM each dNTP)	The product is not classified as hazardous according to UK CLP Regulation SI 2019/720 as amended.

Ingredients of unknown toxicity	: Custom CRISPR Guide Library (UnAmplified)	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: > 60%
	Herculase II Fusion DNA Polymerase	Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 30 - 60%
	5X Herculase II Reaction Buffer	Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%
	100 mM dNTP Mix (25 mM each dNTP)	Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10% Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10% Percentage of the mixture consisting of ingredient(s) of unknown acute oral toxicity: 1 - 10%
Ingredients of unknown ecotoxicity	: 100 mM dNTP Mix (25 mM each dNTP)	Contains 5.7% of components with unknown hazards to the aquatic environment

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	: DMSO	No signal word.
	Custom CRISPR Guide Library (UnAmplified)	No signal word.
	Herculase II Fusion DNA Polymerase	No signal word.
	5X Herculase II Reaction Buffer	No signal word.
	100 mM dNTP Mix (25 mM each dNTP)	No signal word.
Hazard statements	: DMSO	No known significant effects or critical hazards.
	Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
	100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.

Precautionary statements

Prevention	: DMSO	Not applicable.
	Custom CRISPR Guide Library (UnAmplified)	Not applicable.
	Herculase II Fusion DNA Polymerase	Not applicable.
	5X Herculase II Reaction Buffer	Not applicable.
	100 mM dNTP Mix (25	Not applicable.

SECTION 2: Hazards identification

		mM each dNTP)	
Response	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Not applicable.
		5X Herculase II Reaction Buffer	Not applicable.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.
Storage	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Not applicable.
		5X Herculase II Reaction Buffer	Not applicable.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.
Disposal	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Not applicable.
		5X Herculase II Reaction Buffer	Not applicable.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.
Supplemental label elements	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Safety data sheet available on request.
		5X Herculase II Reaction Buffer	Safety data sheet available on request.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.
Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Not applicable.
		5X Herculase II Reaction Buffer	Not applicable.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings	:	DMSO	Not applicable.
		Custom CRISPR Guide Library (UnAmplified)	Not applicable.
		Herculase II Fusion DNA Polymerase	Not applicable.
		5X Herculase II Reaction Buffer	Not applicable.
		100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

SECTION 2: Hazards identification

Tactile warning of danger :

DMSO	Not applicable.
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not applicable.
5X Herculase II Reaction Buffer	Not applicable.
100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

2.3 Other hazards

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII :

PBT	P	B	T	vPvB	vP	vB
DMSO						
No	N/A	No	No	No	N/A	No

Custom CRISPR Guide Library (UnAmplified)	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
Herculase II Fusion DNA Polymerase	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
5X Herculase II Reaction Buffer	This mixture does not contain any substances that are assessed to be a PBT or a vPvB.
100 mM dNTP Mix (25 mM each dNTP)	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 :

DMSO	None known.
Custom CRISPR Guide Library (UnAmplified)	None known.
Herculase II Fusion DNA Polymerase	None known.
5X Herculase II Reaction Buffer	None known.
100 mM dNTP Mix (25 mM each dNTP)	None known.

SECTION 3: Composition/information on ingredients

3.1 Substances :

DMSO	Mono-constituent substance
Custom CRISPR Guide Library (UnAmplified)	Mixture
Herculase II Fusion DNA Polymerase	Mixture
5X Herculase II Reaction Buffer	Mixture
100 mM dNTP Mix (25 mM each dNTP)	Mixture

Product/ingredient name	Identifiers	%	Classification	Type
DMSO				
Dimethyl sulfoxide	EC: 200-664-3 CAS: 67-68-5	100	Not classified.	[1]
Herculase II Fusion DNA Polymerase				
Glycerol	UK (GB) REACH #: Annex V REACH #: Annex V EC: 200-289-5 CAS: 56-81-5	≥50 - ≤75	Not classified.	[1]
5X Herculase II Reaction Buffer				
Trometamol	EC: 201-064-4 CAS: 77-86-1	≤3	Skin Irrit. 2, H315 Eye Irrit. 2, H319	[1]
Hexadecan-1-ol, ethoxylated	EC: 500-014-1 CAS: 9004-95-9	<2.5	Aquatic Chronic 2, H411	[1]

SECTION 3: Composition/information on ingredients

			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, are classified and contribute to the classification of the substance and hence require reporting in this section.

Type

DMSO	[1] Constituent
Herculase II Fusion DNA Polymerase	[1] Substance with a workplace exposure limit
5X Herculase II Reaction Buffer	[1] Substance classified with a health or environmental hazard

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

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact	:	DMSO	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.
		Custom CRISPR Guide Library (UnAmplified)	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	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.
		100 mM dNTP Mix (25 mM each dNTP)	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	:	DMSO	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Custom CRISPR Guide Library (UnAmplified)	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.
		Herculase II Fusion DNA Polymerase	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		5X Herculase II Reaction 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.
		100 mM dNTP Mix (25 mM each dNTP)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
Skin contact	:	DMSO	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		Custom CRISPR Guide Library (UnAmplified)	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	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if

SECTION 4: First aid measures

			symptoms occur.
		100 mM dNTP Mix (25 mM each dNTP)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	:	DMSO	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.
		Custom CRISPR Guide Library (UnAmplified)	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.
		Herculase II Fusion DNA Polymerase	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	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.
		100 mM dNTP Mix (25 mM each dNTP)	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.
Protection of first-aiders	:	DMSO	No action shall be taken involving any personal risk or without suitable training.
		Custom CRISPR Guide Library (UnAmplified)	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	No action shall be taken involving any personal risk or without suitable training.
		100 mM dNTP Mix (25 mM each dNTP)	No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.
Inhalation	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.

SECTION 4: First aid measures

Skin contact	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.
Ingestion	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	:	DMSO	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Custom CRISPR Guide Library (UnAmplified)	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.
		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	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.
		100 mM dNTP Mix (25 mM each dNTP)	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.
Specific treatments	:	DMSO	No specific treatment.
		Custom CRISPR Guide Library (UnAmplified)	No specific treatment.
		Herculase II Fusion DNA Polymerase	No specific treatment.
		5X Herculase II Reaction Buffer	No specific treatment.
		100 mM dNTP Mix (25 mM each dNTP)	No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	DMSO	Use an extinguishing agent suitable for the surrounding fire.
		Custom CRISPR Guide Library (UnAmplified)	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	Use an extinguishing agent suitable for the surrounding fire.
		100 mM dNTP Mix (25 mM each dNTP)	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	DMSO	None known.
		Custom CRISPR Guide Library (UnAmplified)	None known.
		Herculase II Fusion DNA Polymerase	None known.
		5X Herculase II Reaction Buffer	None known.
		100 mM dNTP Mix (25	None known.

SECTION 5: Firefighting measures

mM each dNTP)

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture :

☒ DMSO	In a fire or if heated, a pressure increase will occur and the container may burst.
Custom CRISPR Guide Library (UnAmplified)	No specific fire or explosion hazard.
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	In a fire or if heated, a pressure increase will occur and the container may burst.
100 mM dNTP Mix (25 mM each dNTP)	In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous combustion products :

☒ DMSO	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
Custom CRISPR Guide Library (UnAmplified)	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
Herculase II Fusion DNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
5X Herculase II Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides metal oxide/oxides
100 mM dNTP Mix (25 mM each dNTP)	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters :

☒ DMSO	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.
Custom CRISPR Guide Library (UnAmplified)	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	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.
100 mM dNTP Mix (25 mM each dNTP)	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.

SECTION 5: Firefighting measures

Special protective equipment for fire-fighters	: ☒ DMSO	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	Custom CRISPR Guide Library (UnAmplified)	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 (SCBA) with a full face-piece operated in positive pressure mode.
	5X Herculase II Reaction Buffer	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	100 mM dNTP Mix (25 mM each dNTP)	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

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: ☒ DMSO	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.
	Custom CRISPR Guide Library (UnAmplified)	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	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.
	100 mM dNTP Mix (25 mM each dNTP)	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.
For emergency responders	: ☒ DMSO	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".
	Custom CRISPR Guide Library (UnAmplified)	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	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".
	100 mM dNTP Mix (25 mM each dNTP)	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

SECTION 6: Accidental release measures

6.2 Environmental precautions :

DMSO	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).
Custom CRISPR Guide Library (UnAmplified)	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	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).
100 mM dNTP Mix (25 mM each dNTP)	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 :

DMSO	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.
Custom CRISPR Guide Library (UnAmplified)	Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste 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	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.
100 mM dNTP Mix (25 mM each dNTP)	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 :

DMSO	Put on appropriate personal protective equipment (see Section 8).
Custom CRISPR Guide Library (UnAmplified)	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	Put on appropriate personal protective equipment (see Section 8).

SECTION 7: Handling and storage

	100 mM dNTP Mix (25 mM each dNTP)	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene :	DMSO	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.
	Custom CRISPR Guide Library (UnAmplified)	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	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.
	100 mM dNTP Mix (25 mM each dNTP)	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 :	DMSO	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.
	Custom CRISPR Guide Library (UnAmplified)	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

SECTION 7: Handling and storage

	before handling or use.
5X Herculase II Reaction 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.
100 mM dNTP Mix (25 mM each dNTP)	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 :	DMSO	Industrial applications, Professional applications.
	Custom CRISPR Guide Library (UnAmplified)	Industrial applications, Professional applications.
	Herculase II Fusion DNA Polymerase	Industrial applications, Professional applications.
	5X Herculase II Reaction Buffer	Industrial applications, Professional applications.
	100 mM dNTP Mix (25 mM each dNTP)	Industrial applications, Professional applications.
Industrial sector specific solutions :	DMSO	Not available.
	Custom CRISPR Guide Library (UnAmplified)	Not available.
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
Herculase II Fusion DNA Polymerase Glycerol	**EH40/2005 WELs (United Kingdom (UK), 1/2020).** TWA: 10 mg/m³ 8 hours. Form: Mist

Biological exposure indices

No exposure indices known.

Recommended monitoring procedures : Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

SECTION 8: Exposure controls/personal protection

Product/ingredient name	Type	Exposure	Value	Population	Effects
DMSO					
Dimethyl sulfoxide	DNEL	Long term Oral	1.67 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	3.13 mg/m³	General population	Local
	DNEL	Long term Inhalation	17.67 mg/m³	Workers	Local
	DNEL	Long term Inhalation	56 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	75 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	178 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	356 mg/kg bw/day	Workers	Systemic
5X Herculase II Reaction Buffer					
Trometamol	DNEL	Long term Oral	8.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	29 mg/m³	General population	Systemic
	DNEL	Long term Dermal	83.3 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	117.5 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	166.7 mg/kg bw/day	Workers	Systemic
Hexadecan-1-ol, ethoxylated	DNEL	Long term Oral	0.75 mg/kg bw/day	General population	Systemic
	DNEL	Long term Inhalation	1.96 mg/m³	General population	Systemic
	DNEL	Long term Inhalation	11.1 mg/m³	Workers	Systemic
	DNEL	Long term Dermal	37.5 mg/kg bw/day	General population	Systemic
	DNEL	Long term Dermal	105 mg/kg bw/day	Workers	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 : 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.

SECTION 8: Exposure controls/personal protection

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

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

9.1 Information on basic physical and chemical properties

Appearance

Physical state :	DMSO	Liquid. [Clear.]
	Custom CRISPR Guide Library (UnAmplified)	Solid.
	Herculase II Fusion DNA Polymerase	Liquid.
	5X Herculase II Reaction Buffer	Liquid.
	100 mM dNTP Mix (25 mM each dNTP)	Liquid.
Colour :	DMSO	Colourless.
	Custom CRISPR Guide Library (UnAmplified)	Not available.
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
Odour :	DMSO	Odourless. [Slight]
	Custom CRISPR Guide Library (UnAmplified)	Not available.
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
Odour threshold :	DMSO	Not available.
	Custom CRISPR Guide Library (UnAmplified)	Not available.
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.

SECTION 9: Physical and chemical properties

Melting point/freezing point :

DMSO	18.5°C
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Initial boiling point and boiling range :

DMSO	189°C
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Flammability :

DMSO	Not applicable.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not applicable.
5X Herculase II Reaction Buffer	Not applicable.
100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

Upper/lower flammability or explosive limits :

DMSO	Lower: 2.6% Upper: 28.5%
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Flash point :

DMSO	Closed cup: 87°C [ASTM D 93] Open cup: 87°C
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Ingredient name	Closed cup		Open cup	
	°C	Method	°C	Method
Herculase II Fusion DNA Polymerase				
glycerol	-	-	177	-

Auto-ignition temperature :

DMSO	300 to 302°C
Custom CRISPR Guide Library (UnAmplified)	Not applicable.

Ingredient name	°C	Method
Herculase II Fusion DNA Polymerase		
glycerol	370	-

SECTION 9: Physical and chemical properties

Decomposition temperature :

DMSO	140 to 189°C
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

pH :

DMSO	Not available.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	8.2
5X Herculase II Reaction Buffer	9.5 to 10.5
100 mM dNTP Mix (25 mM each dNTP)	7.5

Viscosity :

DMSO	Dynamic: 2.14 mPa·s
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Solubility(ies) :

Media	Result
DMSO	
water	Soluble
Custom CRISPR Guide Library (UnAmplified)	
water	Soluble
Herculase II Fusion DNA Polymerase	
water	Soluble
5X Herculase II Reaction Buffer	
water	Soluble
100 mM dNTP Mix (25 mM each dNTP)	
water	Soluble

Partition coefficient: n-octanol/water :

DMSO	-1.35
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not applicable.
5X Herculase II Reaction Buffer	Not applicable.
100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

Vapour pressure :

DMSO 0.056 kPa (0.42 mm Hg) [EU A.4]

Ingredient name	Vapour Pressure at 20˚C			Vapour pressure at 50˚C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
Herculase II Fusion DNA Polymerase						
water	17.5	2.3	-	92.258	12.3	-
glycerol	0.000075	0.00001	-	0.0025	0.00033	-

SECTION 9: Physical and chemical properties

5X Herculase II Reaction Buffer						
water	17.5	2.3	-	92.258	12.3	-
trometamol	<0.00075006	<0.0001	-	-	-	-
100 mM dNTP Mix (25 mM each dNTP)						
water	17.5	2.3	-	92.258	12.3	-

Evaporation rate :

DMSO	0.026 (butyl acetate = 1)
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Relative density :

DMSO	1.1
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Vapour density :

DMSO	2.7 [Air = 1]
Custom CRISPR Guide Library (UnAmplified)	Not applicable.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Explosive properties :

DMSO	Not available.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Oxidising properties :

DMSO	Not available.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not available.
5X Herculase II Reaction Buffer	Not available.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Particle characteristics

SECTION 9: Physical and chemical properties

Median particle size :

DMSO	Not applicable.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Not applicable.
5X Herculase II Reaction Buffer	Not applicable.
100 mM dNTP Mix (25 mM each dNTP)	Not applicable.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity :

DMSO	No specific test data related to reactivity available for this product or its ingredients.
Custom CRISPR Guide Library (UnAmplified)	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	No specific test data related to reactivity available for this product or its ingredients.
100 mM dNTP Mix (25 mM each dNTP)	No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability :

DMSO	The product is stable.
Custom CRISPR Guide Library (UnAmplified)	The product is stable.
Herculase II Fusion DNA Polymerase	The product is stable.
5X Herculase II Reaction Buffer	The product is stable.
100 mM dNTP Mix (25 mM each dNTP)	The product is stable.

10.3 Possibility of hazardous reactions :

DMSO	Under normal conditions of storage and use, hazardous reactions will not occur.
Custom CRISPR Guide Library (UnAmplified)	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	Under normal conditions of storage and use, hazardous reactions will not occur.
100 mM dNTP Mix (25 mM each dNTP)	Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid :

DMSO	No specific data.
Custom CRISPR Guide Library (UnAmplified)	No specific data.
Herculase II Fusion DNA Polymerase	No specific data.
5X Herculase II Reaction Buffer	No specific data.
100 mM dNTP Mix (25 mM each dNTP)	No specific data.

SECTION 10: Stability and reactivity

10.5 Incompatible materials

DMSO	May react or be incompatible with oxidising materials.
Custom CRISPR Guide Library (UnAmplified)	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	May react or be incompatible with oxidising materials.
100 mM dNTP Mix (25 mM each dNTP)	May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products

DMSO	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Custom CRISPR Guide Library (UnAmplified)	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	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
100 mM dNTP Mix (25 mM each dNTP)	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
DMSO				
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Herculase II Fusion DNA Polymerase				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
5X Herculase II Reaction Buffer				
Trometamol	LD50 Dermal	Rat	>5000 mg/kg	-
Hexadecan-1-ol, ethoxylated	LD50 Oral	Rat	2500 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)
DMSO					
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Herculase II Fusion DNA Polymerase					
Glycerol	12600	N/A	N/A	N/A	N/A
5X Herculase II Reaction Buffer					
Hexadecan-1-ol, ethoxylated	2500	N/A	N/A	N/A	N/A

Irritation/Corrosion

SECTION 11: Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
DMSO					
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Herculase II Fusion DNA Polymerase					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
5X Herculase II Reaction Buffer					
Trometamol	Skin - Moderate irritant	Rabbit	-	25 %	-
	Skin - Severe irritant	Rabbit	-	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 :

DMSO	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Custom CRISPR Guide Library (UnAmplified)	Not available.
Herculase II Fusion DNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
5X Herculase II Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
100 mM dNTP Mix (25 mM each dNTP)	Not available.

Potential acute health effects

Inhalation :

DMSO	No known significant effects or critical hazards.
Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.

SECTION 11: Toxicological information

Ingestion	:	DMSO	No known significant effects or critical hazards.
		Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
		Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
		5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
		100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.
Skin contact	:	DMSO	No known significant effects or critical hazards.
		Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
		Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
		5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
		100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.
Eye contact	:	DMSO	No known significant effects or critical hazards.
		Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
		Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
		5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
		100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.
Ingestion	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.
Skin contact	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.
		100 mM dNTP Mix (25 mM each dNTP)	No specific data.
Eye contact	:	DMSO	No specific data.
		Custom CRISPR Guide Library (UnAmplified)	No specific data.
		Herculase II Fusion DNA Polymerase	No specific data.
		5X Herculase II Reaction Buffer	No specific data.

SECTION 11: Toxicological information

100 mM dNTP Mix (25 mM each dNTP)	No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Conclusion/Summary : Not available.

General :	DMSO	No known significant effects or critical hazards.
	Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
	100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.
Carcinogenicity :	DMSO	No known significant effects or critical hazards.
	Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
	100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.
Mutagenicity :	DMSO	No known significant effects or critical hazards.
	Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
	100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.
Reproductive toxicity :	DMSO	No known significant effects or critical hazards.
	Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
	Herculase II Fusion DNA Polymerase	No known significant effects or critical hazards.
	5X Herculase II Reaction Buffer	No known significant effects or critical hazards.
	100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
DMSO			
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Water flea - *Daphnia magna* - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Fathead minnow - *Pimephales promelas*	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Green algae - *Ulva lactuca*	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Water flea - *Daphnia magna* - Juvenile (Fledgling, Hatchling, Weanling)	21 days
Herculase II Fusion DNA Polymerase			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Trout - *Oncorhynchus mykiss*	96 hours
5X Herculase II Reaction Buffer			
Trometamol	Acute EC50 >980 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 520 mg/l Fresh water	Daphnia	48 hours
Hexadecan-1-ol, ethoxylated	Acute LC50 330000 to 1000000 µg/l Marine water	Crustaceans - Common shrimp, sand shrimp - *Crangon crangon* - Adult	48 hours

Conclusion/Summary : Not available.

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
DMSO				
Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
Herculase II Fusion DNA Polymerase				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
5X Herculase II Reaction Buffer				
Trometamol	OECD 301F Ready Biodegradability - Manometric Respirometry Test	97.1 % - Readily - 28 days	30 mg/l	-

Conclusion/Summary : Not available.

SECTION 12: Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
DMSO			
Dimethyl sulfoxide	-	-	Not readily
5X Herculase II Reaction Buffer			
Trometamol	-	-	Readily
Hexadecan-1-ol, ethoxylated	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
DMSO			
Dimethyl sulfoxide	-1.35	3.16	Low
Herculase II Fusion DNA Polymerase			
Glycerol	-1.76	-	Low
5X Herculase II Reaction Buffer			
Trometamol	-2.31	-	Low
Hexadecan-1-ol, ethoxylated	>6.06	-	High

12.4 Mobility in soil

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

Mobility : Not available.

12.5 Results of PBT and vPvB assessment

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
DMSO							
Dimethyl sulfoxide	No	N/A	No	No	No	N/A	No

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.

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

UK (GB)/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.

Ozone depleting substances

Not listed.

Prior Informed Consent (PIC)

Not listed.

Persistent Organic Pollutants

Not listed.

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

☒ No listed substance

Label : ☒ DMSO Not applicable.
Custom CRISPR Guide Library (UnAmplified) Not applicable.
Herculase II Fusion DNA Polymerase Not applicable.
5X Herculase II Reaction Buffer Not applicable.
100 mM dNTP Mix (25 mM Not applicable.

SECTION 15: Regulatory information

each dNTP)

Seveso Directive

This product is not controlled under the Seveso Directive.

EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Not listed

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

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

United States : Not determined.

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

Procedure used to derive the classification

Classification	Justification
Not classified.	

Full text of abbreviated H statements

5X Herculase II Reaction Buffer

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.

SECTION 16: Other information

Full text of classifications

5X Herculase II Reaction Buffer	
Aquatic Chronic 2	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 2
Eye Irrit. 2	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2

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Notice to reader

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