

# SAFETY DATA SHEET



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

## Section 1. Identification

### 1.1 Product identifier

**Product name** : SureGuide Custom CRISPR Guide Library (Unamplified), Part Number G7555B  
**Part No. (Chemical Kit)** : G7555B  
**Part No.** : Custom CRISPR Guide Library 5190-9532 (UnAmplified)  
 DMSO 600260-53  
 Herculase II Fusion DNA Polymerase 600675-51  
 5X Herculase II Reaction Buffer 600675-52  
 100 mM dNTP Mix (25 mM each dNTP) 200820-55  
**Validation date** : 9/14/2016

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

**Material uses** : Analytical reagent.  
 Custom CRISPR Guide Library (UnAmplified) 10 pmol  
 DMSO 1 mL  
 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

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

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

### 1.4 Emergency telephone number

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

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

<b>OSHA/HCS status</b> : Custom CRISPR Guide Library (UnAmplified)	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
DMSO	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Herculase II Fusion DNA Polymerase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
5X Herculase II Reaction Buffer	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
100 mM dNTP Mix (25 mM each dNTP)	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This

## Section 2. Hazards identification

SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

#### DMSO

H227 FLAMMABLE LIQUIDS - Category 4  
 H320 EYE IRRITATION - Category 2B

#### Herculase II Fusion DNA Polymerase

H320 EYE IRRITATION - Category 2B

**Ingredients of unknown toxicity** : Custom CRISPR Guide Library Percentage of the mixture consisting of ingredient (s) of unknown toxicity: 100%  
 100 mM dNTP Mix (25 mM each dNTP) Percentage of the mixture consisting of ingredient (s) of unknown toxicity: 6%

### 2.2 GHS label elements

**Signal word** : Custom CRISPR Guide Library (UnAmplified) No signal word.  
 DMSO Warning  
 Herculase II Fusion DNA Polymerase Warning  
 5X Herculase II Reaction Buffer No signal word.  
 100 mM dNTP Mix (25 mM each dNTP) No signal word.

**Hazard statements** : Custom CRISPR Guide Library (UnAmplified) No known significant effects or critical hazards.  
 DMSO H227 - Combustible liquid.  
 H320 - Causes eye irritation.  
 Herculase II Fusion DNA Polymerase H320 - Causes eye irritation.  
 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** : Custom CRISPR Guide Library (UnAmplified) Not applicable.  
 DMSO P280 - Wear protective gloves. Wear eye or face protection.  
 P210 - Keep away from flames and hot surfaces. - No smoking.  
 P264 - Wash hands thoroughly after handling.  
 Herculase II Fusion DNA Polymerase P264 - Wash hands thoroughly after handling.  
 5X Herculase II Reaction Buffer Not applicable.  
 100 mM dNTP Mix (25 mM each dNTP) Not applicable.

**Response** : Custom CRISPR Guide Library (UnAmplified) Not applicable.  
 DMSO P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
 P337 + P313 - If eye irritation persists: Get medical attention.  
 Herculase II Fusion DNA Polymerase P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove

## Section 2. Hazards identification

		contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
<b>Storage</b>	5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not applicable. Not applicable.
	: Custom CRISPR Guide Library (UnAmplified) DMSO	Not applicable. P403 - Store in a well-ventilated place. P235 - Keep cool.
	Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not applicable. Not applicable.
<b>Disposal</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO	Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
	Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not applicable. Not applicable.
<b>Supplemental label elements</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO	None known. None known.
	Herculase II Fusion DNA Polymerase	None known.
	5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	None known. None known.
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO	None known. None known.
	Herculase II Fusion DNA Polymerase	None known.
	5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	None known. None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Mixture Substance Mixture Mixture Mixture
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## Section 3. Composition/information on ingredients

Ingredient name	%	CAS number
<b>DMSO</b> Dimethyl sulfoxide	100	67-68-5
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	≥50 - ≤75	56-81-5
<b>5X Herculase II Reaction Buffer</b> Trometamol	≤3	77-86-1
Ammonium sulphate	≤3	7783-20-2
<b>100 mM dNTP Mix (25 mM each dNTP)</b> 2'-Deoxyadenosine 5'-(tetrahydrogen triphosphate)	≤3	1927-31-7
2'-Deoxyguanosine 5'-(tetrahydrogen triphosphate)	≤3	2564-35-4

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

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

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

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: 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.
	DMSO	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	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. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	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.
<b>Inhalation</b>	: 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.
	DMSO	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

## Section 4. First aid measures

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.

Herculase II Fusion DNA Polymerase

Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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

: Custom CRISPR Guide Library (UnAmplified)

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

DMSO

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.

Herculase II Fusion DNA Polymerase

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

5X Herculase II Reaction Buffer

Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if 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.

## Section 4. First aid measures

<b>Ingestion</b>	: Custom CRISPR Guide Library (UnAmplified)	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	DMSO	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	Herculase II Fusion DNA Polymerase	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	5X Herculase II Reaction Buffer	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
	100 mM dNTP Mix (25 mM each dNTP)	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

#### Potential acute health effects

## Section 4. First aid measures

<b>Eye contact</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards. Causes eye irritation. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Inhalation</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Eye contact</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase  5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No specific data.  Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following:  irritation watering redness No specific data. No specific data.
<b>Inhalation</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No specific data. No specific data. No specific data. No specific data. No specific data.

## Section 4. First aid measures

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

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

<b>Notes to physician</b>	: Custom CRISPR Guide Library (UnAmplified)  DMSO  Herculase II Fusion DNA Polymerase  5X Herculase II Reaction Buffer  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. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. 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. 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>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase  5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	No action shall be taken involving any personal risk or without suitable training. 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. 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. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training.



## Section 4. First aid measures

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	Use an extinguishing agent suitable for the surrounding fire. Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	None known.  Do not use water jet. None known.  None known. None known.

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

<b>Specific hazards arising from the chemical</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO   Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	No specific fire or explosion hazard.  Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: Custom CRISPR Guide Library (UnAmplified)  DMSO  Herculase II Fusion DNA Polymerase  5X Herculase II Reaction Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides Decomposition products may include the following materials: carbon dioxide carbon monoxide Decomposition products may include the following

## Section 5. Fire-fighting measures

materials:  
 carbon dioxide  
 carbon monoxide  
 nitrogen oxides  
 sulfur oxides  
 metal oxide/oxides

Decomposition products may include the following materials:  
 carbon dioxide  
 carbon monoxide  
 nitrogen oxides  
 phosphorus oxides

100 mM dNTP Mix (25 mM each dNTP)

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

: 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.

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. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

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.

#### Special protective equipment for fire-fighters

: 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.

DMSO

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

<b>For non-emergency personnel</b>	: 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 spilled material. Put on appropriate personal protective equipment.
	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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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 spilled 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 spilled material. Put on appropriate personal protective equipment.
<b>For emergency responders</b>	: Custom CRISPR Guide Library (UnAmplified)	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	DMSO	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Herculase II Fusion DNA Polymerase	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	5X Herculase II Reaction Buffer	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	100 mM dNTP Mix (25 mM each dNTP)	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

## Section 6. Accidental release measures

### 6.2 Environmental precautions

: Custom CRISPR Guide Library (UnAmplified)	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
DMSO	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Herculase II Fusion DNA Polymerase	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
5X Herculase II Reaction Buffer	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
100 mM dNTP Mix (25 mM each dNTP)	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

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

#### Methods for cleaning up

: Custom CRISPR Guide Library (UnAmplified)	Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.
DMSO	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. 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	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.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO	Put on appropriate personal protective equipment (see Section 8). Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.
	Herculase II Fusion DNA Polymerase	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	5X Herculase II Reaction Buffer	Put on appropriate personal protective equipment (see Section 8).
	100 mM dNTP Mix (25 mM each dNTP)	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	: 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.
	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.
	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

## Section 7. Handling and storage

	<p>100 mM dNTP Mix (25 mM each dNTP)</p>	<p>for additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
<p><b>7.2 Conditions for safe storage, including any incompatibilities</b></p>	<p>: Custom CRISPR Guide Library (UnAmplified)</p> <p>DMSO</p> <p>Herculase II Fusion DNA Polymerase</p> <p>5X Herculase II Reaction Buffer</p> <p>100 mM dNTP Mix (25 mM each dNTP)</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>Storage temperature: -20°C (-4°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>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</p>

## Section 7. Handling and storage

to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

<b>Recommendations</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications. Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>DMSO</b> Dimethyl sulfoxide	<b>AIHA WEEL (United States, 10/2011).</b> TWA: 250 ppm 8 hours.
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 2/2013).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust
<b>5X Herculase II Reaction Buffer</b> Trometamol Ammonium sulphate	None. None.
<b>100 mM dNTP Mix (25 mM each dNTP)</b> 2'-Deoxyadenosine 5'-(tetrahydrogen triphosphate) 2'-Deoxyguanosine 5'-(tetrahydrogen triphosphate)	None. None.

### 8.2 Exposure controls

<b>Appropriate engineering controls</b>	: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
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## Section 8. Exposure controls/personal protection

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

### Individual protection measures

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

**Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

### Skin protection

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

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

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

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

## Section 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: Custom CRISPR Guide Library (UnAmplified)	Solid.
	DMSO	Liquid. [Clear.]
	Herculase II Fusion DNA Polymerase	Liquid.
	5X Herculase II Reaction Buffer	Liquid.
	100 mM dNTP Mix (25 mM each dNTP)	Liquid.
<b>Color</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	Colorless.
	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

<b>Odor</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	Odorless. [Slight]
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Odor threshold</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	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.
<b>pH</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	Not available.
	Herculase II Fusion DNA Polymerase	8.2
	5X Herculase II Reaction Buffer	10
	100 mM dNTP Mix (25 mM each dNTP)	7.5
<b>Melting point</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	18.5°C (65.3°F)
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Boiling point</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	189°C (372.2°F)
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Flash point</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	Open cup: 87°C (188.6°F)
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Evaporation rate</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	0.026 (butyl acetate = 1)
	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

<b>Flammability (solid, gas)</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not available. Not applicable. Not applicable. Not applicable. Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not available. Lower: 2.6% Upper: 28.5% Not available. Not available. Not available.
<b>Vapor pressure</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not available. 0.056 kPa (0.42 mm Hg) [room temperature] Not available. Not available. Not available.
<b>Vapor density</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not available. 2.7 [Air = 1] Not available. Not available. Not available.
<b>Relative density</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	Not available. 1.1 Not available. Not available. Not available.
<b>Solubility</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.

## Section 9. Physical and chemical properties

<b>Partition coefficient: n-octanol/water</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	-1.35
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Auto-ignition temperature</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	300 to 302°C (572 to 575.6°F)
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Decomposition temperature</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	140 to 189°C (284 to 372.2°F)
	Herculase II Fusion DNA Polymerase	Not available.
	5X Herculase II Reaction Buffer	Not available.
	100 mM dNTP Mix (25 mM each dNTP)	Not available.
<b>Viscosity</b>	: Custom CRISPR Guide Library (UnAmplified)	Not available.
	DMSO	Dynamic (room temperature): 2.14 mPa·s (2.14 cP)
	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 10. Stability and reactivity

<b>10.1 Reactivity</b>	: Custom CRISPR Guide Library (UnAmplified)	No specific test data related to reactivity available for this product or its ingredients.
	DMSO	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.
<b>10.2 Chemical stability</b>	: Custom CRISPR Guide Library (UnAmplified)	The product is stable.
	DMSO	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.

## Section 10. Stability and reactivity

<b>10.3 Possibility of hazardous reactions</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	No specific data.  Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas. No specific data.  No specific data. No specific data.
<b>10.5 Incompatible materials</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO  Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	May react or be incompatible with oxidizing materials. Reactive or incompatible with the following materials: oxidizing materials May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials. May react or be incompatible with oxidizing materials.
<b>10.6 Hazardous decomposition products</b>	: Custom CRISPR Guide Library (UnAmplified)  DMSO  Herculase II Fusion DNA Polymerase  5X Herculase II Reaction Buffer  100 mM dNTP Mix (25 mM each dNTP)	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>DMSO</b> Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>5X Herculase II Reaction Buffer</b> Trometamol	LD50 Dermal LD50 Oral	Rat Rat	>5000 mg/kg 5000 mg/kg	- -
Ammonium sulphate	LD50 Oral	Rat	2840 mg/kg	-

#### Irritation/Corrosion

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

#### Sensitization

Not available.

#### Mutagenicity

Not available.

#### Carcinogenicity

Not available.

#### Reproductive toxicity

Not available.

#### Teratogenicity

Not available.

## Section 11. Toxicological information

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
<b>5X Herculase II Reaction Buffer</b> Trometamol	Category 3	Not applicable.	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

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

### Potential acute health effects

#### Eye contact

Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
DMSO	Causes eye irritation.
Herculase II Fusion DNA Polymerase	Causes eye irritation.
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.

#### Inhalation

Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
DMSO	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

Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
DMSO	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.

#### Ingestion

Custom CRISPR Guide Library (UnAmplified)	No known significant effects or critical hazards.
DMSO	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

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

<b>Eye contact</b>	: Custom CRISPR Guide Library (UnAmplified)	No specific data.
	DMSO	Adverse symptoms may include the following: irritation watering redness
	Herculase II Fusion DNA Polymerase	Adverse symptoms may include the following: irritation watering redness
	5X Herculase II Reaction Buffer	No specific data.
	100 mM dNTP Mix (25 mM each dNTP)	No specific data.
<b>Inhalation</b>	: Custom CRISPR Guide Library (UnAmplified)	No specific data.
	DMSO	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.
<b>Skin contact</b>	: Custom CRISPR Guide Library (UnAmplified)	No specific data.
	DMSO	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.
<b>Ingestion</b>	: Custom CRISPR Guide Library (UnAmplified)	No specific data.
	DMSO	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.

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

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

## Section 11. Toxicological information

<b>General</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>Carcinogenicity</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>Mutagenicity</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>Teratogenicity</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>Developmental effects</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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>Fertility effects</b>	: Custom CRISPR Guide Library (UnAmplified) DMSO Herculase II Fusion DNA Polymerase 5X Herculase II Reaction Buffer 100 mM dNTP Mix (25 mM each dNTP)	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.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
5X Herculase II Reaction Buffer Oral	81042 mg/kg



## Section 11. Toxicological information

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>DMSO</b> Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 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</b> Trometamol	Acute EC50 >980 mg/l Fresh water	Daphnia	48 hours
	Acute NOEC 520 mg/l Fresh water	Daphnia	48 hours
Ammonium sulphate	Acute LC50 2.6 mg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Young	48 hours
	Acute LC50 14000 to 15000 µg/l Fresh water	Daphnia - Daphnia magna - Young	48 hours
	Acute LC50 68 µg/l Fresh water	Fish - Oncorhynchus gorbuscha - Alevin	96 hours
	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
	Chronic NOEC 143 µg/l Marine water	Fish - Salmo salar - Post-smolt	5 weeks

### 12.2 Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>5X Herculase II Reaction Buffer</b> Ammonium sulphate	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>DMSO</b> Dimethyl sulfoxide	-1.35	3.16	low
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	-1.76	-	low
<b>5X Herculase II Reaction Buffer</b> Trometamol	-1.56	-	low
Ammonium sulphate	-5.1	-	low

### 12.4 Mobility in soil

## Section 12. Ecological information

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

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

**Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

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

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

## Section 14. Transport information

### Regulatory information

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

## Section 15. Regulatory information

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

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: Not determined.  
**Clean Water Act (CWA) 311**: Edetic acid

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

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

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

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

## Section 15. Regulatory information

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

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Fire hazard  
Immediate (acute) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>DMSO</b> Dimethyl sulfoxide	100	Yes.	No.	No.	Yes.	No.
<b>Herculase II Fusion DNA Polymerase</b> Glycerol	≥50 - ≤75	No.	No.	No.	Yes.	No.
<b>5X Herculase II Reaction Buffer</b> Trometamol	≤3	Yes.	No.	No.	Yes.	No.
Ammonium sulphate	≤3	No.	No.	No.	Yes.	No.
<b>100 mM dNTP Mix (25 mM each dNTP)</b> 2'-Deoxyadenosine 5'-(tetrahydrogen triphosphate)	≤3	No.	No.	No.	Yes.	No.
2'-Deoxyguanosine 5'-(tetrahydrogen triphosphate)	≤3	No.	No.	No.	Yes.	No.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	<b>5X Herculase II Reaction Buffer</b> Ammonium sulphate	7783-20-2	≤3
<b>Supplier notification</b>	<b>5X Herculase II Reaction Buffer</b> Ammonium sulphate	7783-20-2	≤3

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

### State regulations

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

### California Prop. 65

No products were found.

### International regulations

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

## Section 15. Regulatory information

Not listed.

### [Montreal Protocol \(Annexes A, B, C, E\)](#)

Not listed.

### [Stockholm Convention on Persistent Organic Pollutants](#)

Not listed.

### [Rotterdam Convention on Prior Informed Consent \(PIC\)](#)

Not listed.

### [UNECE Aarhus Protocol on POPs and Heavy Metals](#)

Not listed.

### [Inventory list](#)

<a href="#">Australia</a>	: Not determined.
<a href="#">Canada inventory</a>	: Not determined.
<a href="#">China</a>	: Not determined.
<a href="#">Europe</a>	: Not determined.
<a href="#">Japan</a>	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
<a href="#">Malaysia</a>	: Not determined.
<a href="#">New Zealand</a>	: Not determined.
<a href="#">Philippines</a>	: Not determined.
<a href="#">Republic of Korea</a>	: Not determined.
<a href="#">Taiwan</a>	: All components are listed or exempted.
<a href="#">Turkey</a>	: Not determined.

## Section 16. Other information

### [History](#)

<a href="#">Date of issue</a>	: 09/14/2016
<a href="#">Date of previous issue</a>	: No previous validation.
<a href="#">Version</a>	: 1

✔ Indicates information that has changed from previously issued version.

### [Notice to reader](#)

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