

# SAFETY DATA SHEET



QuikChange XL Site-Directed Mutagenesis Kit, Part Number 200516

## Section 1. Identification

### 1.1 Product identifier

**Product name** : QuikChange XL Site-Directed Mutagenesis Kit, Part Number 200516

**Part no. (chemical kit)** : 200516

**Part no.** : [QuikChange XL XL-10-Gold](#) 200516-4  
[Ultracompetent Cells](#)  
[pUC 18 DNA Control Plasmid](#) 200231-42  
[XL10-Gold 2-Mercaptoethanol](#) 200314-43  
[XL10-Gold Ultracompetent cells](#) 200315-41  
[Quikchange XL Site-Directed Mutagenesis Kit](#) 200516-5  
[pWS4.5 Control Template](#) 200518-55  
[QuikSolution](#) 200516-51  
[QuikChange XL dNTP Mix](#) 200516-52  
[Control Primer 2 \(34-mer\)](#) 200518-54  
[Control Primer 1 \(34-mer\)](#) 200518-53  
[10X Reaction Buffer](#) 200518-58  
[Dpn I](#) 200518-52  
[PfuTurbo DNA Polymerase](#) 200518-57

**Validation date** : 1/30/2024

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

**Identified uses** : Analytical reagent.

<a href="#">pUC 18 DNA Control Plasmid</a>	0.01 ml (0.1 ng / µl)
<a href="#">XL10-Gold 2-Mercaptoethanol</a>	0.1 ml (2 x 50 µl)
<a href="#">XL10-Gold Ultracompetent cells</a>	1.35 ml (10 x 0.135 ml)
<a href="#">pWS4.5 Control Template</a>	0.01 ml (50 ng 5 ng/ µl)
<a href="#">QuikSolution</a>	0.5 ml
<a href="#">QuikChange XL dNTP Mix</a>	0.03 ml (30 µl)
<a href="#">Control Primer 2 (34-mer)</a>	0.0075 ml (750 ng 100 ng/ µl)
<a href="#">Control Primer 1 (34-mer)</a>	0.0075 ml (750 ng 100 ng/ µl)
<a href="#">10X Reaction Buffer</a>	0.5 ml
<a href="#">Dpn I</a>	0.03 ml (10 U/µl 300 U)
<a href="#">PfuTurbo DNA Polymerase</a>	0.032 ml (80 U 2.5 U/µl)

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

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

### 1.4 Emergency telephone number

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

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

<b>OSHA/HCS status</b>	: pUC 18 DNA Control Plasmid	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.
	XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). 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.
	QuikSolution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	QuikChange XL dNTP Mix	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
	Control Primer 2 (34-mer)	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.
	Control Primer 1 (34-mer)	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.
	10X Reaction Buffer	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	Dpn I	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	PfuTurbo DNA Polymerase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

### Classification of the substance or mixture

#### **XL10-Gold 2-Mercaptoethanol**

H318	SERIOUS EYE DAMAGE - Category 1
H317	SKIN SENSITIZATION - Category 1
H361	TOXIC TO REPRODUCTION - Category 2
H373	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
H412	AQUATIC HAZARD (LONG-TERM) - Category 3

#### **XL10-Gold Ultracompetent cells**

H320	EYE IRRITATION - Category 2B
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#### **QuikSolution**

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

#### **10X Reaction Buffer**

## Section 2. Hazards identification

H319 EYE IRRITATION - Category 2A  
 H412 AQUATIC HAZARD (LONG-TERM) - Category 3

**Dpn I**  
 H320 EYE IRRITATION - Category 2B

**PfuTurbo DNA Polymerase**  
 H320 EYE IRRITATION - Category 2B

XL10-Gold Ultracompetent cells Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5%

QuikChange XL dNTP Mix Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5.7%

### 2.2 GHS label elements

#### Hazard pictograms

:  XL10-Gold 2-Mercaptoethanol



10X Reaction Buffer



#### Signal word

:  pUC 18 DNA Control Plasmid No signal word.  
 XL10-Gold 2-Mercaptoethanol Danger  
 XL10-Gold Ultracompetent cells Warning  
 pWS4.5 Control Template No signal word.  
 QuikSolution Warning  
 QuikChange XL dNTP Mix No signal word.  
 Control Primer 2 (34-mer) No signal word.  
 Control Primer 1 (34-mer) No signal word.  
 10X Reaction Buffer Warning  
 Dpn I Warning  
 PfuTurbo DNA Polymerase Warning

#### Hazard statements

:  pUC 18 DNA Control Plasmid No known significant effects or critical hazards.  
 XL10-Gold 2-Mercaptoethanol H317 - May cause an allergic skin reaction.  
 H318 - Causes serious eye damage.  
 H361 - Suspected of damaging fertility or the unborn child.  
 H373 - May cause damage to organs through prolonged or repeated exposure.  
 H412 - Harmful to aquatic life with long lasting effects.

XL10-Gold Ultracompetent cells H320 - Causes eye irritation.  
 pWS4.5 Control Template No known significant effects or critical hazards.  
 QuikSolution H227 - Combustible liquid.  
 H320 - Causes eye irritation.

QuikChange XL dNTP Mix No known significant effects or critical hazards.  
 Control Primer 2 (34-mer) No known significant effects or critical hazards.  
 Control Primer 1 (34-mer) No known significant effects or critical hazards.  
 10X Reaction Buffer H319 - Causes serious eye irritation.  
 H412 - Harmful to aquatic life with long lasting effects.

Dpn I H320 - Causes eye irritation.  
 PfuTurbo DNA Polymerase H320 - Causes eye irritation.

## Section 2. Hazards identification

### Precautionary statements

#### Prevention

<p> <input type="checkbox"/> UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p>	<p>                     Not applicable.                      P201 - Obtain special instructions before use.                      P280 - Wear protective gloves, protective clothing and eye or face protection.                      P273 - Avoid release to the environment.                      P260 - Do not breathe vapor.                 </p>
<p>                     XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                 </p>	<p>                     Not applicable.                      Not applicable.                      P210 - Keep away from flames and hot surfaces.                      No smoking.                 </p>
<p>                     QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                 </p>	<p>                     Not applicable.                      Not applicable.                      Not applicable.                      P280 - Wear eye or face protection.                      P273 - Avoid release to the environment.                 </p>
<p>                     Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>                     Not applicable.                      Not applicable.                 </p>

#### Response

<p> <input type="checkbox"/> UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p>	<p>                     Not applicable.                      P308 + P313 - IF exposed or concerned: Get medical advice or attention.                      P363 - Wash contaminated clothing before reuse.                      P302 + P352 - IF ON SKIN: Wash with plenty of water.                      P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.                      P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.                 </p>
<p>                     XL10-Gold Ultracompetent cells                 </p>	<p>                     P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                      P337 + P313 - If eye irritation persists: Get medical advice or attention.                 </p>
<p>                     pWS4.5 Control Template                      QuikSolution                 </p>	<p>                     Not applicable.                      P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                      P337 + P313 - If eye irritation persists: Get medical advice or attention.                 </p>
<p>                     QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                 </p>	<p>                     Not applicable.                      Not applicable.                      Not applicable.                      P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                      P337 + P313 - If eye irritation persists: Get medical advice or attention.                 </p>
<p>                     Dpn I                 </p>	<p>                     P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.                      P337 + P313 - If eye irritation persists: Get medical advice or attention.                 </p>

## Section 2. Hazards identification

	PfuTurbo DNA Polymerase	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.
<b>Storage</b>	<p>: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution</p> <p>QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase</p>	<p>Not applicable. Not applicable. Not applicable. Not applicable. P403 + P235 - Store in a well-ventilated place. Keep cool. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.</p>
<b>Disposal</b>	<p>: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol</p> <p>XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution</p> <p>QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer</p> <p>Dpn I PfuTurbo DNA Polymerase</p>	<p>Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable.</p>
<b>Supplemental label elements</b>	<p>: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase</p>	<p>None known. None known. None known. None known. None known. None known. None known. None known. None known. None known. None known.</p>
<b>2.3 Other hazards</b>		
<b>Hazards not otherwise classified</b>	<p>: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase</p>	<p>None known. None known. None known. None known. None known. None known. None known. None known. None known. None known. None known.</p>

### Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: pUC 18 DNA Control Plasmid	Mixture
	XL10-Gold 2-Mercaptoethanol	Mixture
	XL10-Gold Ultracompetent cells	Mixture
	pWS4.5 Control Template	Mixture
	QuikSolution	Substance
	QuikChange XL dNTP Mix	Mixture
	Control Primer 2 (34-mer)	Mixture
	Control Primer 1 (34-mer)	Mixture
	10X Reaction Buffer	Mixture
	Dpn I	Mixture
	PfuTurbo DNA Polymerase	Mixture

Ingredient name	%	CAS number
<b>XL10-Gold 2-Mercaptoethanol</b>		
2-Mercaptoethanol	≤5	60-24-2
<b>XL10-Gold Ultracompetent cells</b>		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
<b>QuikSolution</b>		
Dimethyl sulfoxide	100	67-68-5
<b>10X Reaction Buffer</b>		
Polyoxyethylene octyl phenyl ether	<2.5	9002-93-1
<b>Dpn I</b>		
Glycerol	≥50 - ≤75	56-81-5
<b>PfuTurbo DNA Polymerase</b>		
Glycerol	≥50 - ≤75	56-81-5
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	<0.25	9036-19-5

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 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

#### Eye contact

: pUC 18 DNA Control Plasmid	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.
XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. 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. Chemical burns must be treated promptly by a physician.
XL10-Gold Ultracompetent cells	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.
pWS4.5 Control Template	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.
QuikSolution	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.
QuikChange XL dNTP Mix	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X Reaction Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Dpn I	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.
PfuTurbo 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.

## Section 4. First aid measures

<b>Inhalation</b>	:	pUC 18 DNA Control Plasmid	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. 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. 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.
		XL10-Gold Ultracompetent cells	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.
		pWS4.5 Control Template	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		QuikSolution	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.
		QuikChange XL dNTP Mix	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		Control Primer 2 (34-mer)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		Control Primer 1 (34-mer)	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
		10X Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not



## Section 4. First aid measures

breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Dpn I

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.

PfuTurbo 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.

### Skin contact

: pUC 18 DNA Control Plasmid

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

XL10-Gold 2-Mercaptoethanol

Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

XL10-Gold Ultracompetent cells

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.

pWS4.5 Control Template

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

QuikSolution

Flush contaminated skin with plenty of water.

## Section 4. First aid measures

		Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	QuikChange XL dNTP Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Control Primer 2 (34-mer)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Control Primer 1 (34-mer)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10X Reaction Buffer	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Dpn I	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.
	PfuTurbo 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.
<b>Ingestion</b>	: pUC 18 DNA Control Plasmid	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.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. 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.
	XL10-Gold Ultracompetent cells	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious,

## Section 4. First aid measures

pWS4.5 Control Template	place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
QuikSolution	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
QuikChange XL dNTP Mix	Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X Reaction Buffer	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Dpn I	Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce

## Section 4. First aid measures

### PfuTurbo DNA Polymerase

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

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

#### Potential acute health effects

<b>Eye contact</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. Causes serious eye damage. Causes eye irritation. No known significant effects or critical hazards. Causes eye irritation. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Causes serious eye irritation. Causes eye irritation. Causes eye irritation.
<b>Inhalation</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I	No known significant effects or critical hazards. May cause an allergic skin reaction. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

## Section 4. First aid measures

### Ingestion

PfuTurbo DNA Polymerase : pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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### Over-exposure signs/symptoms

#### Eye contact

: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol  XL10-Gold Ultracompetent cells  pWS4.5 Control Template QuikSolution  QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer  Dpn I  PfuTurbo DNA Polymerase	No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: irritation watering redness No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness
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#### Inhalation

: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol  XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No specific data. Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.
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## Section 4. First aid measures

<b>Skin contact</b>	: pUC 18 DNA Control Plasmid	No specific data.
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
	XL10-Gold Ultracompetent cells	No specific data.
	pWS4.5 Control Template	No specific data.
	QuikSolution	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	10X Reaction Buffer	No specific data.
	Dpn I	No specific data.
	PfuTurbo DNA Polymerase	No specific data.
<b>Ingestion</b>	: pUC 18 DNA Control Plasmid	No specific data.
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
	XL10-Gold Ultracompetent cells	No specific data.
	pWS4.5 Control Template	No specific data.
	QuikSolution	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	10X Reaction Buffer	No specific data.
	Dpn I	No specific data.
	PfuTurbo DNA Polymerase	No specific data.

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

<b>Notes to physician</b>	: pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL10-Gold 2-Mercaptoethanol	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	XL10-Gold Ultracompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	pWS4.5 Control Template	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	QuikSolution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	QuikChange XL dNTP Mix	In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
	Control Primer 2 (34-mer)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	Control Primer 1 (34-mer)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## Section 4. First aid measures

	10X 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.
	Dpn I	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	PfuTurbo DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	<ul style="list-style-type: none"> <li>: pUC 18 DNA Control Plasmid</li> <li>XL10-Gold 2-Mercaptoethanol</li> <li>XL10-Gold Ultracompetent cells</li> <li>pWS4.5 Control Template</li> <li>QuikSolution</li> <li>QuikChange XL dNTP Mix</li> <li>Control Primer 2 (34-mer)</li> <li>Control Primer 1 (34-mer)</li> <li>10X Reaction Buffer</li> <li>Dpn I</li> <li>PfuTurbo DNA Polymerase</li> </ul>	<p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p> <p>No specific treatment.</p>
<b>Protection of first-aiders</b>	<ul style="list-style-type: none"> <li>: pUC 18 DNA Control Plasmid</li> <li>XL10-Gold 2-Mercaptoethanol</li> <li>XL10-Gold Ultracompetent cells</li> <li>pWS4.5 Control Template</li> <li>QuikSolution</li> <li>QuikChange XL dNTP Mix</li> <li>Control Primer 2 (34-mer)</li> <li>Control Primer 1 (34-mer)</li> <li>10X Reaction Buffer</li> <li>Dpn I</li> <li>PfuTurbo DNA Polymerase</li> </ul>	<p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.</p> <p>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.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>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.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>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.</p> <p>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.</p> <p>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.</p>

## Section 4. First aid measures

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media


<b>Suitable extinguishing media</b>	: pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
	XL10-Gold 2-Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.
	XL10-Gold Ultracompetent cells	Use an extinguishing agent suitable for the surrounding fire.
	pWS4.5 Control Template	Use an extinguishing agent suitable for the surrounding fire.
	QuikSolution	Use dry chemical, CO <sub>2</sub> , water spray (fog) or foam.
	QuikChange XL dNTP Mix	Use an extinguishing agent suitable for the surrounding fire.
	Control Primer 2 (34-mer)	Use an extinguishing agent suitable for the surrounding fire.
	Control Primer 1 (34-mer)	Use an extinguishing agent suitable for the surrounding fire.
	10X Reaction Buffer	Use an extinguishing agent suitable for the surrounding fire.
	Dpn I	Use an extinguishing agent suitable for the surrounding fire.
PfuTurbo DNA Polymerase	Use an extinguishing agent suitable for the surrounding fire.	
<b>Unsuitable extinguishing media</b>	: pUC 18 DNA Control Plasmid	None known.
	XL10-Gold 2-Mercaptoethanol	None known.
	XL10-Gold Ultracompetent cells	None known.
	pWS4.5 Control Template	None known.
	QuikSolution	Do not use water jet.
	QuikChange XL dNTP Mix	None known.
	Control Primer 2 (34-mer)	None known.
	Control Primer 1 (34-mer)	None known.
	10X Reaction Buffer	None known.
	Dpn I	None known.
PfuTurbo DNA Polymerase	None known.	

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

<b>Specific hazards arising from the chemical</b>	: pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
	XL10-Gold 2-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	XL10-Gold Ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
	pWS4.5 Control Template	In a fire or if heated, a pressure increase will occur and the container may burst.
	QuikSolution	Combustible liquid. 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, 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



## Section 5. Fire-fighting measures

	QuikChange XL dNTP Mix	a source of ignition and flash back. In a fire or if heated, a pressure increase will occur and the container may burst.
	Control Primer 2 (34-mer)	In a fire or if heated, a pressure increase will occur and the container may burst.
	Control Primer 1 (34-mer)	In a fire or if heated, a pressure increase will occur and the container may burst.
	10X Reaction Buffer	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
	Dpn I	In a fire or if heated, a pressure increase will occur and the container may burst.
	PfuTurbo DNA Polymerase	In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	 pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides
	XL10-Gold Ultracompetent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides
	pWS4.5 Control Template QuikSolution	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	QuikChange XL dNTP Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
	Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer	No specific data. No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds
	Dpn I	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
	PfuTurbo DNA Polymerase	Decomposition products may include the following

## Section 5. Fire-fighting measures

materials:  
carbon dioxide  
carbon monoxide

### 5.3 Advice for firefighters

#### Special protective actions for fire-fighters

: pUC 18 DNA Control Plasmid	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.
XL10-Gold 2-Mercaptoethanol	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.
XL10-Gold Ultracompetent cells	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.
pWS4.5 Control Template	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.
QuikSolution	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.
QuikChange XL dNTP Mix	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X 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.
Dpn I	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.
PfuTurbo 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.

#### Special protective equipment for fire-fighters

: pUC 18 DNA Control Plasmid	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
XL10-Gold 2-Mercaptoethanol	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

## Section 5. Fire-fighting measures

XL10-Gold Ultracompetent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
pWS4.5 Control Template	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
QuikSolution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
QuikChange XL dNTP Mix	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Control Primer 2 (34-mer)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Control Primer 1 (34-mer)	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
10X 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.
Dpn I	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
PfuTurbo 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.

## Section 6. Accidental release measures

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

**For non-emergency personnel**

: pUC 18 DNA Control Plasmid

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.

XL10-Gold 2-Mercaptoethanol

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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

XL10-Gold Ultracompetent cells

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

## Section 6. Accidental release measures

pWS4.5 Control Template	breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
QuikSolution	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.
QuikChange XL dNTP Mix	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X 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. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
Dpn I	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.
PfuTurbo 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

## Section 6. Accidental release measures

		<p>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.</p>
<p><b>For emergency responders :</b></p> <ul style="list-style-type: none"> <li>• pUC 18 DNA Control Plasmid</li> <li>• XL10-Gold 2-Mercaptoethanol</li> <li>• XL10-Gold Ultracompetent cells</li> <li>• pWS4.5 Control Template</li> <li>• QuikSolution</li> <li>• QuikChange XL dNTP Mix</li> <li>• Control Primer 2 (34-mer)</li> <li>• Control Primer 1 (34-mer)</li> <li>• 10X Reaction Buffer</li> <li>• Dpn I</li> <li>• PfuTurbo DNA Polymerase</li> </ul>		<p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p> <p>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".</p>
<p><b>6.2 Environmental precautions</b></p>	<ul style="list-style-type: none"> <li>• pUC 18 DNA Control Plasmid</li> <li>• XL10-Gold 2-Mercaptoethanol</li> </ul>	<p>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).</p> <p>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). Water polluting material.</p>

## Section 6. Accidental release measures

	May be harmful to the environment if released in large quantities.
XL10-Gold Ultracompetent cells	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).
pWS4.5 Control Template	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).
QuikSolution	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).
QuikChange XL dNTP Mix	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Control Primer 2 (34-mer)	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).
Control Primer 1 (34-mer)	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).
10X 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). Water polluting material. May be harmful to the environment if released in large quantities.
Dpn I	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).
PfuTurbo 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).

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

Methods for cleaning up : pUC 18 DNA Control Plasmid

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.

XL10-Gold 2-Mercaptoethanol

Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.


## Section 6. Accidental release measures

	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.
XL10-Gold Ultracompetent cells	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.
pWS4.5 Control Template	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.
QuikSolution	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.
QuikChange XL dNTP Mix	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X 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.
Dpn I	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.
PfuTurbo 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.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling


#### Protective measures

<p>  UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p>	<p>                     Put on appropriate personal protective equipment (see Section 8).                      Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.                 </p>
<p>XL10-Gold Ultracompetent cells</p>	<p>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.</p>
<p>pWS4.5 Control Template</p>	<p>Put on appropriate personal protective equipment (see Section 8).</p>
<p>QuikSolution</p>	<p>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.</p>
<p>QuikChange XL dNTP Mix</p>	<p>Put on appropriate personal protective equipment (see Section 8).</p>
<p>Control Primer 2 (34-mer)</p>	<p>Put on appropriate personal protective equipment (see Section 8).</p>
<p>Control Primer 1 (34-mer)</p>	<p>Put on appropriate personal protective equipment (see Section 8).</p>
<p>10X Reaction Buffer</p>	<p>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not</p>



## Section 7. Handling and storage

### Advice on general occupational hygiene

Dpn I	reuse container. 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.
PfuTurbo 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.
:  pUC 18 DNA Control Plasmid	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.
XL10-Gold 2-Mercaptoethanol	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.
XL10-Gold Ultracompetent cells	Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
pWS4.5 Control Template	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.
QuikSolution	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.
QuikChange XL dNTP Mix	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

## Section 7. Handling and storage

Control Primer 2 (34-mer)	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.
Control Primer 1 (34-mer)	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.
10X 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.
Dpn I	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.
PfuTurbo 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.

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

: pUC 18 DNA Control Plasmid	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
XL10-Gold 2-Mercaptoethanol	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. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
XL10-Gold Ultracompetent cells	Store in accordance with local regulations. Store in

## Section 7. Handling and storage

pWS4.5 Control Template	<p>original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.</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. See Section 10 for incompatible materials before handling or use.</p>
QuikSolution	<p>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. See Section 10 for incompatible materials before handling or use.</p>
QuikChange XL dNTP Mix	<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. See Section 10 for incompatible materials before handling or use.</p>
Control Primer 2 (34-mer)	<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. See Section 10 for incompatible materials before handling or use.</p>
Control Primer 1 (34-mer)	<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</p>

## Section 7. Handling and storage

10X Reaction Buffer

incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

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

Dpn I

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

PfuTurbo 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

### 7.3 Specific end use(s)

#### Recommendations

<ul style="list-style-type: none"> <li>• pUC 18 DNA Control Plasmid</li> <li>XL10-Gold 2-Mercaptoethanol</li> <li>XL10-Gold Ultracompetent cells</li> <li>pWS4.5 Control Template</li> <li>QuikSolution</li> <li>QuikChange XL dNTP Mix</li> <li>Control Primer 2 (34-mer)</li> <li>Control Primer 1 (34-mer)</li> <li>10X Reaction Buffer</li> <li>Dpn I</li> <li>PfuTurbo DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> <li>Industrial applications, Professional applications.</li> </ul>
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## Section 7. Handling and storage

<b>Industrial sector specific solutions</b>	pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available. Not available.
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## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
<b>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	<b>OARS WEEL (United States, 4/2022).</b> Absorbed through skin. TWA: 0.2 ppm 8 hours.
<b>XL10-Gold Ultracompetent cells</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, 5/2018).</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>CAL OSHA PEL (United States, 5/2018).</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
Dimethyl sulfoxide	<b>OARS WEEL (United States, 4/2022).</b> TWA: 250 ppm 8 hours.
Potassium chloride	None.
<b>QuikSolution</b> Dimethyl sulfoxide	<b>OARS WEEL (United States, 4/2022).</b> TWA: 250 ppm 8 hours.
<b>10X Reaction Buffer</b> Polyoxyethylene octyl phenyl ether	None.
<b>Dpn I</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, 5/2018).</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>CAL OSHA PEL (United States, 5/2018).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: respirable fraction



## Section 8. Exposure controls/personal protection

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

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

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

### Appearance

**Physical state** :

pUC 18 DNA Control Plasmid	Liquid.
XL10-Gold 2-Mercaptoethanol	Liquid.
XL10-Gold Ultracompetent cells	Liquid.
pWS4.5 Control Template	Liquid.
QuikSolution	Liquid. [Clear.]
QuikChange XL dNTP Mix	Liquid.
Control Primer 2 (34-mer)	Liquid.
Control Primer 1 (34-mer)	Liquid.
10X Reaction Buffer	Liquid.
Dpn I	Liquid.
PfuTurbo DNA Polymerase	Liquid.

**Color** :

pUC 18 DNA Control Plasmid	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
XL10-Gold Ultracompetent cells	Not available.
pWS4.5 Control Template	Not available.
QuikSolution	Colorless.
QuikChange XL dNTP Mix	Not available.
Control Primer 2 (34-mer)	Not available.
Control Primer 1 (34-mer)	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
PfuTurbo DNA Polymerase	Not available.

**Odor** :

pUC 18 DNA Control Plasmid	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
XL10-Gold Ultracompetent cells	Not available.
pWS4.5 Control Template	Not available.
QuikSolution	Slight [Slight]
QuikChange XL dNTP Mix	Not available.
Control Primer 2 (34-mer)	Not available.
Control Primer 1 (34-mer)	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
PfuTurbo DNA Polymerase	Not available.

**Odor threshold** :

pUC 18 DNA Control Plasmid	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
XL10-Gold Ultracompetent cells	Not available.
pWS4.5 Control Template	Not available.
QuikSolution	Not available.
QuikChange XL dNTP Mix	Not available.
Control Primer 2 (34-mer)	Not available.
Control Primer 1 (34-mer)	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
PfuTurbo DNA Polymerase	Not available.

**pH** :

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

		pUC 18 DNA Control Plasmid	7.5
		XL10-Gold 2-Mercaptoethanol	Not available.
		XL10-Gold Ultracompetent cells	6.4
		pWS4.5 Control Template	7.5
		QuikSolution	Not available.
		QuikChange XL dNTP Mix	7.5
		Control Primer 2 (34-mer)	7.5
		Control Primer 1 (34-mer)	7.5
		10X Reaction Buffer	8.8
		Dpn I	Not available.
		PfuTurbo DNA Polymerase	Not available.
<b>Melting point/freezing point</b>	:	pUC 18 DNA Control Plasmid	0°C (32°F)
		XL10-Gold 2-Mercaptoethanol	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		pWS4.5 Control Template	0°C (32°F)
		QuikSolution	18.4°C (65.1°F)
		QuikChange XL dNTP Mix	Not available.
		Control Primer 2 (34-mer)	0°C (32°F)
		Control Primer 1 (34-mer)	0°C (32°F)
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		PfuTurbo DNA Polymerase	Not available.
<b>Boiling point, initial boiling point, and boiling range</b>	:	pUC 18 DNA Control Plasmid	100°C (212°F)
		XL10-Gold 2-Mercaptoethanol	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		pWS4.5 Control Template	100°C (212°F)
		QuikSolution	188.8°C (371.8°F)
		QuikChange XL dNTP Mix	Not available.
		Control Primer 2 (34-mer)	100°C (212°F)
		Control Primer 1 (34-mer)	100°C (212°F)
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		PfuTurbo DNA Polymerase	Not available.
<b>Flash point</b>	:	pUC 18 DNA Control Plasmid	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		pWS4.5 Control Template	Not available.
		QuikSolution	Closed cup: 85°C (185°F) [ASTM D 93] Open cup: 87°C (188.6°F)
		QuikChange XL dNTP Mix	Not available.
		Control Primer 2 (34-mer)	Not available.
		Control Primer 1 (34-mer)	Not available.
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		PfuTurbo DNA Polymerase	Not available.

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
<b>XL10-Gold 2-Mercaptoethanol</b>						
2-Mercaptoethanol	74	165.2	-	74	165.2	-
<b>XL10-Gold Ultracompetent cells</b>						
Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6	-



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

Glycerol	-	-	-	177	350.6	-
<b>10X Reaction Buffer</b>						
Polyoxyethylene octyl phenyl ether	>109.85	>229.7	-	-	-	-
<b>Dpn I</b>						
Glycerol	-	-	-	177	350.6	-
<b>PfuTurbo DNA Polymerase</b>						
Glycerol	-	-	-	177	350.6	-

**Evaporation rate** :  pUC 18 DNA Control Plasmid Not available.  
 XL10-Gold 2-Mercaptoethanol Not available.  
 XL10-Gold Ultracompetent cells Not available.  
 pWS4.5 Control Template Not available.  
 QuikSolution 0.026 (butyl acetate = 1)  
 QuikChange XL dNTP Mix Not available.  
 Control Primer 2 (34-mer) Not available.  
 Control Primer 1 (34-mer) Not available.  
 10X Reaction Buffer Not available.  
 Dpn I Not available.  
 PfuTurbo DNA Polymerase Not available.

**Flammability** :  pUC 18 DNA Control Plasmid Not applicable.  
 XL10-Gold 2-Mercaptoethanol Not applicable.  
 XL10-Gold Ultracompetent cells Not applicable.  
 pWS4.5 Control Template Not applicable.  
 QuikSolution Not applicable.  
 QuikChange XL dNTP Mix Not applicable.  
 Control Primer 2 (34-mer) Not applicable.  
 Control Primer 1 (34-mer) Not applicable.  
 10X Reaction Buffer Not applicable.  
 Dpn I Not applicable.  
 PfuTurbo DNA Polymerase Not applicable.

**Lower and upper explosion limit/flammability limit** :  pUC 18 DNA Control Plasmid Not available.  
 XL10-Gold 2-Mercaptoethanol Not available.  
 XL10-Gold Ultracompetent cells Not available.  
 pWS4.5 Control Template Not available.  
 QuikSolution Lower: 2.6%  
Upper: 42%  
 QuikChange XL dNTP Mix Not available.  
 Control Primer 2 (34-mer) Not available.  
 Control Primer 1 (34-mer) Not available.  
 10X Reaction Buffer Not available.  
 Dpn I Not available.  
 PfuTurbo DNA Polymerase Not available.

**Vapor pressure** :  QuikSolution 0.056 kPa (0.42 mm Hg) [EU A.4]

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

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
<b>pUC 18 DNA Control Plasmid</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>XL10-Gold 2-Mercaptoethanol</b>						
water	17.5	2.3	-	92.258	12.3	-
2-Mercaptoethanol	0.97508	0.13	-	-	-	-
<b>XL10-Gold Ultracompetent cells</b>						
water	17.5	2.3	-	92.258	12.3	-
Dimethyl sulfoxide	0.42	0.056	EU A.4	-	-	-
<b>pWS4.5 Control Template</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>QuikChange XL dNTP Mix</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>Control Primer 2 (34-mer)</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>Control Primer 1 (34-mer)</b>						
water	17.5	2.3	-	92.258	12.3	-
<b>10X Reaction Buffer</b>						
water	17.5	2.3	-	92.258	12.3	-
Polyoxyethylene octyl phenyl ether	0.997581	0.13	-	-	-	-
<b>Dpn I</b>						

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

water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-
<b>PfuTurbo DNA Polymerase</b>						
water	17.5	2.3	-	92.258	12.3	-
Glycerol	0.000075	0.00001	-	0.0025	0.00033	-

**Relative vapor density** :

<ul style="list-style-type: none"> <li>☑ pUC 18 DNA Control Plasmid</li> <li>XL10-Gold 2-Mercaptoethanol</li> <li>XL10-Gold Ultracompetent cells</li> <li>pWS4.5 Control Template</li> <li>QuikSolution</li> <li>QuikChange XL dNTP Mix</li> <li>Control Primer 2 (34-mer)</li> <li>Control Primer 1 (34-mer)</li> <li>10X Reaction Buffer</li> <li>Dpn I</li> <li>PfuTurbo DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>2.71 [Air = 1]</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> </ul>
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**Relative density** :

<ul style="list-style-type: none"> <li>☑ pUC 18 DNA Control Plasmid</li> <li>XL10-Gold 2-Mercaptoethanol</li> <li>XL10-Gold Ultracompetent cells</li> <li>pWS4.5 Control Template</li> <li>QuikSolution</li> <li>QuikChange XL dNTP Mix</li> <li>Control Primer 2 (34-mer)</li> <li>Control Primer 1 (34-mer)</li> <li>10X Reaction Buffer</li> <li>Dpn I</li> <li>PfuTurbo DNA Polymerase</li> </ul>	<ul style="list-style-type: none"> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>1.1</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> <li>Not available.</li> </ul>
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**Solubility(ies)** :

Media	Result
☑ pUC 18 DNA Control Plasmid	
water	Soluble
XL10-Gold 2-Mercaptoethanol	
water	Soluble
XL10-Gold Ultracompetent cells	
water	Soluble
pWS4.5 Control Template	
water	Soluble
QuikSolution	
water	Soluble
QuikChange XL dNTP Mix	
water	Soluble
Control Primer 2 (34-mer)	
water	Soluble
Control Primer 1 (34-mer)	
water	Soluble
10X Reaction Buffer	
water	Soluble
Dpn I	
water	Soluble
PfuTurbo DNA Polymerase	
water	Soluble

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

**Partition coefficient: n-octanol/water** :

- ✓ pUC 18 DNA Control Plasmid Not applicable.
- XL10-Gold 2-Mercaptoethanol Not applicable.
- XL10-Gold Ultracompetent cells Not applicable.
- pWS4.5 Control Template Not applicable.
- QuikSolution -2.029
- QuikChange XL dNTP Mix Not applicable.
- Control Primer 2 (34-mer) Not applicable.
- Control Primer 1 (34-mer) Not applicable.
- 10X Reaction Buffer Not applicable.
- Dpn I Not applicable.
- PfuTurbo DNA Polymerase Not applicable.

**Auto-ignition temperature** : ✓ QuikSolution 300 to 302°C (572 to 575.6°F)

Ingredient name	°C	°F	Method
<b>XL10-Gold 2-Mercaptoethanol</b>			
2-Mercaptoethanol	295	563	-
<b>XL10-Gold Ultracompetent cells</b>			
Dimethyl sulfoxide	300 to 302	572 to 575.6	-
Glycerol	370	698	-
<b>Dpn I</b>			
Glycerol	370	698	-
<b>PfuTurbo DNA Polymerase</b>			
Glycerol	370	698	-

**Decomposition temperature** :

- ✓ pUC 18 DNA Control Plasmid Not available.
- XL10-Gold 2-Mercaptoethanol Not available.
- XL10-Gold Ultracompetent cells Not available.
- pWS4.5 Control Template Not available.
- QuikSolution 140 to 189°C (284 to 372.2°F)
- QuikChange XL dNTP Mix Not available.
- Control Primer 2 (34-mer) Not available.
- Control Primer 1 (34-mer) Not available.
- 10X Reaction Buffer Not available.
- Dpn I Not available.
- PfuTurbo DNA Polymerase Not available.

**Viscosity** :

- ✓ pUC 18 DNA Control Plasmid Not available.
- XL10-Gold 2-Mercaptoethanol Not available.
- XL10-Gold Ultracompetent cells Not available.
- pWS4.5 Control Template Not available.
- QuikSolution Dynamic: 2.14 mPa·s (2.14 cP)
- QuikChange XL dNTP Mix Not available.
- Control Primer 2 (34-mer) Not available.
- Control Primer 1 (34-mer) Not available.
- 10X Reaction Buffer Not available.
- Dpn I Not available.
- PfuTurbo DNA Polymerase Not available.

**Particle characteristics**

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

<b>Median particle size</b>	: pUC 18 DNA Control Plasmid	Not applicable.
	XL10-Gold 2-Mercaptoethanol	Not applicable.
	XL10-Gold Ultracompetent cells	Not applicable.
	pWS4.5 Control Template	Not applicable.
	QuikSolution	Not applicable.
	QuikChange XL dNTP Mix	Not applicable.
	Control Primer 2 (34-mer)	Not applicable.
	Control Primer 1 (34-mer)	Not applicable.
	10X Reaction Buffer	Not applicable.
	Dpn I	Not applicable.
	PfuTurbo DNA Polymerase	Not applicable.



## Section 10. Stability and reactivity

<b>10.1 Reactivity</b>	: pUC 18 DNA Control Plasmid	No specific test data related to reactivity available for this product or its ingredients.
	XL10-Gold 2-Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.
	XL10-Gold Ultracompetent cells	No specific test data related to reactivity available for this product or its ingredients.
	pWS4.5 Control Template	No specific test data related to reactivity available for this product or its ingredients.
	QuikSolution	No specific test data related to reactivity available for this product or its ingredients.
	QuikChange XL dNTP Mix	No specific test data related to reactivity available for this product or its ingredients.
	Control Primer 2 (34-mer)	No specific test data related to reactivity available for this product or its ingredients.
	Control Primer 1 (34-mer)	No specific test data related to reactivity available for this product or its ingredients.
	10X Reaction Buffer	No specific test data related to reactivity available for this product or its ingredients.
	Dpn I	No specific test data related to reactivity available for this product or its ingredients.
	PfuTurbo DNA Polymerase	No specific test data related to reactivity available for this product or its ingredients.

<b>10.2 Chemical stability</b>	: pUC 18 DNA Control Plasmid	The product is stable.
	XL10-Gold 2-Mercaptoethanol	The product is stable.
	XL10-Gold Ultracompetent cells	The product is stable.
	pWS4.5 Control Template	The product is stable.
	QuikSolution	The product is stable.
	QuikChange XL dNTP Mix	The product is stable.
	Control Primer 2 (34-mer)	The product is stable.
	Control Primer 1 (34-mer)	The product is stable.
	10X Reaction Buffer	The product is stable.
	Dpn I	The product is stable.
	PfuTurbo DNA Polymerase	The product is stable.

<b>10.3 Possibility of hazardous reactions</b>	: pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL10-Gold 2-Mercaptoethanol	Under normal conditions of storage and use, hazardous reactions will not occur.
	XL10-Gold Ultracompetent cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	pWS4.5 Control Template	Under normal conditions of storage and use, hazardous reactions will not occur.
	QuikSolution	Under normal conditions of storage and use, hazardous reactions will not occur.

## Section 10. Stability and reactivity

	QuikChange XL dNTP Mix	Under normal conditions of storage and use, hazardous reactions will not occur.
	Control Primer 2 (34-mer)	Under normal conditions of storage and use, hazardous reactions will not occur.
	Control Primer 1 (34-mer)	Under normal conditions of storage and use, hazardous reactions will not occur.
	10X Reaction Buffer	Under normal conditions of storage and use, hazardous reactions will not occur.
	Dpn I	Under normal conditions of storage and use, hazardous reactions will not occur.
	PfuTurbo DNA Polymerase	Under normal conditions of storage and use, hazardous reactions will not occur.
<b>10.4 Conditions to avoid</b>	<p>  UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                      XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                 </p> <p>                     QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                      Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>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.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p> <p>No specific data.</p>
<b>10.5 Incompatible materials</b>	<p>  UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                      XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                 </p> <p>                     QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                      Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>Reactive or incompatible with the following materials: oxidizing materials</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p> <p>May react or be incompatible with oxidizing materials.</p>

## Section 10. Stability and reactivity

<b>10.6 Hazardous decomposition products</b>	: pUC 18 DNA Control Plasmid	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL10-Gold 2-Mercaptoethanol	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	XL10-Gold Ultracompetent cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	pWS4.5 Control Template	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	QuikSolution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	QuikChange XL dNTP Mix	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Control Primer 2 (34-mer)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Control Primer 1 (34-mer)	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10X Reaction Buffer	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	Dpn I	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	PfuTurbo DNA Polymerase	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>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-
<b>XL10-Gold Ultracompetent cells</b> Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
Potassium chloride	LD50 Oral	Rat	14500 mg/kg	-
	LD50 Oral	Rat	2600 mg/kg	-
<b>QuikSolution</b> Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
<b>10X Reaction Buffer</b> Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
<b>Dpn I</b>				

## Section 11. Toxicological information

Glycerol	LD50 Oral	Rat	12600 mg/kg	-
<b>PfuTurbo DNA Polymerase</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Poly(oxy-1,2-ethanediyl), . alpha.-[ (1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	LD50 Oral	Rat	2800 mg/kg	-

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>XL10-Gold</b>					
<b>2-Mercaptoethanol</b>					
2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 mg	-
<b>XL10-Gold Ultracompetent cells</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
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	-
Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
<b>QuikSolution</b>					
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	-
<b>10X Reaction Buffer</b>					
Polyoxyethylene octyl phenyl ether	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
<b>Dpn I</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
<b>PfuTurbo DNA Polymerase</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Poly(oxy-1,2-ethanediyl), . alpha.-[ (1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Eyes - Severe irritant	Rabbit	-	1 %	-

### Sensitization



## Section 11. Toxicological information

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)

Name	Category	Route of exposure	Target organs
<input checked="" type="checkbox"/> XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Category 2	-	heart, liver

### Aspiration hazard

Not available.

<b>Information on the likely routes of exposure</b>	<input checked="" type="checkbox"/> pUC 18 DNA Control Plasmid	Not available.
	XL10-Gold 2-Mercaptoethanol	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	XL10-Gold Ultracompetent cells	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	pWS4.5 Control Template	Not available.
	QuikSolution	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
	QuikChange XL dNTP Mix	Not available.
	Control Primer 2 (34-mer)	Not available.
Control Primer 1 (34-mer)	Not available.	
10X Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.	
Dpn I	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.	
PfuTurbo DNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.	

### Potential acute health effects

<b>Eye contact</b>	<input checked="" type="checkbox"/> pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
	XL10-Gold 2-Mercaptoethanol	Causes serious eye damage.
	XL10-Gold Ultracompetent cells	Causes eye irritation.
	pWS4.5 Control Template	No known significant effects or critical hazards.
	QuikSolution	Causes eye irritation.
	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	Control Primer 2 (34-mer)	No known significant effects or critical hazards.
Control Primer 1 (34-mer)	No known significant effects or critical hazards.	
10X Reaction Buffer	Causes serious eye irritation.	
Dpn I	Causes eye irritation.	
PfuTurbo DNA Polymerase	Causes eye irritation.	




## Section 11. Toxicological information

<b>Inhalation</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. May cause an allergic skin reaction. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol XL10-Gold Ultracompetent cells pWS4.5 Control Template QuikSolution QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer Dpn I PfuTurbo DNA Polymerase	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

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

<b>Eye contact</b>	: pUC 18 DNA Control Plasmid XL10-Gold 2-Mercaptoethanol  XL10-Gold Ultracompetent cells  pWS4.5 Control Template QuikSolution  QuikChange XL dNTP Mix Control Primer 2 (34-mer) Control Primer 1 (34-mer) 10X Reaction Buffer  Dpn I	No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: irritation watering redness No specific data. Adverse symptoms may include the following: irritation watering redness No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain or irritation watering redness Adverse symptoms may include the following: irritation
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## Section 11. Toxicological information

		PfuTurbo DNA Polymerase	watering redness Adverse symptoms may include the following: irritation watering redness
<b>Inhalation</b>	:	<p> UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p> <p>                     XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                      QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                      Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>No specific data. Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations</p> <p>No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.</p>
<b>Skin contact</b>	:	<p> UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p> <p>                     XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                      QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                      Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>No specific data. Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations</p> <p>No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.</p>
<b>Ingestion</b>	:	<p> UC 18 DNA Control Plasmid                      XL10-Gold 2-Mercaptoethanol                 </p> <p>                     XL10-Gold Ultracompetent cells                      pWS4.5 Control Template                      QuikSolution                      QuikChange XL dNTP Mix                      Control Primer 2 (34-mer)                      Control Primer 1 (34-mer)                      10X Reaction Buffer                      Dpn I                      PfuTurbo DNA Polymerase                 </p>	<p>No specific data. Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations</p> <p>No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data. No specific data.</p>

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

**Short term exposure**

**Potential immediate effects** : Not available.

## Section 11. Toxicological information

**Potential delayed effects** : Not available.

### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

### Potential chronic health effects

**General** : pUC 18 DNA Control Plasmid  
XL10-Gold 2-Mercaptoethanol  
No known significant effects or critical hazards. May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

XL10-Gold Ultracompetent cells  
pWS4.5 Control Template  
QuikSolution  
QuikChange XL dNTP Mix  
Control Primer 2 (34-mer)  
Control Primer 1 (34-mer)  
10X Reaction Buffer  
Dpn I  
PfuTurbo DNA Polymerase  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.

**Carcinogenicity** : pUC 18 DNA Control Plasmid  
XL10-Gold 2-Mercaptoethanol  
XL10-Gold Ultracompetent cells  
pWS4.5 Control Template  
QuikSolution  
QuikChange XL dNTP Mix  
Control Primer 2 (34-mer)  
Control Primer 1 (34-mer)  
10X Reaction Buffer  
Dpn I  
PfuTurbo DNA Polymerase  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.

**Mutagenicity** : pUC 18 DNA Control Plasmid  
XL10-Gold 2-Mercaptoethanol  
XL10-Gold Ultracompetent cells  
pWS4.5 Control Template  
QuikSolution  
QuikChange XL dNTP Mix  
Control Primer 2 (34-mer)  
Control Primer 1 (34-mer)  
10X Reaction Buffer  
Dpn I  
PfuTurbo DNA Polymerase  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.

**Reproductive toxicity** : pUC 18 DNA Control Plasmid  
XL10-Gold 2-Mercaptoethanol  
XL10-Gold Ultracompetent cells  
pWS4.5 Control Template  
QuikSolution  
QuikChange XL dNTP Mix  
Control Primer 2 (34-mer)  
Control Primer 1 (34-mer)  
10X Reaction Buffer  
Dpn I  
PfuTurbo DNA Polymerase  
No known significant effects or critical hazards.  
Suspected of damaging fertility or the unborn child.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.  
No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
<b>XL10-Gold 2-Mercaptoethanol</b> XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	4615.5 244	4545.5 200	N/A N/A	60.7 3	N/A N/A
<b>XL10-Gold Ultracompetent cells</b> XL10-Gold Ultracompetent cells Glycerol Dimethyl sulfoxide Potassium chloride	136842.1 12600 14500 2600	N/A N/A 40000 N/A	N/A N/A N/A N/A	N/A N/A N/A N/A	N/A N/A N/A N/A
<b>QuikSolution</b> Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
<b>10X Reaction Buffer</b> 10X Reaction Buffer Polyoxyethylene octyl phenyl ether	98687.3 1800	N/A N/A	N/A N/A	N/A N/A	N/A N/A
<b>Dpn I</b> Dpn I Glycerol	130435.3 12600	N/A N/A	N/A N/A	N/A N/A	N/A N/A
<b>PfuTurbo DNA Polymerase</b> Glycerol Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	12600 500	N/A N/A	N/A N/A	N/A N/A	N/A N/A

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
<b>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	Acute EC50 0.4 mg/l Fresh water	Daphnia	48 hours
<b>XL10-Gold Ultracompetent cells</b> Glycerol Dimethyl sulfoxide	Acute LC50 54000 mg/l Fresh water Acute LC50 25000 ppm Fresh water	Fish - <i>Oncorhynchus mykiss</i> Daphnia - <i>Daphnia magna</i> - Neonate	96 hours 48 hours
	Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 ul/L Marine water Chronic NOEC 100 ul/L Fresh water	Fish - <i>Pimephales promelas</i> Algae - <i>Ulva lactuca</i> Daphnia - <i>Daphnia magna</i> - Juvenile (Fledgling, Hatchling, Weanling)	96 hours 72 hours 21 days
Potassium chloride	Acute EC50 9.24 g/L Fresh water Acute EC50 1337000 µg/l Fresh water Acute LC50 9.68 mg/l Fresh water Acute LC50 93000 µg/l Fresh water Acute LC50 509.65 mg/l Fresh water	Algae - <i>Desmodesmus subspicatus</i> Algae - <i>Navicula seminulum</i> Crustaceans - <i>Pseudosida ramosa</i> - Neonate Daphnia - <i>Daphnia magna</i> Fish - <i>Danio rerio</i>	72 hours 96 hours 48 hours 48 hours 96 hours

## Section 12. Ecological information

<b>QuikSolution</b> Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - <i>Ulva lactuca</i>	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - <i>Daphnia magna</i> - Juvenile (Fledgling, Hatchling, Weanling)	21 days
<b>10X Reaction Buffer</b> Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - <i>Ceriodaphnia rigaudi</i> - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - <i>Pimephales promelas</i>	96 hours
	Chronic NOEC 0.004 mg/l Fresh water	Fish - <i>Gambusia holbrooki</i>	28 days
<b>Dpn I</b> Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
<b>PfuTurbo DNA Polymerase</b> Glycerol Poly(oxy-1,2-ethanediyl), . alpha.-[ (1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-	Acute LC50 54000 mg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours
	Acute EC50 210 µg/l Fresh water	Algae - <i>Selenastrum sp.</i>	96 hours
	Acute LC50 10800 µg/l Marine water	Crustaceans - <i>Pandalus montagui</i> - Adult	48 hours
	Acute LC50 2.518 mg/l Fresh water	Daphnia - <i>Daphnia magna</i>	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i>	96 hours

### 12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<input checked="" type="checkbox"/> <b>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO <sub>2</sub> in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-
<b>XL10-Gold Ultracompetent cells</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
<b>QuikSolution</b> Dimethyl sulfoxide	OECD 301D Ready	31 % - Not readily - 28 days	-	-

## Section 12. Ecological information

<b>Dpn I</b> Glycerol	Biodegradability - Closed Bottle Test  301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
<b>PfuTurbo DNA Polymerase</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>XL10-Gold</b> <b>2-Mercaptoethanol</b> 2-Mercaptoethanol	-	-	Not readily
<b>XL10-Gold Ultracompetent cells</b> Dimethyl sulfoxide Potassium chloride	- -	- -	Not readily Readily
<b>QuikSolution</b> Dimethyl sulfoxide	-	-	Not readily
<b>10X Reaction Buffer</b> Polyoxyethylene octyl phenyl ether	-	-	Readily

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>XL10-Gold</b> <b>2-Mercaptoethanol</b> 2-Mercaptoethanol	-0.056	-	Low
<b>XL10-Gold Ultracompetent cells</b> Glycerol Dimethyl sulfoxide Potassium chloride	-1.76 -1.35 -0.46	- 3.16 -	Low Low Low
<b>QuikSolution</b> Dimethyl sulfoxide	-2.029	3.16	Low
<b>10X Reaction Buffer</b> Polyoxyethylene octyl phenyl ether	4.86	-	High
<b>Dpn I</b> Glycerol	-1.76	-	Low
<b>PfuTurbo DNA Polymerase</b> Glycerol Poly(oxy-1,2-ethanediyl), .	-1.76 2.7	- 78.67	Low Low

## Section 12. Ecological information

alpha.-[ (1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-			
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### 12.4 Mobility in soil

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

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

## Section 13. Disposal considerations

### 13.1 Waste treatment methods

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

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

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

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

## Section 14. Transport information

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

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

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

## Section 15. Regulatory information

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

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



## Section 15. Regulatory information

**Clean Air Act Section 112** : Listed

**(b) Hazardous Air Pollutants (HAPs)**

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

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

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

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

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

#### **Classification**

QuikSolution  XL10-Gold Ultracompetent cells pUC 18 DNA Control Plasmid PfuTurbo DNA Polymerase 10X Reaction Buffer Dpn I Control Primer 1 (34-mer) Control Primer 2 (34-mer) pWS4.5 Control Template QuikChange XL dNTP Mix XL10-Gold 2-Mercaptoethanol	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B EYE IRRITATION - Category 2B Not applicable. EYE IRRITATION - Category 2B EYE IRRITATION - Category 2A EYE IRRITATION - Category 2B Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
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#### Composition/information on ingredients

Name	%	Classification
<b>XL10-Gold 2-Mercaptoethanol</b> 2-Mercaptoethanol	≤5	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
<b>XL10-Gold Ultracompetent cells</b>		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2B
<b>QuikSolution</b>		
Dimethyl sulfoxide	100	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
<b>10X Reaction Buffer</b>		
Polyoxyethylene octyl phenyl ether	<2.5	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2

## Section 15. Regulatory information

<b>Dpn I</b> Glycerol	≥50 - ≤75	SERIOUS EYE DAMAGE - Category 1  EYE IRRITATION - Category 2B
<b>PfuTurbo DNA Polymerase</b> Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2B

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	<b>10X Reaction Buffer</b> Ammonium sulphate	7783-20-2	≤3
<b>Supplier notification</b>	<b>10X 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: GLYCERIN; DIMETHYL SULFOXIDE; METHANE, SULFINYLBI-
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL
- California Prop. 65**

This product does not require a Safe Harbor warning under California Prop. 65.

### International regulations

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

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

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

Not listed.

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

Not listed.

### Inventory list

- Australia** : Not determined.
- Canada** : All components are listed or exempted.
- China** : Not determined.
- Japan** : **Japan inventory (CSCL)**: Not determined.  
**Japan inventory (ISHL)**: Not determined.
- New Zealand** : Not determined.
- Philippines** : Not determined.
- Republic of Korea** : Not determined.
- Taiwan** : All components are listed or exempted.
- Thailand** : Not determined.
- Turkey** : Not determined.

## Section 15. Regulatory information

- United States** : All components are active or exempted.  
**Viet Nam** :  All components are listed or exempted.

## Section 16. Other information

### Procedure used to derive the classification

Classification	Justification
<b><input checked="" type="checkbox"/> XL10-Gold 2-Mercaptoethanol</b> SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method
<b>XL10-Gold Ultracompetent cells</b> EYE IRRITATION - Category 2B	Calculation method
<b>QuikSolution</b> FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B	On basis of test data On basis of test data
<b>10X Reaction Buffer</b> EYE IRRITATION - Category 2A AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method
<b>Dpn I</b> EYE IRRITATION - Category 2B	Calculation method
<b>PfuTurbo DNA Polymerase</b> EYE IRRITATION - Category 2B	Calculation method

### History

- Date of issue/Date of revision** : 01/30/2024  
**Date of previous issue** : 11/29/2022  
**Version** : 8

### Key to abbreviations

- : ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 UN = United Nations

Indicates information that has changed from previously issued version.

### Notice to reader

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