Conforms to US OSHA Hazard Communication 29CFR1910.1200

SAFETY DATA SHEET

Agilent Technologies

QuikChange II XL Site-Directed Mutagenesis Kit, Part Number 200522

Section 1. Identification

1.1 Product identifier

Product name : QuikChange II XL Site-Directed Mutagenesis Kit, Part Number 200522

Part no. (chemical kit) : 200522

Part no. :

QuikSolution	200516-51
PfuUltra HF DNA Polymerase	200524-51
10X Reaction Buffer	200518-58
Dpn I	200518-52
Control Primer 1 (34-mer)	200518-53
Control Primer 2 (34-mer)	200518-54
pWS4.5 Control Template	200518-55
QuikChange XL dNTP Mix	200516-52
XL10-Gold Ultracompetent cells	200315-41
XL10-Gold 2-Mercaptoethanol	200314-43
pUC 18 DNA Control Plasmid	200231-42

Validation date : 12/16/2022

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

Identified uses : Analytical reagent.

QuikSolution	0.5 ml
PfuUltra HF DNA Polymerase	0.032 ml (80 U 2.5 U/µl)
10X Reaction Buffer	0.5 ml
Dpn I	0.03 ml (10 U/µl 300 U)
Control Primer 1 (34-mer)	0.0075 ml (750 ng 100 ng/ µl)
Control Primer 2 (34-mer)	0.0075 ml (750 ng 100 ng/ µl)
pWS4.5 Control Template	0.01 ml (50 ng 5 ng/ µl)
QuikChange XL dNTP Mix	0.03 ml
XL10-Gold Ultracompetent cells	1.35 ml (10 x 0.135 ml)
XL10-Gold 2-Mercaptoethanol	2 x 0.05 ml
pUC 18 DNA Control Plasmid	0.01 ml (0.1 ng / 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

OSHA/HCS status :

QuikSolution	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
PfuUltra HF DNA Polymerase	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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).
Control Primer 1 (34-mer)	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR

Section 2. Hazards identification

	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.
pWS4.5 Control Template	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.
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.
XL10-Gold Ultracompetent cells	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
XL10-Gold 2-Mercaptoethanol	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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.

Classification of the substance or mixture

QuikSolution

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

PfuUltra HF DNA Polymerase

H320	EYE IRRITATION - Category 2B

10X Reaction Buffer

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

Dpn I

H320	EYE IRRITATION - Category 2B

XL10-Gold Ultracompetent cells

H320	EYE IRRITATION - Category 2B

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

Section 2. Hazards identification

QuikChange XL dNTP Mix	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5.7%
XL10-Gold Ultracompetent cells	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5%

2.2 GHS label elements

Hazard pictograms :

10X Reaction Buffer

XL10-Gold 2-Mercaptoethanol

Signal word :

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

Hazard statements :

QuikSolution	H227 - Combustible liquid. H320 - Causes eye irritation.
PfuUltra HF DNA Polymerase	H320 - Causes eye irritation.
10X Reaction Buffer	H319 - Causes serious eye irritation. H412 - Harmful to aquatic life with long lasting effects.
Dpn I	H320 - Causes eye irritation.
Control Primer 1 (34-mer)	No known significant effects or critical hazards.
Control Primer 2 (34-mer)	No known significant effects or critical hazards.
pWS4.5 Control Template	No known significant effects or critical hazards.
QuikChange XL dNTP Mix	No known significant effects or critical hazards.
XL10-Gold Ultracompetent cells	H320 - Causes eye irritation.
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.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Precautionary statements

Prevention :

QuikSolution	P210 - Keep away from flames and hot surfaces. No smoking.
PfuUltra HF DNA Polymerase	Not applicable.
10X Reaction Buffer	P280 - Wear eye or face protection. P273 - Avoid release to the environment.
Dpn I	Not applicable.
Control Primer 1 (34-mer)	Not applicable.

Section 2. Hazards identification

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

Section 2. Hazards identification

Storage	:	QuikSolution	P403 + P235 - Store in a well-ventilated place. Keep cool.
		PfuUltra HF DNA Polymerase	Not applicable.
		10X Reaction Buffer	Not applicable.
		Dpn I	Not applicable.
		Control Primer 1 (34-mer)	Not applicable.
		Control Primer 2 (34-mer)	Not applicable.
		pWS4.5 Control Template	Not applicable.
		QuikChange XL dNTP Mix	Not applicable.
		XL10-Gold Ultracompetent cells	Not applicable.
		XL10-Gold 2-Mercaptoethanol	Not applicable.
		pUC 18 DNA Control Plasmid	Not applicable.
Disposal	:	QuikSolution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		PfuUltra HF DNA Polymerase	Not applicable.
		10X Reaction Buffer	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		Dpn I	Not applicable.
		Control Primer 1 (34-mer)	Not applicable.
		Control Primer 2 (34-mer)	Not applicable.
		pWS4.5 Control Template	Not applicable.
		QuikChange XL dNTP Mix	Not applicable.
		XL10-Gold Ultracompetent cells	Not applicable.
		XL10-Gold 2-Mercaptoethanol	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		pUC 18 DNA Control Plasmid	Not applicable.
Supplemental label elements	:	QuikSolution	None known.
		PfuUltra HF DNA Polymerase	None known.
		10X Reaction Buffer	None known.
		Dpn I	None known.
		Control Primer 1 (34-mer)	None known.
		Control Primer 2 (34-mer)	None known.
		pWS4.5 Control Template	None known.
		QuikChange XL dNTP Mix	None known.
		XL10-Gold Ultracompetent cells	None known.
		XL10-Gold 2-Mercaptoethanol	None known.
		pUC 18 DNA Control Plasmid	None known.

2.3 Other hazards

Hazards not otherwise classified	:	QuikSolution	None known.
		PfuUltra HF DNA Polymerase	None known.
		10X Reaction Buffer	None known.
		Dpn I	None known.
		Control Primer 1 (34-mer)	None known.
		Control Primer 2 (34-mer)	None known.
		pWS4.5 Control Template	None known.
		QuikChange XL dNTP Mix	None known.
		XL10-Gold Ultracompetent cells	None known.
		XL10-Gold 2-Mercaptoethanol	None known.
		pUC 18 DNA Control Plasmid	None known.

Section 3. Composition/information on ingredients

Substance/mixture :

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

Ingredient name	%	CAS number
QuikSolution		
Dimethyl sulfoxide	100	67-68-5
PfuUltra HF DNA Polymerase		
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
10X Reaction Buffer		
Ammonium sulphate	≤3	7783-20-2
Polyoxyethylene octyl phenyl ether	<2.5	9002-93-1
Dpn I		
Glycerol	≥50 - ≤75	56-81-5
XL10-Gold Ultracompetent cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
XL10-Gold 2-Mercaptoethanol		
2-Mercaptoethanol	≤5	60-24-2

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 :	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.
	PfuUltra HF 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.
	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.
	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.
	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.
	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.
	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.
	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.
	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.
	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.

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Inhalation	:	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.
		PfuUltra HF 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.
		10X Reaction Buffer	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.
		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.
		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.
		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.
		pWS4.5 Control Template	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical

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			attention if symptoms occur.
		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.
		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.
		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.
		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.
Skin contact	:	QuikSolution	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.
		PfuUltra HF 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.
		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.
		Control Primer 1 (34-mer)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get

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			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.
		pWS4.5 Control Template	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		QuikChange XL dNTP Mix	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
		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.
		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.
		pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	:	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.
		PfuUltra HF DNA Polymerase	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.
		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

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	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 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.
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.
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.
pWS4.5 Control Template	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.
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.
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, place in recovery position and get medical attention

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	immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
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.
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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

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

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

Over-exposure signs/symptoms

Eye contact :	QuikSolution	Adverse symptoms may include the following: irritation watering redness
	PfuUltra HF DNA Polymerase	Adverse symptoms may include the following: irritation watering redness
	10X Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness
	Dpn I	Adverse symptoms may include the following: irritation watering redness
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	pWS4.5 Control Template	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	XL10-Gold Ultracompetent cells	Adverse symptoms may include the following: irritation watering redness
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain watering redness
	pUC 18 DNA Control Plasmid	No specific data.
Inhalation :	QuikSolution	No specific data.
	PfuUltra HF DNA Polymerase	No specific data.
	10X Reaction Buffer	No specific data.
	Dpn I	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	pWS4.5 Control Template	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
	pUC 18 DNA Control Plasmid	No specific data.

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

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

Notes to physician	:	QuikSolution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		PfuUltra HF DNA Polymerase	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		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.
		Control Primer 1 (34-mer)	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Control Primer 2 (34-mer)	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.
		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

Section 4. First aid measures

		surveillance for 48 hours.
	XL10-Gold Ultracompetent cells	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.
	pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments :	QuikSolution	No specific treatment.
	PfuUltra HF DNA Polymerase	No specific treatment.
	10X Reaction Buffer	No specific treatment.
	Dpn I	No specific treatment.
	Control Primer 1 (34-mer)	No specific treatment.
	Control Primer 2 (34-mer)	No specific treatment.
	pWS4.5 Control Template	No specific treatment.
	QuikChange XL dNTP Mix	No specific treatment.
	XL10-Gold Ultracompetent cells	No specific treatment.
	XL10-Gold 2-Mercaptoethanol	No specific treatment.
	pUC 18 DNA Control Plasmid	No specific treatment.
Protection of first-aiders :	QuikSolution	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.
	PfuUltra HF DNA Polymerase	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.
	10X Reaction Buffer	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	Dpn I	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.
	Control Primer 1 (34-mer)	No action shall be taken involving any personal risk or without suitable training.
	Control Primer 2 (34-mer)	No action shall be taken involving any personal risk or without suitable training.
	pWS4.5 Control Template	No action shall be taken involving any personal risk or without suitable training.
	QuikChange XL dNTP Mix	No action shall be taken involving any personal risk or without suitable training.
	XL10-Gold Ultracompetent cells	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.
	XL10-Gold 2-Mercaptoethanol	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.
	pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	:	QuikSolution	Use dry chemical, CO_2, water spray (fog) or foam.
		PfuUltra HF DNA Polymerase	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.
		Control Primer 1 (34-mer)	Use an extinguishing agent suitable for the surrounding fire.
		Control Primer 2 (34-mer)	Use an extinguishing agent suitable for the surrounding fire.
		pWS4.5 Control Template	Use an extinguishing agent suitable for the surrounding fire.
		QuikChange XL dNTP Mix	Use an extinguishing agent suitable for the surrounding fire.
		XL10-Gold Ultracompetent cells	Use an extinguishing agent suitable for the surrounding fire.
		XL10-Gold 2-Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.
		pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	:	QuikSolution	Do not use water jet.
		PfuUltra HF DNA Polymerase	None known.
		10X Reaction Buffer	None known.
		Dpn I	None known.
		Control Primer 1 (34-mer)	None known.
		Control Primer 2 (34-mer)	None known.
		pWS4.5 Control Template	None known.
		QuikChange XL dNTP Mix	None known.
		XL10-Gold Ultracompetent cells	None known.
		XL10-Gold 2-Mercaptoethanol	None known.
		pUC 18 DNA Control Plasmid	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical	:	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 a source of ignition and flash back.
		PfuUltra HF DNA Polymerase	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.
		Control Primer 1 (34-mer)	In a fire or if heated, a pressure increase will occur

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		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.
	pWS4.5 Control Template	In a fire or if heated, a pressure increase will occur and the container may burst.
	QuikChange XL dNTP Mix	In a fire or if heated, a pressure increase will occur and the container may burst.
	XL10-Gold Ultracompetent cells	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.
	pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.
Hazardous thermal decomposition products :	QuikSolution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	PfuUltra HF DNA Polymerase	Decomposition products may include the following materials: carbon dioxide carbon monoxide
	10X Reaction Buffer	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
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	pWS4.5 Control Template	No specific data.
	QuikChange XL dNTP Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
	XL10-Gold Ultracompetent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides
	XL10-Gold 2-Mercaptoethanol	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides

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		halogenated compounds metal oxide/oxides
	pUC 18 DNA Control Plasmid	No specific data.

5.3 Advice for firefighters

Special protective actions for fire-fighters	:	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.
		PfuUltra HF 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.
		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.
		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.
		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.
		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.
		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.
		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.
		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.
		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.
Special protective equipment for fire-fighters	:	QuikSolution	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
		PfuUltra HF 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.

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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.
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.
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.
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.
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.
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.
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.
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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	:	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.
		PfuUltra HF DNA Polymerase	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
		10X Reaction Buffer	No action shall be taken involving any personal

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	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.
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.
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.
pWS4.5 Control Template	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.
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.
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 breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.
pUC 18 DNA Control Plasmid	No action shall be taken involving any personal

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		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.
For emergency responders :	QuikSolution	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".
	PfuUltra HF DNA Polymerase	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	10X Reaction Buffer	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
	Dpn I	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".
	Control Primer 1 (34-mer)	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".
	Control Primer 2 (34-mer)	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".
	pWS4.5 Control Template	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".
	QuikChange XL dNTP Mix	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".
	XL10-Gold Ultracompetent cells	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".
	XL10-Gold 2-Mercaptoethanol	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".
	pUC 18 DNA Control Plasmid	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".
6.2 Environmental precautions :	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).
	PfuUltra HF 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).

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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).
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).
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).
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).
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).
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).
XL10-Gold 2-Mercaptoethanol	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.
pUC 18 DNA Control Plasmid	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	: 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.
	PfuUltra HF DNA Polymerase	Stop leak if without risk. Move containers from spill

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	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.
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.
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.
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.
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.
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.
XL10-Gold 2-Mercaptoethanol	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.
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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures :	☒ QuikSolution	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.
	PfuUltra HF 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.
	10X Reaction Buffer	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 reuse container.
	Dpn I	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.
	Control Primer 1 (34-mer)	Put on appropriate personal protective equipment (see Section 8).
	Control Primer 2 (34-mer)	Put on appropriate personal protective equipment (see Section 8).
	pWS4.5 Control Template	Put on appropriate personal protective equipment (see Section 8).
	QuikChange XL dNTP Mix	Put on appropriate personal protective equipment (see Section 8).
	XL10-Gold Ultracompetent cells	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.
	XL10-Gold 2-Mercaptoethanol	Put on appropriate personal protective equipment

Section 7. Handling and storage

		(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.
	pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
Advice on general occupational hygiene :	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.
	PfuUltra HF 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.
	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.
	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.
	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.

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	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.
	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.
	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.
	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.
	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.
7.2 Conditions for safe storage, including any incompatibilities	: QuikSolution	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.
	PfuUltra HF 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

Section 7. Handling and storage

	environmental contamination. See Section 10 for incompatible materials before handling or use.
10X Reaction Buffer	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in 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.
Control Primer 1 (34-mer)	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.
Control Primer 2 (34-mer)	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.
pWS4.5 Control Template	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.
QuikChange XL dNTP Mix	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from

Section 7. Handling and storage

	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 Ultracompetent cells	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.
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.

7.3 Specific end use(s)

Recommendations	:	QuikSolution	Industrial applications, Professional applications.
		PfuUltra HF DNA Polymerase	Industrial applications, Professional applications.
		10X Reaction Buffer	Industrial applications, Professional applications.
		Dpn I	Industrial applications, Professional applications.
		Control Primer 1 (34-mer)	Industrial applications, Professional applications.
		Control Primer 2 (34-mer)	Industrial applications, Professional applications.
		pWS4.5 Control Template	Industrial applications, Professional applications.
		QuikChange XL dNTP Mix	Industrial applications, Professional applications.
		XL10-Gold Ultracompetent cells	Industrial applications, Professional applications.
		XL10-Gold 2-Mercaptoethanol	Industrial applications, Professional applications.
		pUC 18 DNA Control Plasmid	Industrial applications, Professional applications.

Section 7. Handling and storage

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

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
QuikSolution	
Dimethyl sulfoxide	**OARS WEEL (United States, 1/2021).** TWA: 250 ppm 8 hours.
PfuUltra HF DNA Polymerase	
Glycerol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	None.
10X Reaction Buffer	
Ammonium sulphate	None.
Polyoxyethylene octyl phenyl ether	None.
Dpn I	
Glycerol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
XL10-Gold Ultracompetent cells	
Glycerol	**OSHA PEL 1989 (United States, 3/1989).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust **OSHA PEL (United States, 5/2018).** TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust
Dimethyl sulfoxide	**OARS WEEL (United States, 1/2021).** TWA: 250 ppm 8 hours.

Section 8. Exposure controls/personal protection

Potassium chloride	None.
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	**OARS WEEL (United States, 1/2021). Absorbed through skin.** TWA: 0.2 ppm 8 hours.

Biological exposure indices

No exposure indices known.

8.2 Exposure controls

Appropriate engineering controls : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

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

Individual protection measures

Hygiene measures : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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

Skin protection

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

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

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

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

Section 9. Physical and chemical properties and safety characteristics

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

Appearance

Physical state	:	QuikSolution	Liquid. [Clear.]
		PfuUltra HF DNA Polymerase	Liquid.
		10X Reaction Buffer	Liquid.
		Dpn I	Liquid.
		Control Primer 1 (34-mer)	Liquid.
		Control Primer 2 (34-mer)	Liquid.
		pWS4.5 Control Template	Liquid.
		QuikChange XL dNTP Mix	Liquid.
		XL10-Gold Ultracompetent cells	Liquid.
		XL10-Gold 2-Mercaptoethanol	Liquid.
		pUC 18 DNA Control Plasmid	Liquid.
Color	:	QuikSolution	Colorless.
		PfuUltra HF DNA Polymerase	Not available.
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		pWS4.5 Control Template	Not available.
		QuikChange XL dNTP Mix	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Odor	:	QuikSolution	Slight [Slight]
		PfuUltra HF DNA Polymerase	Not available.
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		pWS4.5 Control Template	Not available.
		QuikChange XL dNTP Mix	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Odor threshold	:	QuikSolution	Not available.
		PfuUltra HF DNA Polymerase	Not available.
		10X Reaction Buffer	Not available.
		Dpn I	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		pWS4.5 Control Template	Not available.
		QuikChange XL dNTP Mix	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
pH	:	QuikSolution	Not available.
		PfuUltra HF DNA Polymerase	8.2
		10X Reaction Buffer	8.8
		Dpn I	Not available.
		Control Primer 1 (34-mer)	7.5
		Control Primer 2 (34-mer)	7.5
		pWS4.5 Control Template	7.5
		QuikChange XL dNTP Mix	7.5
		XL10-Gold Ultracompetent cells	6.4
		XL10-Gold 2-Mercaptoethanol	Not available.

Section 9. Physical and chemical properties and safety characteristics

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

	Closed cup			Open cup		
Ingredient name	**°C**	**°F**	**Method**	**°C**	**°F**	**Method**
PfuUltra HF DNA Polymerase						
Glycerol				177	350.6	
10X Reaction Buffer						
Polyoxyethylene octyl phenyl ether	251	483.8				
Dpn I						
Glycerol				177	350.6	
XL10-Gold Ultracompetent cells						

Section 9. Physical and chemical properties and safety characteristics

	Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6
	Glycerol				177	350.6
	XL10-Gold 2-Mercaptoethanol					
	2-Mercaptoethanol	74	165.2		74	165.2

Evaporation rate :

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

Flammability :

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

Lower and upper explosion limit/flammability limit :

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

Vapor pressure :

QuikSolution	0.056 kPa (0.42 mm Hg) [EU A.4]
PfuUltra HF DNA Polymerase	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
Control Primer 1 (34-mer)	Not available.
Control Primer 2 (34-mer)	Not available.
pWS4.5 Control Template	Not available.
QuikChange XL dNTP Mix	Not available.
XL10-Gold Ultracompetent cells	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
pUC 18 DNA Control Plasmid	Not available.

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
PfuUltra HF DNA Polymerase						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
10X Reaction Buffer						
water	23.8	3.2		92.258	12.3	
Polyoxyethylene octyl phenyl ether	0.997581	0.13				
Dpn I						
water	23.8	3.2		92.258	12.3	
Glycerol	0.000075	0.00001		0.0025	0.00033	
Control Primer 1 (34-mer)						
water	23.8	3.2		92.258	12.3	
Control Primer 2 (34-mer)						
water	23.8	3.2		92.258	12.3	
pWS4.5 Control Template						
water	23.8	3.2		92.258	12.3	
QuikChange XL dNTP Mix						
water	23.8	3.2		92.258	12.3	
XL10-Gold Ultracompetent cells						
water	23.8	3.2		92.258	12.3	
Dimethyl sulfoxide	0.42	0.056	EU A.4			
XL10-Gold						

Section 9. Physical and chemical properties and safety characteristics

2-Mercaptoethanol						
water	23.8	3.2		92.258	12.3	
2-Mercaptoethanol	0.98	0.13				
pUC 18 DNA Control Plasmid						
water	23.8	3.2		92.258	12.3	

Relative vapor density :

QuikSolution	2.71 [Air = 1]
PfuUltra HF DNA Polymerase	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
Control Primer 1 (34-mer)	Not available.
Control Primer 2 (34-mer)	Not available.
pWS4.5 Control Template	Not available.
QuikChange XL dNTP Mix	Not available.
XL10-Gold Ultracompetent cells	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
pUC 18 DNA Control Plasmid	Not available.

Relative density :

QuikSolution	1.1
PfuUltra HF DNA Polymerase	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
Control Primer 1 (34-mer)	Not available.
Control Primer 2 (34-mer)	Not available.
pWS4.5 Control Template	Not available.
QuikChange XL dNTP Mix	Not available.
XL10-Gold Ultracompetent cells	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
pUC 18 DNA Control Plasmid	Not available.

Solubility(ies) :

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

Section 9. Physical and chemical properties and safety characteristics

XL10-Gold 2-Mercaptoethanol	
water	Soluble
pUC 18 DNA Control Plasmid	
water	Soluble

Partition coefficient: n-octanol/water :

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

Auto-ignition temperature :

QuikSolution	300 to 302°C (572 to 575.6°F)
PfuUltra HF DNA Polymerase	Not available.
10X Reaction Buffer	Not available.
Dpn I	Not available.
Control Primer 1 (34-mer)	Not available.
Control Primer 2 (34-mer)	Not available.
pWS4.5 Control Template	Not available.
QuikChange XL dNTP Mix	Not available.
XL10-Gold Ultracompetent cells	Not available.
XL10-Gold 2-Mercaptoethanol	Not available.
pUC 18 DNA Control Plasmid	Not available.

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

Decomposition temperature :

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

Section 9. Physical and chemical properties and safety characteristics

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

Particle characteristics

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

Section 10. Stability and reactivity

10.1 Reactivity	:	QuikSolution	No specific test data related to reactivity available for this product or its ingredients.
		PfuUltra HF DNA Polymerase	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.
		Control Primer 1 (34-mer)	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.
		pWS4.5 Control Template	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.
		XL10-Gold Ultracompetent cells	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.
		pUC 18 DNA Control Plasmid	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	:	QuikSolution	The product is stable.
		PfuUltra HF DNA Polymerase	The product is stable.
		10X Reaction Buffer	The product is stable.
		Dpn I	The product is stable.
		Control Primer 1 (34-mer)	The product is stable.
		Control Primer 2 (34-mer)	The product is stable.
		pWS4.5 Control Template	The product is stable.
		QuikChange XL dNTP Mix	The product is stable.

Section 10. Stability and reactivity

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

Section 10. Stability and reactivity

		materials.
	XL10-Gold Ultracompetent cells	May react or be incompatible with oxidizing materials.
	XL10-Gold 2-Mercaptoethanol	May react or be incompatible with oxidizing materials.
	pUC 18 DNA Control Plasmid	May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products :

QuikSolution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
PfuUltra HF DNA Polymerase	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.
Control Primer 1 (34-mer)	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.
pWS4.5 Control Template	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.
XL10-Gold Ultracompetent cells	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.
pUC 18 DNA Control Plasmid	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
QuikSolution				
Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
PfuUltra HF DNA Polymerase				
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	-

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10X Reaction Buffer				
Ammonium sulphate	LD50 Oral	Rat	2840 mg/kg	-
Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
Dpn I				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
XL10-Gold Ultracompetent cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
XL10-Gold 2-Mercaptoethanol				
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
QuikSolution					
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	-
PfuUltra HF DNA Polymerase					
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 %	-
10X Reaction Buffer					
Polyoxyethylene octyl phenyl ether	Skin - Mild irritant	Rabbit	-	24 hours 500 uL	-
Dpn I					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
XL10-Gold Ultracompetent cells					
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	-

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	Skin - Mild irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
XL10-Gold 2-Mercaptoethanol					
2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 mg	-

Sensitization

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)

Name	Category	Route of exposure	Target organs
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	Category 3	-	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	Category 2	oral	heart, liver

Aspiration hazard

Not available.

Information on the likely routes of exposure :

QuikSolution	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
PfuUltra HF DNA Polymerase	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
10X Reaction Buffer	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Dpn I	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Control Primer 1 (34-mer)	Not available.
Control Primer 2 (34-mer)	Not available.
pWS4.5 Control Template	Not available.
QuikChange XL dNTP Mix	Not available.
XL10-Gold Ultracompetent cells	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
XL10-Gold 2-Mercaptoethanol	Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
pUC 18 DNA Control Plasmid	Not available.

Potential acute health effects

Section 11. Toxicological information

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

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	:	QuikSolution	Adverse symptoms may include the following: irritation watering redness
		PfuUltra HF DNA Polymerase	Adverse symptoms may include the following: irritation watering redness
		10X Reaction Buffer	Adverse symptoms may include the following: pain or irritation watering redness
		Dpn I	Adverse symptoms may include the following:

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

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		skeletal malformations
	pUC 18 DNA Control Plasmid	No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

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

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XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
XL10-Gold 2-Mercaptoethanol	Suspected of damaging fertility or the unborn child.
pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
QuikSolution					
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
PfuUltra HF DNA Polymerase					
Glycerol	12600	N/A	N/A	N/A	N/A
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	500	N/A	N/A	N/A	N/A
10X Reaction Buffer					
10X Reaction Buffer	98687.3	N/A	N/A	N/A	N/A
Ammonium sulphate	2840	N/A	N/A	N/A	N/A
Polyoxyethylene octyl phenyl ether	1800	N/A	N/A	N/A	N/A
Dpn I					
Dpn I	130435.3	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
XL10-Gold Ultracompetent cells					
XL10-Gold Ultracompetent cells	136842.1	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Potassium chloride	2600	N/A	N/A	N/A	N/A
XL10-Gold 2-Mercaptoethanol					
XL10-Gold 2-Mercaptoethanol	4615.5	4545.5	N/A	60.7	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A

Section 12. Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
QuikSolution			
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Ulva lactuca	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	21 days
PfuUltra HF DNA Polymerase			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Poly(oxy-1,2-ethanediyl), .alpha.-[	Acute EC50 210 µg/l Fresh water	Algae - Selenastrum sp.	96 hours

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(1,1,3,3-tetramethylbutyl) phenyl]-.omega.-hydroxy-			
	Acute LC50 10800 µg/l Marine water	Crustaceans - Pandalus montagui - Adult	48 hours
	Acute LC50 8600 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 7200 µg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
10X Reaction Buffer			
Ammonium sulphate	Chronic NOEC 7.5 mg/l Marine water	Algae - Phaeodactylum tricornutum - Exponential growth phase	96 hours
Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate	48 hours
	Acute LC50 11.2 mg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 4500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
Dpn I			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
XL10-Gold Ultracompetent cells			
Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Ulva lactuca	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	21 days
Potassium chloride	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 83000 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 9.68 mg/l Fresh water	Crustaceans - Pseudosida ramosa - Neonate	48 hours
	Acute LC50 509.65 mg/l Fresh water	Fish - Danio rerio	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
QuikSolution				
Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
PfuUltra HF DNA Polymerase				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Dpn I				
Glycerol	301D Ready Biodegradability -	93 % - 30 days	-	-

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	Closed Bottle Test			
XL10-Gold Ultracompetent cells				
Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
XL10-Gold 2-Mercaptoethanol				
2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO_2 in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-

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

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
QuikSolution			
Dimethyl sulfoxide	-2.029	3.16	low
PfuUltra HF DNA Polymerase			
Glycerol	-1.76	-	low
Poly(oxy-1,2-ethanediyl), .alpha.-[(1,1,3,3-tetramethylbutyl)phenyl]-.omega.-hydroxy-	2.7	78.67	low
10X Reaction Buffer			
Ammonium sulphate	-5.1	-	low
Polyoxyethylene octyl phenyl	4.86	-	high

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ether			
Dpn I			
Glycerol	-1.76	-	low
XL10-Gold Ultracompetent cells			
Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	-0.056	-	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{OC}) : 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.

Section 14. Transport information

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

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

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	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
PfuUltra HF DNA Polymerase	EYE IRRITATION - Category 2B
10X Reaction Buffer	EYE IRRITATION - Category 2A
Dpn I	EYE IRRITATION - Category 2B
Control Primer 1 (34-mer)	Not applicable.
Control Primer 2 (34-mer)	Not applicable.
pWS4.5 Control Template	Not applicable.
QuikChange XL dNTP Mix	Not applicable.
XL10-Gold Ultracompetent cells	EYE IRRITATION - Category 2B
XL10-Gold 2-Mercaptoethanol	SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2
pUC 18 DNA Control Plasmid	Not applicable.

Composition/information on ingredients

Name	%	Classification
QuikSolution		
Dimethyl sulfoxide	100	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
PfuUltra HF DNA Polymerase		
Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2B
10X Reaction Buffer		
Ammonium sulphate	≤3	EYE IRRITATION - Category 2A
Polyoxyethylene octyl phenyl ether	<2.5	ACUTE TOXICITY (oral) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1
Dpn I		

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Glycerol	≥50 - ≤75	EYE IRRITATION - Category 2B
XL10-Gold Ultracompetent cells		
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
XL10-Gold 2-Mercaptoethanol		
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 (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	**10X Reaction Buffer** Ammonium sulphate	7783-20-2	≤3
Supplier notification	**10X Reaction Buffer** 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

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.

Section 15. Regulatory information

China : Not determined.

Eurasian Economic Union : **Russian Federation inventory**: All components are listed or exempted.

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.

United States : All components are active or exempted.

Viet Nam : Not determined.

Section 16. Other information

Procedure used to derive the classification

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

History

Date of issue : 12/16/2022

Date of previous issue : 05/26/2022

Version : 8.1

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 of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
N/A = Not available

Section 16. Other information

UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

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