

SAFETY DATA SHEET

Custom QuikChange II XL Site-Directed Mutagenesis Kit, Part Number 930522

Section 1. Identification

Product identifier	: Custom QuikChange II XL Site-Directed Mutagenesis Kit, Part Number 930522
Part no. (chemical kit)	: 930522
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

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

Identified uses	: <input checked="" type="checkbox"/> Analytical reagent.
	<input checked="" type="checkbox"/> 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

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

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

Section 2. Hazard(s) identification

Classification of the substance or mixture

☒ QuikSolution

H227	FLAMMABLE LIQUIDS - Category 4
H320	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B

PfuUltra HF DNA Polymerase

H320	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B
------	---

10X Reaction Buffer

H319	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A
H412	LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3

Dpn I

H320	SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B
QuikChange XL dNTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.7%

GHS label elements

Section 2. Hazard(s) identification

Hazard pictograms : 10X Reaction Buffer



Signal word : QuikSolution
PfuUltra HF DNA
Polymerase
10X Reaction Buffer
Dpn I
Control Primer 1 (34-mer)
Control Primer 2 (34-mer)
pWS4.5 Control Template
QuikChange XL dNTP Mix

WARNING
WARNING

WARNING
WARNING
No signal word.
No signal word.
No signal word.
No signal word.

Hazard statements : QuikSolution

PfuUltra HF DNA
Polymerase
10X Reaction Buffer

Dpn I
Control Primer 1 (34-mer)
Control Primer 2 (34-mer)
pWS4.5 Control Template
QuikChange XL dNTP Mix

H227 - Combustible liquid.
H320 - Causes eye irritation.
H320 - Causes eye irritation.

H319 - Causes serious eye irritation.
H412 - Harmful to aquatic life with long lasting effects.
H320 - Causes eye irritation.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.
No known significant effects or critical hazards.

Precautionary statements

Prevention : QuikSolution

PfuUltra HF DNA
Polymerase
10X Reaction Buffer

Dpn I
Control Primer 1 (34-mer)
Control Primer 2 (34-mer)
pWS4.5 Control Template
QuikChange XL dNTP Mix

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Not applicable.

P280 - Wear eye or face protection.
P273 - Avoid release to the environment.
Not applicable.
Not applicable.
Not applicable.
Not applicable.
Not applicable.

Response : QuikSolution

PfuUltra HF DNA
Polymerase

10X Reaction Buffer

Dpn I

Control Primer 1 (34-mer)
Control Primer 2 (34-mer)
pWS4.5 Control Template
QuikChange XL dNTP Mix

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.
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.
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.
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.
Not applicable.
Not applicable.
Not applicable.
Not applicable.

Section 2. Hazard(s) identification

Storage	:	QuikSolution	Not applicable.
		PfuUltra HF DNA	Not applicable.
		Polymerase	
		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.
Disposal	:	QuikSolution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
		PfuUltra HF DNA	Not applicable.
		Polymerase	
		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.
Supplemental label elements			
Additional warning phrases	:	QuikSolution	Not applicable.
		PfuUltra HF DNA	Not applicable.
		Polymerase	
		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.
Other hazards which do not result in classification	:	QuikSolution	None known.
		PfuUltra HF DNA	None known.
		Polymerase	
		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.

Section 3. Composition and ingredient information

Substance/mixture	:	QuikSolution	Substance
		PfuUltra HF DNA	Mixture
		Polymerase	
		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

CAS number/other identifiers

Section 3. Composition and ingredient information

Ingredient name	% (w/w)	CAS number
QuikSolution		
Dimethyl sulfoxide	100	67-68-5
PfuUltra HF DNA Polymerase		
Glycerol	≥30 - ≤60	56-81-5
10X Reaction Buffer		
Polyoxyethylene octyl phenyl ether	<2.5	9002-93-1
Dpn I		
Glycerol	≥30 - ≤60	56-81-5

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.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

Section 4. First aid measures

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

Section 4. First aid measures

Inhalation

:  QuikSolutionPfuUltra HF DNA
Polymerase

10X Reaction Buffer

Dpn I

Control Primer 1 (34-mer)

Control Primer 2 (34-mer)

pWS4.5 Control Template

QuikChange XL dNTP Mix

medical attention if irritation occurs.

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.

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.

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.

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.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

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

Section 4. First aid measures

Skin contact

:  QuikSolutionPfuUltra HF DNA
Polymerase

10X Reaction Buffer

Dpn I

Control Primer 1 (34-mer)

Control Primer 2 (34-mer)

pWS4.5 Control Template

QuikChange XL dNTP Mix

under medical surveillance for 48 hours.

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. 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. 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. 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. 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. 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. 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. 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. Flush contaminated skin with plenty of water.

Ingestion

:  QuikSolutionPfuUltra HF DNA
Polymerase

10X Reaction Buffer

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

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.

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

Section 4. First aid measures

	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.

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.
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.

Section 4. First aid measures

Skin contact	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	: QuikSolution	No known significant effects or critical hazards.
	PfuUltra HF DNA	No known significant effects or critical hazards.
	Polymerase	
	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.
Ingestion	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.
	: QuikSolution	No known significant effects or critical hazards.
	PfuUltra HF DNA	No known significant effects or critical hazards.
	Polymerase	
	10X Reaction Buffer	No known significant effects or critical hazards.
Over-exposure signs/symptoms	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.
Eye contact	:  QuikSolution	Adverse symptoms may include the following: irritation watering redness
	PfuUltra HF DNA	Adverse symptoms may include the following:
	Polymerase	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.
Inhalation	pWS4.5 Control Template	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	: QuikSolution	No specific data.
	PfuUltra HF DNA	No specific data.
	Polymerase	
	10X Reaction Buffer	No specific data.
	Dpn I	No specific data.
Skin contact	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.
	: QuikSolution	No specific data.
	PfuUltra HF DNA	No specific data.
	Polymerase	
Over-exposure signs/symptoms	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.


Section 4. First aid measures

Ingestion	:	QuikSolution	No specific data.
		PfuUltra HF DNA	No specific data.
		Polymerase	
		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.

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	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
		Polymerase	
		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 surveillance for 48 hours.

Specific treatments	:	QuikSolution	No specific treatment.
		PfuUltra HF DNA	No specific treatment.
		Polymerase	
		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.

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	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.
		Polymerase	
		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.

Section 4. First aid measures

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.

See toxicological information (Section 11)

Section 5. Firefighting measures

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.

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.

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 vapour/gas is heavier than air and will spread along the ground. Vapours 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 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

Section 5. Firefighting measures

Hazardous thermal decomposition products

QuikChange XL dNTP Mix

and the container may burst.

In a fire or if heated, a pressure increase will occur and the container may burst.

: 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

Dpn I

halogenated compounds

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

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

Section 5. Firefighting measures

Special protective equipment for fire-fighters

QuikChange XL dNTP Mix		action shall be taken involving any personal risk or without suitable training. Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
QuikSolution	:	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.
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.

Section 6. Accidental release measures

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 spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour 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 spilt material. Avoid breathing vapour 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 risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected

Section 6. Accidental release measures

Dpn I

personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

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 spilt 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 spilt 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 spilt 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders : QuikSolution

PfuUltra HF DNA Polymerase

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

10X Reaction Buffer

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

Dpn I

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

Control Primer 1 (34-mer)

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

Control Primer 2 (34-mer)

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

pWS4.5 Control Template

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

Section 6. Accidental release measures

QuikChange XL dNTP Mix

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

Environmental precautions :  QuikSolution

PfuUltra HF DNA
Polymerase

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

10X Reaction Buffer

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Dpn I

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Control Primer 1 (34-mer)

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Control Primer 2 (34-mer)

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

pWS4.5 Control Template

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

QuikChange XL dNTP Mix

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and material for containment and cleaning up

Methods for cleaning up :  QuikSolution

PfuUltra HF DNA
Polymerase

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.

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 6. Accidental release measures

10X Reaction Buffer	disposal contractor. 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.

Section 7. Handling and storage

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 vapour 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 vapour 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

Section 7. Handling and storage

	10X Reaction Buffer	reuse container. Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour 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 vapour 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).
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

Section 7. Handling and storage

pWS4.5 Control Template

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.

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.

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 oxidising 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 unlabelled 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 unlabelled containers. Use appropriate containment to avoid 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 unlabelled 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 unlabelled containers. Use appropriate containment to avoid

Section 7. Handling and storage

Control Primer 1 (34-mer)

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

Section 8. Exposure controls and personal protection

[Control parameters](#)

[Occupational exposure limits](#)

Ingredient name	Exposure limits
 Dimethyl sulfoxide	DFG MAC-values list (Germany, 10/2021). Absorbed through skin. PEAK: 320 mg/m ³ , 4 times per shift, 15 minutes. TWA: 160 mg/m ³ 8 hours. PEAK: 100 ppm, 4 times per shift, 15 minutes. TWA: 50 ppm 8 hours.

Section 8. Exposure controls and personal protection

PfuUltra HF DNA Polymerase

Glycerol

Safe Work Australia (Australia, 12/2019).TWA: 10 mg/m³ 8 hours.

Dpn I

Glycerol

Safe Work Australia (Australia, 12/2019).TWA: 10 mg/m³ 8 hours.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls


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

Individual protection measures

Hygiene measures


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

Eye/face protection

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

Section 9. Physical and chemical properties and safety characteristics

Physical state	:	QuikSolution	Liquid. [Clear.]
		PfuUltra HF DNA	Liquid.
		Polymerase	
		10X Reaction Buffer	Liquid.
		Dpn I	Liquid.
		Control Primer 1 (34-mer)	Liquid.
		Control Primer 2 (34-mer)	Liquid.
		pWS4.5 Control Template	Liquid.
Colour	:	QuikSolution	Colourless.
		PfuUltra HF DNA	Not available.
		Polymerase	
		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.
Odour	:	QuikSolution	Slight [Slight]
		PfuUltra HF DNA	Not available.
		Polymerase	
		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.
Odour threshold	:	QuikSolution	Not available.
		PfuUltra HF DNA	Not available.
		Polymerase	
		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.
pH	:	QuikSolution	Not available.
		PfuUltra HF DNA	8.2
		Polymerase	
		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
Melting point/freezing point	:	QuikSolution	18.4°C (65.1°F)
		PfuUltra HF DNA	Not available.
		Polymerase	
		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.

Section 9. Physical and chemical properties and safety characteristics

Boiling point, initial boiling point, and boiling range : QuikSolution 188.8°C (371.8°F)
PfuUltra HF DNA Not available.
Polymerase

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.

Flash point : QuikSolution Closed cup: 85°C (185°F) [ASTM D 93]
Open cup: 87°C (188.6°F)
PfuUltra HF DNA Not available.
Polymerase

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.

Ingredient name	Closed cup			Open cup		
	°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	

Evaporation rate : QuikSolution 0.026 (butyl acetate = 1)
PfuUltra HF DNA Not available.
Polymerase

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.


Flammability : QuikSolution Not applicable.
PfuUltra HF DNA Not applicable.
Polymerase
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.

Section 9. Physical and chemical properties and safety characteristics

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.
	QuikSolution	0.056 kPa (0.42 mm Hg) [EU A.4]
	PfuUltra HF DNA Polymerase	Not available.
Vapour pressure	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.

Ingredient name	Vapour Pressure at 20°C			Vapour 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						

Section 9. Physical and chemical properties and safety characteristics

		water	23.8	3.2		92.258	12.3	
		QuikChange XL dNTP Mix						
		water	23.8	3.2		92.258	12.3	
Relative vapour 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.					
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.					
Solubility(ies)	:	Media	Result					
		 QuikSolution	Soluble					
		water						
		PfuUltra HF DNA Polymerase	Soluble					
		water						
		10X Reaction Buffer	Soluble					
		water						
		Dpn I	Soluble					
		water						
		Control Primer 1 (34-mer)	Soluble					
		water						
		Control Primer 2 (34-mer)	Soluble					
		water						
		pWS4.5 Control Template	Soluble					
		water						
		QuikChange XL dNTP Mix	Soluble					
		water						
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.					

Section 9. Physical and chemical properties and safety characteristics

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.

Ingredient name	°C	°F	Method
PfuUltra HF DNA Polymerase			
Glycerol	370	698	
Dpn I			
Glycerol	370	698	

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.

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.

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.

Section 10. Stability and reactivity

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.

Section 10. Stability and reactivity

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.

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.

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.

Conditions to avoid

: QuikSolution	Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapour 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.

Incompatible materials

: QuikSolution	Reactive or incompatible with the following materials: oxidising materials
PfuUltra HF DNA Polymerase	May react or be incompatible with oxidising materials.
10X Reaction Buffer	May react or be incompatible with oxidising materials.
Dpn I	May react or be incompatible with oxidising materials.
Control Primer 1 (34-mer)	May react or be incompatible with oxidising materials.
Control Primer 2 (34-mer)	May react or be incompatible with oxidising materials.
pWS4.5 Control Template	May react or be incompatible with oxidising materials.
QuikChange XL dNTP Mix	May react or be incompatible with oxidising materials.

Section 10. Stability and reactivity

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.


Section 11. Toxicological information

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	-
10X Reaction Buffer Polyoxyethylene octyl phenyl ether	LD50 Oral	Rat	1800 mg/kg	-
Dpn I Glycerol	LD50 Oral	Rat	12600 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
 QuikSolution Dimethyl sulfoxide	Eyes - Mild irritant Eyes - Mild irritant	Rabbit Rabbit	- -	100 mg 24 hours 500 mg	- -
	Skin - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	100 mg 24 hours 500 mg	- -
PfuUltra HF DNA Polymerase Glycerol	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	24 hours 500 mg 24 hours 500 mg	- -

Section 11. Toxicological information

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	-

Sensitisation

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure	<p>QuikSolution</p> <p>PfuUltra HF DNA Polymerase</p> <p>10X Reaction Buffer</p> <p>Dpn I</p> <p>Control Primer 1 (34-mer)</p> <p>Control Primer 2 (34-mer)</p> <p>pWS4.5 Control Template</p> <p>QuikChange XL dNTP Mix</p>	<p>Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.</p> <p>Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.</p> <p>Not available.</p> <p>Not available.</p> <p>Not available.</p> <p>Not available.</p>
---	--	---

Potential acute health effects

Eye contact	<p>QuikSolution</p> <p>PfuUltra HF DNA Polymerase</p> <p>10X Reaction Buffer</p> <p>Dpn I</p> <p>Control Primer 1 (34-mer)</p> <p>Control Primer 2 (34-mer)</p> <p>pWS4.5 Control Template</p> <p>QuikChange XL dNTP Mix</p>	<p>Causes eye irritation.</p> <p>Causes eye irritation.</p> <p>Causes serious eye irritation.</p> <p>Causes eye irritation.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>
Inhalation	<p>QuikSolution</p> <p>PfuUltra HF DNA Polymerase</p> <p>10X Reaction Buffer</p> <p>Dpn I</p> <p>Control Primer 1 (34-mer)</p> <p>Control Primer 2 (34-mer)</p>	<p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p> <p>No known significant effects or critical hazards.</p>

Section 11. Toxicological information

Skin contact	pWS4.5 Control Template	No known significant effects or critical hazards.
	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	: QuikSolution	No known significant effects or critical hazards.
	PfuUltra HF DNA	No known significant effects or critical hazards.
	Polymerase	
	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.
Ingestion	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	: QuikSolution	No known significant effects or critical hazards.
	PfuUltra HF DNA	No known significant effects or critical hazards.
	Polymerase	
	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.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: QuikSolution	Adverse symptoms may include the following: irritation watering redness
	PfuUltra HF DNA	Adverse symptoms may include the following:
	Polymerase	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.
Inhalation	: QuikSolution	No specific data.
	PfuUltra HF DNA	No specific data.
	Polymerase	
	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.
Skin contact	: QuikSolution	No specific data.
	PfuUltra HF DNA	No specific data.
	Polymerase	
	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.

Section 11. Toxicological information

Ingestion	:	QuikSolution	No specific data.
		PfuUltra HF DNA	No specific data.
		Polymerase	
		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.

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General	:	QuikSolution	No known significant effects or critical hazards.
		PfuUltra HF DNA	No known significant effects or critical hazards.
		Polymerase	
		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.

Carcinogenicity	:	QuikSolution	No known significant effects or critical hazards.
		PfuUltra HF DNA	No known significant effects or critical hazards.
		Polymerase	
		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.

Mutagenicity	:	QuikSolution	No known significant effects or critical hazards.
		PfuUltra HF DNA	No known significant effects or critical hazards.
		Polymerase	
		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.

Reproductive toxicity	:	QuikSolution	No known significant effects or critical hazards.
		PfuUltra HF DNA	No known significant effects or critical hazards.
		Polymerase	
		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.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
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
10X Reaction Buffer 10X Reaction Buffer Polyoxyethylene octyl phenyl ether	180000.0 1800	N/A N/A	N/A N/A	N/A N/A	N/A N/A
Dpn I Glycerol	12600	N/A	N/A	N/A	N/A

Section 12. Ecological information


Toxicity

Product/ingredient name	Result	Species	Exposure
QuikSolution Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water Acute LC50 34000000 µg/l Fresh water Chronic NOEC 100 µl/L Marine water Chronic NOEC 100 µl/L Fresh water	Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas Algae - Ulva lactuca Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	48 hours 96 hours 72 hours 21 days
PfuUltra HF DNA Polymerase Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
10X Reaction Buffer Polyoxyethylene octyl phenyl ether	Acute LC50 5.85 mg/l Fresh water Acute LC50 11.2 mg/l Fresh water Acute LC50 4500 µg/l Fresh water	Crustaceans - Ceriodaphnia rigaudi - Neonate Daphnia - Daphnia magna - Neonate Fish - Pimephales promelas	48 hours 48 hours 96 hours
Dpn I Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours


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 -	93 % - 30 days	-	-

Section 12. Ecological information

Dpn I Glycerol	Closed Bottle Test 301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability	
 QuikSolution Dimethyl sulfoxide	-	-	Not readily	
10X Reaction Buffer Polyoxyethylene octyl phenyl ether	-	-	Readily	

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
10X Reaction Buffer Polyoxyethylene octyl phenyl ether	4.86	-	high
Dpn I Glycerol	-1.76	-	low

Mobility in soil

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

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

Section 13. Disposal considerations

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

Section 14. Transport information

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

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

Standard for the Uniform Scheduling of Medicines and Poisons

6

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia	: Not determined.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
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	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
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. Any other relevant information

History

Date of issue/Date of revision	: 29/11/2022
Date of previous issue	: 28/03/2022
Version	: 6.1

Section 16. Any other relevant information

Key to abbreviations :

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

Procedure used to derive the classification

Classification	Justification
QuikSolution FLAMMABLE LIQUIDS - Category 4 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	On basis of test data On basis of test data
PfuUltra HF DNA Polymerase SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method
10X Reaction Buffer SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 3	Calculation method Calculation method
Dpn I SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B	Calculation method

Indicates information that has changed from previously issued version.

Notice to reader

Disclaimer: The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.