

SAFETY DATA SHEET



QuikChange Lightning Site-Directed Mutagenesis Kit, Part Number 210518

Section 1. Identification

Product identifier	: QuikChange Lightning Site-Directed Mutagenesis Kit, Part Number 210518		
Part No. (Chemical Kit)	: 210518		
Part No.	: <input checked="" type="checkbox"/> QuikSolution		200516-51
	QuikChange Lightning Enzyme		210518-51
	10× QuikChange Lightning Buffer		210518-53
	QuikChange XL dNTP Mix		200517-51
	Dpn I Enzyme		210518-52
	pWS4.5 Control Template		200518-55
	Control Primer 1 (34-mer)		200518-53
	Control Primer 2 (34-mer)		200518-54
	XL10-Gold Ultracompetent cells		200315-41
	XL10-Gold 2-Mercaptoethanol		200314-43
	pUC 18 DNA Control Plasmid		200231-42

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

Analytical reagent.

<input checked="" type="checkbox"/> QuikSolution	500 µl
QuikChange Lightning Enzyme	10 µl (10 reactions)
10× QuikChange Lightning Buffer	500 µl
QuikChange XL dNTP Mix	10 µl
Dpn I Enzyme	20 µl (10 reactions)
pWS4.5 Control Template	50 ng (5 ng/µl)
Control Primer 1 (34-mer)	750 ng (100 ng/µl)
Control Primer 2 (34-mer)	750 ng (100 ng/µl)
XL10-Gold Ultracompetent cells	500 µl
XL10-Gold 2-Mercaptoethanol	50 µl
pUC 18 DNA Control Plasmid	10 µl (0.1 ng/µl)

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

XL10-Gold 2-Mercaptoethanol
H318 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 1
H317 SKIN SENSITISATION - Category 1
H412 LONG-TERM AQUATIC HAZARD - Category 3

<input checked="" type="checkbox"/> QuikChange XL dNTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 5.7%
<input checked="" type="checkbox"/> 10× QuikChange Lightning Buffer	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 2%
QuikChange XL dNTP Mix	Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 5.7%

Section 2. Hazard(s) identification

GHS label elements

Hazard pictograms



Signal word

QuikSolution	WARNING
QuikChange Lightning Enzyme	No signal word.
10× QuikChange Lightning Buffer	No signal word.
QuikChange XL dNTP Mix	No signal word.
Dpn I Enzyme	No signal word.
pWS4.5 Control Template	No signal word.
Control Primer 1 (34-mer)	No signal word.
Control Primer 2 (34-mer)	No signal word.
XL10-Gold Ultracompetent cells	No signal word.
XL10-Gold	DANGER
2-Mercaptoethanol	
pUC 18 DNA Control Plasmid	No signal word.

Hazard statements

QuikSolution	H227 - Combustible liquid.
QuikChange Lightning Enzyme	No known significant effects or critical hazards.
10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
QuikChange XL dNTP Mix	No known significant effects or critical hazards.
Dpn I Enzyme	No known significant effects or critical hazards.
pWS4.5 Control Template	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.
XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
XL10-Gold	H318 - Causes serious eye damage.
2-Mercaptoethanol	H317 - May cause an allergic skin reaction. 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	P280 - Wear protective gloves. Wear eye or face protection. P210 - Keep away from flames and hot surfaces. - No smoking.
QuikChange Lightning Enzyme	Not applicable.
10× QuikChange Lightning Buffer	Not applicable.
QuikChange XL dNTP Mix	Not applicable.
Dpn I Enzyme	Not applicable.
pWS4.5 Control Template	Not applicable.
Control Primer 1 (34-mer)	Not applicable.
Control Primer 2 (34-mer)	Not applicable.
XL10-Gold Ultracompetent cells	Not applicable.
XL10-Gold	P280 - Wear protective gloves. Wear eye or face protection.
2-Mercaptoethanol	P273 - Avoid release to the environment. P261 - Avoid breathing vapour. P272 - Contaminated work clothing should not be allowed out of the workplace.
pUC 18 DNA Control Plasmid	Not applicable.

Section 2. Hazard(s) identification

Response	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol	Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P302 + P352 + P363 - IF ON SKIN: Wash with plenty of soap and water. Wash contaminated clothing before reuse. P333 + P313 - If skin irritation or rash occurs: Get medical 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 physician.
Storage	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	Not applicable. P403 - Store in a well-ventilated place. P235 - Keep cool. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable.
Disposal	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. Not applicable. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. Not applicable.

Section 2. Hazard(s) identification

Supplemental label elements	:	<input checked="" type="checkbox"/> QuikSolution	Not applicable.
		QuikChange Lightning Enzyme	Not applicable.
		10× QuikChange Lightning Buffer	Not applicable.
		QuikChange XL dNTP Mix	Not applicable.
		Dpn I Enzyme	Not applicable.
		pWS4.5 Control Template	Not applicable.
		Control Primer 1 (34-mer)	Not applicable.
		Control Primer 2 (34-mer)	Not applicable.
		XL10-Gold Ultracompetent cells	Not applicable.
		XL10-Gold	Not applicable.
		2-Mercaptoethanol	Not applicable.
		pUC 18 DNA Control Plasmid	Not applicable.

Other hazards which do not result in classification	:	<input checked="" type="checkbox"/> QuikSolution	None known.
		QuikChange Lightning Enzyme	None known.
		10× QuikChange Lightning Buffer	None known.
		QuikChange XL dNTP Mix	None known.
		Dpn I Enzyme	None known.
		pWS4.5 Control Template	None known.
		Control Primer 1 (34-mer)	None known.
		Control Primer 2 (34-mer)	None known.
		XL10-Gold Ultracompetent cells	None known.
		XL10-Gold	None known.
		2-Mercaptoethanol	None known.
		pUC 18 DNA Control Plasmid	None known.

Section 3. Composition and ingredient information

Substance/mixture	:	<input checked="" type="checkbox"/> QuikSolution	Substance
		QuikChange Lightning Enzyme	Mixture
		10× QuikChange Lightning Buffer	Mixture
		QuikChange XL dNTP Mix	Mixture
		Dpn I Enzyme	Mixture
		pWS4.5 Control Template	Mixture
		Control Primer 1 (34-mer)	Mixture
		Control Primer 2 (34-mer)	Mixture
		XL10-Gold Ultracompetent cells	Mixture
		XL10-Gold	Mixture
		2-Mercaptoethanol	Mixture
		pUC 18 DNA Control Plasmid	Mixture

CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
<input checked="" type="checkbox"/> QuikSolution Dimethyl sulfoxide	100	67-68-5
QuikChange Lightning Enzyme Glycerol	≥30 - ≤60	56-81-5
Dpn I Enzyme Glycerol	≥30 - ≤60	56-81-5

Section 3. Composition and ingredient information

XL10-Gold Ultracompetent cells		
Glycerol	≥10 - ≤30	56-81-5
Sucrose	≤10	57-50-1
XL10-Gold 2-Mercaptoethanol		
2-Mercaptoethanol	≤5	60-24-2

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

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

Section 4. First aid measures

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. Get medical attention if irritation occurs.
	QuikChange Lightning Enzyme	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.
	10× QuikChange Lightning Buffer	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
	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.
	Dpn I Enzyme	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.
	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.
	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. Get medical attention if irritation occurs.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
	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.

Section 4. First aid measures

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.

QuikChange Lightning Enzyme

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

10× QuikChange Lightning Buffer

Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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.

Dpn I Enzyme

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 attention if symptoms occur.

Control Primer 1 (34-mer)

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

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.

XL10-Gold Ultracompetent cells

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



XL10-Gold 2-Mercaptoethanol

Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

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.

Section 4. First aid measures

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.
	QuikChange Lightning Enzyme	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	Control Primer 1 (34-mer)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Control Primer 2 (34-mer)	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL10-Gold Ultracompetent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	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. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	QuikChange Lightning Enzyme	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical

Section 4. First aid measures

10× QuikChange Lightning Buffer	attention if symptoms occur. Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
QuikChange XL dNTP Mix	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Dpn I Enzyme	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
pWS4.5 Control Template	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Control Primer 1 (34-mer)	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
Control Primer 2 (34-mer)	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
XL10-Gold Ultracompetent cells	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.
XL10-Gold 2-Mercaptoethanol	Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an

Section 4. First aid measures

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. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

: QuikSolution No known significant effects or critical hazards.
 QuikChange Lightning Enzyme No known significant effects or critical hazards.
 10× QuikChange Lightning Buffer No known significant effects or critical hazards.
 QuikChange XL dNTP Mix Dpn I Enzyme No known significant effects or critical hazards.
 pWS4.5 Control Template Control Primer 1 (34-mer) No known significant effects or critical hazards.
 Control Primer 2 (34-mer) No known significant effects or critical hazards.
 XL10-Gold Ultracompetent cells No known significant effects or critical hazards.
 XL10-Gold Causes serious eye damage.
 2-Mercaptoethanol
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Inhalation

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

Skin contact

: QuikSolution No known significant effects or critical hazards.
 QuikChange Lightning Enzyme No known significant effects or critical hazards.
 10× QuikChange Lightning Buffer No known significant effects or critical hazards.
 QuikChange XL dNTP Mix Dpn I Enzyme No known significant effects or critical hazards.
 pWS4.5 Control Template Control Primer 1 (34-mer) No known significant effects or critical hazards.
 Control Primer 2 (34-mer) No known significant effects or critical hazards.
 XL10-Gold Ultracompetent cells No known significant effects or critical hazards.
 XL10-Gold May cause an allergic skin reaction.
 2-Mercaptoethanol
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Section 4. First aid measures

Ingestion	:	<input checked="" type="checkbox"/> QuikSolution	No known significant effects or critical hazards.
		QuikChange Lightning Enzyme	No known significant effects or critical hazards.
		10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
		QuikChange XL dNTP Mix	No known significant effects or critical hazards.
		Dpn I Enzyme	No known significant effects or critical hazards.
		pWS4.5 Control Template	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.
		XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
		XL10-Gold	No known significant effects or critical hazards.
		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	:	<input checked="" type="checkbox"/> QuikSolution	No specific data.
		QuikChange Lightning Enzyme	No specific data.
		10× QuikChange Lightning Buffer	No specific data.
		QuikChange XL dNTP Mix	No specific data.
		Dpn I Enzyme	No specific data.
		pWS4.5 Control Template	No specific data.
		Control Primer 1 (34-mer)	No specific data.
		Control Primer 2 (34-mer)	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	

pain
watering
redness

Inhalation	:	pUC 18 DNA Control Plasmid	No specific data.
		<input checked="" type="checkbox"/> QuikSolution	No specific data.
		QuikChange Lightning Enzyme	No specific data.
		10× QuikChange Lightning Buffer	No specific data.
		QuikChange XL dNTP Mix	No specific data.
		Dpn I Enzyme	No specific data.
		pWS4.5 Control Template	No specific data.
		Control Primer 1 (34-mer)	No specific data.
		Control Primer 2 (34-mer)	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold	No specific data.
		2-Mercaptoethanol	No specific data.
pUC 18 DNA Control Plasmid	No specific data.		

Skin contact	:	<input checked="" type="checkbox"/> QuikSolution	No specific data.
		QuikChange Lightning Enzyme	No specific data.
		10× QuikChange Lightning Buffer	No specific data.
		QuikChange XL dNTP Mix	No specific data.
		Dpn I Enzyme	No specific data.
		pWS4.5 Control Template	No specific data.
		Control Primer 1 (34-mer)	No specific data.
		Control Primer 2 (34-mer)	No specific data.
		XL10-Gold Ultracompetent cells	No specific data.
		XL10-Gold	Adverse symptoms may include the following:
		2-Mercaptoethanol	

Section 4. First aid measures

		pain or irritation redness blistering may occur
Ingestion	: pUC 18 DNA Control Plasmid	No specific data.
	: QuikSolution	No specific data.
	QuikChange Lightning Enzyme	No specific data.
	10× QuikChange Lightning Buffer	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Dpn I Enzyme	No specific data.
	pWS4.5 Control Template	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains
	pUC 18 DNA Control Plasmid	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.
	QuikChange Lightning Enzyme	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	10× QuikChange Lightning 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.
	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.
	Dpn I Enzyme	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.
	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.
	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.

Section 4. First aid measures

Specific treatments	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment. No specific treatment.
Protection of first-aiders	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. No action shall be taken involving any personal risk or without suitable training. 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. 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	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer)	Use dry chemical, CO ₂ , water spray (fog) or foam. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
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Section 5. Firefighting measures


	Control Primer 2 (34-mer)	surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
	XL10-Gold Ultracompetent cells	Use an extinguishing agent suitable for the surrounding fire.
	XL10-Gold	Use an extinguishing agent suitable for the surrounding fire.
	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.
	QuikChange Lightning Enzyme	None known.
	10× QuikChange Lightning Buffer	None known.
	QuikChange XL dNTP Mix	None known.
	Dpn I Enzyme	None known.
	pWS4.5 Control Template	None known.
	Control Primer 1 (34-mer)	None known.
	Control Primer 2 (34-mer)	None known.
	XL10-Gold Ultracompetent cells	None known.
	XL10-Gold	None known.
	2-Mercaptoethanol	None known.
	pUC 18 DNA Control Plasmid	None known.
Specific hazards arising from the chemical	: QuikSolution	Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The 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. Runoff to sewer may create fire or explosion hazard.
	QuikChange Lightning Enzyme	In a fire or if heated, a pressure increase will occur and the container may burst.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	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.
	XL10-Gold Ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
	XL10-Gold	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.
	2-Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst.
	pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst.

Section 5. Firefighting measures


Hazardous thermal decomposition products

:  QuikSolution	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
QuikChange Lightning Enzyme	Decomposition products may include the following materials: carbon dioxide carbon monoxide
10× QuikChange Lightning Buffer	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides sulfur oxides halogenated compounds metal oxide/oxides
QuikChange XL dNTP Mix	Decomposition products may include the following materials: carbon dioxide carbon monoxide nitrogen oxides phosphorus oxides
Dpn I Enzyme	Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides
pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells	No specific data. No specific data. No specific data. 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 halogenated compounds metal oxide/oxides
pUC 18 DNA Control Plasmid	No specific data.

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.
QuikChange Lightning Enzyme	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.
10× QuikChange Lightning 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.
QuikChange XL dNTP Mix	Promptly isolate the scene by removing all persons

Section 5. Firefighting measures

		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 Enzyme	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.
	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.
	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.
	QuikChange Lightning Enzyme	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	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.

Section 5. Firefighting measures

XL10-Gold Ultracompetent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
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

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.

QuikChange Lightning Enzyme

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.

10× QuikChange Lightning Buffer

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.

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.

Dpn I Enzyme

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.


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

Section 6. Accidental release measures

	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.
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 spilt material. Put on appropriate personal protective equipment.
XL10-Gold 2-Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour 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 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	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".
QuikChange Lightning Enzyme	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".
10× QuikChange Lightning 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".
QuikChange XL dNTP Mix	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 Enzyme	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".
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".
XL10-Gold Ultracompetent cells	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".
XL10-Gold 2-Mercaptoethanol	If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on

Section 6. Accidental release measures

pUC 18 DNA Control Plasmid 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

QuikChange Lightning Enzyme	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).
10× QuikChange Lightning 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).
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).
Dpn I Enzyme	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).
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).
XL10-Gold Ultracompetent cells	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).
XL10-Gold 2-Mercaptoethanol	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.
pUC 18 DNA Control Plasmid	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).

Section 6. Accidental release measures

Methods and material for containment and cleaning up

Methods for cleaning up :  QuikSolution

QuikChange Lightning Enzyme	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.
10× QuikChange Lightning 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.
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.
Dpn I Enzyme	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.
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.
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.

Section 6. Accidental release measures

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

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.

QuikChange Lightning Enzyme

Put on appropriate personal protective equipment (see Section 8).

10× QuikChange Lightning Buffer

Put on appropriate personal protective equipment (see Section 8).

QuikChange XL dNTP Mix

Put on appropriate personal protective equipment (see Section 8).

Dpn I Enzyme

Put on appropriate personal protective equipment (see Section 8).

pWS4.5 Control Template

Put on appropriate personal protective equipment (see Section 8).

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).

XL10-Gold Ultracompetent cells

Put on appropriate personal protective equipment (see Section 8).

XL10-Gold

Put on appropriate personal protective equipment (see Section 8).

2-Mercaptoethanol

Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapour 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.

Section 7. Handling and storage

QuikChange Lightning Enzyme	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.
10× QuikChange Lightning 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.
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.
Dpn I Enzyme	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
pWS4.5 Control Template	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
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.
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

Section 7. Handling and storage

<p>pUC 18 DNA Control Plasmid</p>	<p>additional information on hygiene measures. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</p>
<p>Conditions for safe storage, including any incompatibilities :  QuikSolution</p>	<p>Storage temperature: -20°C (-4°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>QuikChange Lightning Enzyme</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>10× QuikChange Lightning Buffer</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>QuikChange XL dNTP Mix</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>Dpn I Enzyme</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.</p>
<p>pWS4.5 Control Template</p>	<p>Store in accordance with local regulations. Store in</p>

Section 7. Handling and storage

	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.
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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
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.
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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
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 unlabelled containers. Use appropriate containment to avoid environmental contamination.
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 unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls and personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
QuikChange Lightning Enzyme Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
Dpn I Enzyme Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
XL10-Gold Ultracompetent cells Glycerol	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.
Sucrose	Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m ³ 8 hours.

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour 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 and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.
- 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.

Section 8. Exposure controls and personal protection

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

Section 9. Physical and chemical properties

Appearance

Physical state :

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

Colour :

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

Odour :

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

Odour threshold :

QuikSolution	Not available.
QuikChange Lightning Enzyme	Not available.
10× QuikChange Lightning Buffer	Not available.
QuikChange XL dNTP Mix	Not available.
Dpn I Enzyme	Not available.
pWS4.5 Control Template	Not available.
Control Primer 1 (34-mer)	Not available.

Section 9. Physical and chemical properties

		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
pH	:	QuikSolution	Not available.
		QuikChange Lightning Enzyme	8.2
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	7.5
		Control Primer 1 (34-mer)	7.5
		Control Primer 2 (34-mer)	7.5
		XL10-Gold Ultracompetent cells	6.4
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	7.5
Melting point	:	QuikSolution	18.4°C (65.1°F)
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	0°C (32°F)
		Control Primer 1 (34-mer)	0°C (32°F)
		Control Primer 2 (34-mer)	0°C (32°F)
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	0°C (32°F)
Boiling point	:	QuikSolution	188.8°C (371.8°F)
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	100°C (212°F)
		Control Primer 1 (34-mer)	100°C (212°F)
		Control Primer 2 (34-mer)	100°C (212°F)
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	100°C (212°F)
Flash point	:	QuikSolution	Closed cup: 85°C (185°F) Open cup: 87°C (188.6°F)
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.

Section 9. Physical and chemical properties

		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
Evaporation rate	:	QuikSolution	0.026 (butyl acetate = 1)
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
Flammability (solid, gas)	:	QuikSolution	Not applicable.
		QuikChange Lightning Enzyme	Not applicable.
		10× QuikChange Lightning Buffer	Not applicable.
		QuikChange XL dNTP Mix	Not applicable.
		Dpn I Enzyme	Not applicable.
		pWS4.5 Control Template	Not applicable.
		Control Primer 1 (34-mer)	Not applicable.
		Control Primer 2 (34-mer)	Not applicable.
		XL10-Gold Ultracompetent cells	Not applicable.
		XL10-Gold	Not applicable.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not applicable.
Lower and upper explosive (flammable) limits	:	QuikSolution	Lower: 2.6% Upper: 42%
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	
		pUC 18 DNA Control Plasmid	Not available.
Vapour pressure	:	QuikSolution	0.056 kPa (0.42 mm Hg) [room temperature]
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent	Not available.




Section 9. Physical and chemical properties

	cells	
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Vapour density	: QuikSolution	2.71 [Air = 1]
	QuikChange Lightning Enzyme	Not available.
	10× QuikChange Lightning Buffer	Not available.
	QuikChange XL dNTP Mix	Not available.
	Dpn I Enzyme	Not available.
	pWS4.5 Control Template	Not available.
	Control Primer 1 (34-mer)	Not available.
	Control Primer 2 (34-mer)	Not available.
	XL10-Gold Ultracompetent cells	Not available.
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Relative density	: QuikSolution	1.1
	QuikChange Lightning Enzyme	Not available.
	10× QuikChange Lightning Buffer	Not available.
	QuikChange XL dNTP Mix	Not available.
	Dpn I Enzyme	Not available.
	pWS4.5 Control Template	Not available.
	Control Primer 1 (34-mer)	Not available.
	Control Primer 2 (34-mer)	Not available.
	XL10-Gold Ultracompetent cells	Not available.
	XL10-Gold	Not available.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	Not available.
Solubility	: QuikSolution	Easily soluble in the following materials: cold water and hot water.
	QuikChange Lightning Enzyme	Soluble in the following materials: cold water and hot water.
	10× QuikChange Lightning Buffer	Easily soluble in the following materials: cold water and hot water.
	QuikChange XL dNTP Mix	Easily soluble in the following materials: cold water and hot water.
	Dpn I Enzyme	Soluble in the following materials: cold water and hot water.
	pWS4.5 Control Template	Easily soluble in the following materials: cold water and hot water.
	Control Primer 1 (34-mer)	Easily soluble in the following materials: cold water and hot water.
	Control Primer 2 (34-mer)	Easily soluble in the following materials: cold water and hot water.
	XL10-Gold Ultracompetent cells	Soluble in the following materials: cold water and hot water.
	XL10-Gold	Easily soluble in the following materials: cold water and hot water.
	2-Mercaptoethanol	Easily soluble in the following materials: cold water and hot water.
	pUC 18 DNA Control Plasmid	Easily soluble in the following materials: cold water and hot water.




Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water	:	☑ QuikSolution	-2.029
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
	Auto-ignition temperature	:	☑ QuikSolution
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
Decomposition temperature		:	☑ QuikSolution
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.
	Viscosity	:	☑ QuikSolution
		QuikChange Lightning Enzyme	Not available.
		10× QuikChange Lightning Buffer	Not available.
		QuikChange XL dNTP Mix	Not available.
		Dpn I Enzyme	Not available.
		pWS4.5 Control Template	Not available.
		Control Primer 1 (34-mer)	Not available.
		Control Primer 2 (34-mer)	Not available.
		XL10-Gold Ultracompetent cells	Not available.
		XL10-Gold	Not available.
		2-Mercaptoethanol	Not available.
		pUC 18 DNA Control Plasmid	Not available.

Section 10. Stability and reactivity

Reactivity	:  QuikSolution	No specific test data related to reactivity available for this product or its ingredients.
	QuikChange Lightning Enzyme	No specific test data related to reactivity available for this product or its ingredients.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	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.
	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.
 Chemical stability	 :  QuikSolution	 The product is stable.
	QuikChange Lightning Enzyme	The product is stable.
	10× QuikChange Lightning Buffer	The product is stable.
	QuikChange XL dNTP Mix	The product is stable.
	Dpn I Enzyme	The product is stable.
	pWS4.5 Control Template	The product is stable.
	Control Primer 1 (34-mer)	The product is stable.
	Control Primer 2 (34-mer)	The product is stable.
	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.
 Possibility of hazardous reactions	 :  QuikSolution	 Under normal conditions of storage and use, hazardous reactions will not occur.
	QuikChange Lightning Enzyme	Under normal conditions of storage and use, hazardous reactions will not occur.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	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.
	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.

Section 10. Stability and reactivity

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.
	QuikChange Lightning Enzyme	No specific data.
	10× QuikChange Lightning Buffer	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Dpn I Enzyme	No specific data.
	pWS4.5 Control Template	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold	No specific data.
	2-Mercaptoethanol	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
Incompatible materials	:  QuikSolution	Reactive or incompatible with the following materials: oxidizing materials
	QuikChange Lightning Enzyme	May react or be incompatible with oxidising materials.
	10× QuikChange Lightning Buffer	May react or be incompatible with oxidising materials.
	QuikChange XL dNTP Mix	May react or be incompatible with oxidising materials.
	Dpn I Enzyme	May react or be incompatible with oxidising materials.
	pWS4.5 Control Template	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.
	XL10-Gold Ultracompetent cells	May react or be incompatible with oxidising materials.
	XL10-Gold	May react or be incompatible with oxidising materials.
	2-Mercaptoethanol	May react or be incompatible with oxidising materials.
	pUC 18 DNA Control Plasmid	May react or be incompatible with oxidising materials.
Hazardous decomposition products	:  QuikSolution	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	QuikChange Lightning Enzyme	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
	10× QuikChange Lightning Buffer	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.
	Dpn I Enzyme	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.
	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.
	XL10-Gold Ultracompetent	Under normal conditions of storage and use,

Section 10. Stability and reactivity

cells	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

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<input checked="" type="checkbox"/> QuikSolution Dimethyl sulfoxide	LD50 Dermal LD50 Oral	Rat Rat	40000 mg/kg 14500 mg/kg	- -
QuikChange Lightning Enzyme Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dpn I Enzyme Glycerol	LD50 Oral	Rat	12600 mg/kg	-
XL10-Gold Ultracompetent cells Glycerol Sucrose	LD50 Oral LD50 Oral	Rat Rat	12600 mg/kg 29700 mg/kg	- -
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	LD50 Dermal LD50 Oral	Rabbit Rat	200 mg/kg 244 mg/kg	- -

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<input checked="" type="checkbox"/> QuikSolution Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	100 milligrams	-
QuikChange Lightning Enzyme Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Dpn I Enzyme Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
XL10-Gold Ultracompetent					

Section 11. Toxicological information

cells Glycerol	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	24 hours 500 milligrams 24 hours 500 milligrams	- -
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 milligrams	-

Sensitisation

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on likely routes of exposure

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

Potential acute health effects

Eye contact

QuikSolution	No known significant effects or critical hazards.
QuikChange Lightning Enzyme	No known significant effects or critical hazards.
10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
QuikChange XL dNTP Mix	No known significant effects or critical hazards.
Dpn I Enzyme	No known significant effects or critical hazards.

Section 11. Toxicological information

	pWS4.5 Control Template	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.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold	Causes serious eye damage.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Inhalation	: QuikSolution	No known significant effects or critical hazards.
	QuikChange Lightning Enzyme	No known significant effects or critical hazards.
	10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	Dpn I Enzyme	No known significant effects or critical hazards.
	pWS4.5 Control Template	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.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Skin contact	: QuikSolution	No known significant effects or critical hazards.
	QuikChange Lightning Enzyme	No known significant effects or critical hazards.
	10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	Dpn I Enzyme	No known significant effects or critical hazards.
	pWS4.5 Control Template	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.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold	May cause an allergic skin reaction.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.
Ingestion	: QuikSolution	No known significant effects or critical hazards.
	QuikChange Lightning Enzyme	No known significant effects or critical hazards.
	10× QuikChange Lightning Buffer	No known significant effects or critical hazards.
	QuikChange XL dNTP Mix	No known significant effects or critical hazards.
	Dpn I Enzyme	No known significant effects or critical hazards.
	pWS4.5 Control Template	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.
	XL10-Gold Ultracompetent cells	No known significant effects or critical hazards.
	XL10-Gold	No known significant effects or critical hazards.
	2-Mercaptoethanol	
	pUC 18 DNA Control Plasmid	No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: QuikSolution	No specific data.
	QuikChange Lightning Enzyme	No specific data.
	10× QuikChange Lightning Buffer	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Dpn I Enzyme	No specific data.

Section 11. Toxicological information

	pWS4.5 Control Template	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold	Adverse symptoms may include the following:
	2-Mercaptoethanol	
		pain
		watering
		redness
Inhalation	pUC 18 DNA Control Plasmid	No specific data.
	: QuikSolution	No specific data.
	QuikChange Lightning Enzyme	No specific data.
	10× QuikChange Lightning Buffer	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Dpn I Enzyme	No specific data.
	pWS4.5 Control Template	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold	No specific data.
	2-Mercaptoethanol	No specific data.
	Skin contact	pUC 18 DNA Control Plasmid
: QuikSolution		No specific data.
QuikChange Lightning Enzyme		No specific data.
10× QuikChange Lightning Buffer		No specific data.
QuikChange XL dNTP Mix		No specific data.
Dpn I Enzyme		No specific data.
pWS4.5 Control Template		No specific data.
Control Primer 1 (34-mer)		No specific data.
Control Primer 2 (34-mer)		No specific data.
XL10-Gold Ultracompetent cells		No specific data.
XL10-Gold		Adverse symptoms may include the following:
2-Mercaptoethanol		
		pain or irritation
	redness	
	blistering may occur	
Ingestion	pUC 18 DNA Control Plasmid	No specific data.
	: QuikSolution	No specific data.
	QuikChange Lightning Enzyme	No specific data.
	10× QuikChange Lightning Buffer	No specific data.
	QuikChange XL dNTP Mix	No specific data.
	Dpn I Enzyme	No specific data.
	pWS4.5 Control Template	No specific data.
	Control Primer 1 (34-mer)	No specific data.
	Control Primer 2 (34-mer)	No specific data.
	XL10-Gold Ultracompetent cells	No specific data.
	XL10-Gold	Adverse symptoms may include the following:
	2-Mercaptoethanol	
		stomach pains
	pUC 18 DNA Control Plasmid	No specific data.

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

Section 11. Toxicological information

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

Not available.

General	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. No known significant effects or critical hazards.
Carcinogenicity	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Mutagenicity	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Section 11. Toxicological information

Teratogenicity	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Developmental effects	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Fertility effects	: <input checked="" type="checkbox"/> QuikSolution QuikChange Lightning Enzyme 10× QuikChange Lightning Buffer QuikChange XL dNTP Mix Dpn I Enzyme pWS4.5 Control Template Control Primer 1 (34-mer) Control Primer 2 (34-mer) XL10-Gold Ultracompetent cells XL10-Gold 2-Mercaptoethanol pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
10× QuikChange Lightning Buffer Oral Dermal Inhalation (vapours)	25000 mg/kg 55000 mg/kg 550 mg/l
XL10-Gold 2-Mercaptoethanol Oral Dermal Inhalation (vapours)	5545.5 mg/kg 4545.5 mg/kg 45.45 mg/l

Section 12. Ecological information

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 µl/L Marine water	Algae - Ulva lactuca	72 hours
QuikChange Lightning Enzyme Glycerol	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
Dpn I Enzyme 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

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
QuikSolution Dimethyl sulfoxide	-2.029	3.16	low
QuikChange Lightning Enzyme Glycerol	-1.76	-	low
Dpn I Enzyme Glycerol	-1.76	-	low
XL10-Gold Ultracompetent cells Glycerol	-1.76	-	low
Sucrose	-3.7	-	low
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	-0.056	-	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 spill material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Regulatory 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 Annex II of Marpol and the IBC Code : Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

6

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

Australia inventory (AICS) : Not determined.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Canada : Not determined.
China : Not determined.
Europe : Not determined.
Japan : **Japan inventory (ENCS):** Not determined.
Japan inventory (ISHL): Not determined.
Malaysia : Not determined.

Section 15. Regulatory information

New Zealand	: Not determined.
Philippines	: Not determined.
Republic of Korea	: Not determined.
Taiwan	: All components are listed or exempted.
Turkey	: <input checked="" type="checkbox"/> Not determined.
United States	: <input checked="" type="checkbox"/> Not determined.

Section 16. Any other relevant information

History

Date of issue/Date of revision	: 17/10/2016
Date of previous issue	: 27/10/2015.
Version	: 5

Key to abbreviations

ADG = Australian Dangerous Goods
 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)
 NOHSC = National Occupational Health and Safety Commission
 SUSMP = Standard Uniform Schedule of Medicine and Poisons
 UN = United Nations

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> QuikSolution Flam. Liq. 4, H227	On basis of test data
XL10-Gold 2-Mercaptoethanol Eye Dam. 1, H318 Skin Sens. 1, H317 Aquatic Chronic 3, H412	Calculation method Calculation method Calculation method

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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