

SAFETY DATA SHEET



Difficult Cloning Competent Cell Pack, Part Number 230247

Section 1. Identification

1.1 Product identifier

Product name : Difficult Cloning Competent Cell Pack, Part Number 230247

Part no. (chemical kit) : 230247

Part no. :

XL10-Gold Kan (r) ultracompetent cells	200317-41
SURE 2 supercompetent cells	230152-41
ABLE K competent cells	200172-41
pUC 18 DNA Control Plasmid	200231-42
Beta Mercaptoethanol	210200-43
2-Mercaptoethanol For Ultra Comp Cells	210210-43
XL10-Gold 2-Mercaptoethanol	200314-43

Validation date : 6/6/2023

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

Identified uses :

- Analytical reagent.
- XL10-Gold Kan (r) ultracompetent cells 1000 µl (10 x 100 µl)
- SURE 2 supercompetent cells 1000 µl (10 x 100 µl)
- ABLE K competent cells 1000 µl (5 x 200 µl)
- pUC 18 DNA Control Plasmid 30 µl (0.1 ng/µl)
- Beta Mercaptoethanol 25 µl 1.42M
- 2-Mercaptoethanol For Ultra Comp Cells 1.22 M 25 µl
- XL10-Gold 2-Mercaptoethanol 50 µl

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status :	XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product. This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
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Section 2. Hazards identification

Classification of the substance or mixture

XL10-Gold Kan (r)

ultracompetent cells

H320 EYE IRRITATION - Category 2B

SURE 2 supercompetent cells

H320 EYE IRRITATION - Category 2B

ABLE K competent cells

H320 EYE IRRITATION - Category 2B

Beta Mercaptoethanol

H312 ACUTE TOXICITY (dermal) - Category 4

H315 SKIN IRRITATION - Category 2

H318 SERIOUS EYE DAMAGE - Category 1

H317 SKIN SENSITIZATION - Category 1

H361 TOXIC TO REPRODUCTION - Category 2

H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

H412 AQUATIC HAZARD (LONG-TERM) - Category 3

2-Mercaptoethanol For Ultra Comp Cells

H318 SERIOUS EYE DAMAGE - Category 1

H317 SKIN SENSITIZATION - Category 1

H361 TOXIC TO REPRODUCTION - Category 2

H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

H412 AQUATIC HAZARD (LONG-TERM) - Category 3

XL10-Gold 2-Mercaptoethanol

H318 SERIOUS EYE DAMAGE - Category 1

H317 SKIN SENSITIZATION - Category 1

H361 TOXIC TO REPRODUCTION - Category 2

H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

H412 AQUATIC HAZARD (LONG-TERM) - Category 3

<p>XL10-Gold Kan (r) ultracompetent cells</p>	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5%
<p>SURE 2 supercompetent cells</p>	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5%
<p>ABLE K competent cells</p>	Percentage of the mixture consisting of ingredient (s) of unknown hazards to the aquatic environment: 5%

2.2 GHS label elements

Section 2. Hazards identification

Hazard pictograms

: Beta Mercaptoethanol



2-Mercaptoethanol For Ultra Comp Cells



XL10-Gold 2-Mercaptoethanol



Signal word

: XL10-Gold Kan (r) ultracompetent cells Warning

SURE 2 supercompetent cells Warning

ABLE K competent cells Warning

pUC 18 DNA Control Plasmid No signal word.

Beta Mercaptoethanol Danger

2-Mercaptoethanol For Ultra Comp Cells Danger

XL10-Gold 2-Mercaptoethanol Danger

Hazard statements

: XL10-Gold Kan (r) ultracompetent cells H320 - Causes eye irritation.

SURE 2 supercompetent cells H320 - Causes eye irritation.

ABLE K competent cells H320 - Causes eye irritation.

pUC 18 DNA Control Plasmid No known significant effects or critical hazards.

Beta Mercaptoethanol H312 - Harmful in contact with skin.

H315 - Causes skin irritation.

H317 - May cause an allergic skin reaction.

H318 - Causes serious eye damage.

H361 - Suspected of damaging fertility or the unborn child.

H373 - May cause damage to organs through prolonged or repeated exposure.

H412 - Harmful to aquatic life with long lasting effects.

H317 - May cause an allergic skin reaction.

H318 - Causes serious eye damage.

H361 - Suspected of damaging fertility or the unborn child.

H373 - May cause damage to organs through prolonged or repeated exposure.

H412 - Harmful to aquatic life with long lasting effects.

H317 - May cause an allergic skin reaction.

H318 - Causes serious eye damage.

H361 - Suspected of damaging fertility or the unborn child.

H373 - May cause damage to organs through prolonged or repeated exposure.

H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

Section 2. Hazards identification

Prevention	: <input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells	Not applicable.	
	SURE 2 supercompetent cells	Not applicable.	
	ABLE K competent cells	Not applicable.	
	pUC 18 DNA Control Plasmid Beta Mercaptoethanol	Not applicable. P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P273 - Avoid release to the environment. P260 - Do not breathe vapor. P264 - Wash thoroughly after handling. P201 - Obtain special instructions before use.	
	2-Mercaptoethanol For Ultra Comp Cells	P280 - Wear protective gloves, protective clothing and eye or face protection. P273 - Avoid release to the environment. P260 - Do not breathe vapor.	
	XL10-Gold 2-Mercaptoethanol	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P273 - Avoid release to the environment. P260 - Do not breathe vapor.	
Response	: <input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.	
	SURE 2 supercompetent cells	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.	
	ABLE K competent cells	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice or attention.	
	pUC 18 DNA Control Plasmid Beta Mercaptoethanol	Not applicable. P308 + P313 - IF exposed or concerned: Get medical advice or attention. P362 + P364 - Take off contaminated clothing and wash it before reuse. P363 - Wash contaminated clothing before reuse. P302 + P312, P352 - IF ON SKIN: Call a POISON CENTER or doctor if you feel unwell. Wash with plenty of water. P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.	
		2-Mercaptoethanol For Ultra Comp Cells	P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. P308 + P313 - IF exposed or concerned: Get medical advice or attention. P363 - Wash contaminated clothing before reuse. P302 + P352 - IF ON SKIN: Wash with plenty of

Section 2. Hazards identification

water.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
 P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
 P308 + P313 - IF exposed or concerned: Get medical advice or attention.
 P363 - Wash contaminated clothing before reuse.
 P302 + P352 - IF ON SKIN: Wash with plenty of water.
 P333 + P313 - If skin irritation or rash occurs: Get medical advice or attention.
 P305 + P351 + P338, P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

XL10-Gold 2-Mercaptoethanol

Storage

- : XL10-Gold Kan (r) ultracompetent cells Not applicable.
- SURE 2 supercompetent cells Not applicable.
- ABLE K competent cells Not applicable.
- pUC 18 DNA Control Plasmid Not applicable.
- Beta Mercaptoethanol Not applicable.
- 2-Mercaptoethanol For Ultra Comp Cells Not applicable.
- XL10-Gold 2-Mercaptoethanol Not applicable.

Disposal

- : XL10-Gold Kan (r) ultracompetent cells Not applicable.
- SURE 2 supercompetent cells Not applicable.
- ABLE K competent cells Not applicable.
- pUC 18 DNA Control Plasmid Not applicable.
- Beta Mercaptoethanol P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- 2-Mercaptoethanol For Ultra Comp Cells P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- XL10-Gold 2-Mercaptoethanol P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements

- : XL10-Gold Kan (r) ultracompetent cells None known.
- SURE 2 supercompetent cells None known.
- ABLE K competent cells None known.
- pUC 18 DNA Control Plasmid None known.
- Beta Mercaptoethanol None known.
- 2-Mercaptoethanol For Ultra Comp Cells None known.
- XL10-Gold 2-Mercaptoethanol None known.

2.3 Other hazards

Section 2. Hazards identification

Hazards not otherwise classified	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	None known. None known. None known. None known. None known. None known.
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Section 3. Composition/information on ingredients

Substance/mixture	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	Mixture Mixture Mixture Mixture Mixture Mixture Mixture
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Ingredient name	%	CAS number
XL10-Gold Kan (r) ultracompetent cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
SURE 2 supercompetent cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
ABLE K competent cells		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7
Beta Mercaptoethanol		
2-Mercaptoethanol	≤12	60-24-2
2-Mercaptoethanol For Ultra Comp Cells		
2-Mercaptoethanol	<10	60-24-2
XL10-Gold 2-Mercaptoethanol		

Section 3. Composition/information on ingredients

2-Mercaptoethanol	≤5	60-24-2
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Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

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

Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact	: XL10-Gold Kan (r) ultracompetent cells	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	SURE 2 supercompetent cells	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	ABLE K competent cells	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
	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.
	Beta 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.
	2-Mercaptoethanol For Ultra Comp Cells	Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.
	XL10-Gold 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.
Inhalation	: XL10-Gold Kan (r) ultracompetent cells	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position

Section 4. First aid measures


SURE 2 supercompetent cells	<p>and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.</p> <p>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.</p>
ABLE K competent cells	<p>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.</p>
pUC 18 DNA Control Plasmid	<p>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</p>
Beta Mercaptoethanol	<p>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.</p>
2-Mercaptoethanol For Ultra Comp Cells	<p>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.</p>

Section 4. First aid measures

	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.
Skin contact	: XL10-Gold Kan (r) ultracompetent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	SURE 2 supercompetent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	ABLE K competent cells	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	pUC 18 DNA Control Plasmid	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
	Beta 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.
	2-Mercaptoethanol For Ultra Comp Cells	Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	XL10-Gold 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

Section 4. First aid measures

Ingestion

:  L10-Gold Kan (r) ultracompetent cells

any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

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

SURE 2 supercompetent cells

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

ABLE K competent cells

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

pUC 18 DNA Control Plasmid

Wash out mouth with water. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Beta Mercaptoethanol

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not

Section 4. First aid measures

2-Mercaptoethanol For Ultra Comp Cells

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

XL10-Gold 2-Mercaptoethanol

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

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact

- | | |
|--|---|
| : XL10-Gold Kan (r) ultracompetent cells | Causes eye irritation. |
| SURE 2 supercompetent cells | Causes eye irritation. |
| ABLE K competent cells | Causes eye irritation. |
| pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| Beta Mercaptoethanol | Causes serious eye damage. |
| 2-Mercaptoethanol For Ultra Comp Cells | Causes serious eye damage. |
| XL10-Gold 2-Mercaptoethanol | Causes serious eye damage. |

Inhalation

- | | |
|--|---|
| : XL10-Gold Kan (r) ultracompetent cells | No known significant effects or critical hazards. |
| SURE 2 supercompetent cells | No known significant effects or critical hazards. |
| ABLE K competent cells | No known significant effects or critical hazards. |
| pUC 18 DNA Control Plasmid | No known significant effects or critical hazards. |
| Beta Mercaptoethanol | No known significant effects or critical hazards. |
| 2-Mercaptoethanol For Ultra Comp Cells | No known significant effects or critical hazards. |
| XL10-Gold 2-Mercaptoethanol | No known significant effects or critical hazards. |

Section 4. First aid measures

Skin contact	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	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. Harmful in contact with skin. Causes skin irritation. May cause an allergic skin reaction. May cause an allergic skin reaction. May cause an allergic skin reaction.
Ingestion	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	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.
<u>Over-exposure signs/symptoms</u>		
Eye contact	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness
Inhalation	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells	No specific data. No specific data. No specific data. No specific data. Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations Adverse symptoms may include the following: reduced fetal weight

Section 4. First aid measures

Skin contact

XL10-Gold 2-Mercaptoethanol	increase in fetal deaths skeletal malformations Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations
: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol	No specific data. No specific data. No specific data. Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
2-Mercaptoethanol For Ultra Comp Cells	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations

Ingestion

: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol	No specific data. No specific data. No specific data. Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
2-Mercaptoethanol For Ultra Comp Cells	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations

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

Section 4. First aid measures

Notes to physician	: XL10-Gold Kan (r) ultracompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	SURE 2 supercompetent cells	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	ABLE K competent cells	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.
	Beta Mercaptoethanol	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
	2-Mercaptoethanol For Ultra Comp 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.
Specific treatments	: XL10-Gold Kan (r) ultracompetent cells	No specific treatment.
	SURE 2 supercompetent cells	No specific treatment.
	ABLE K competent cells	No specific treatment.
	pUC 18 DNA Control Plasmid	No specific treatment.
	Beta Mercaptoethanol	No specific treatment.
	2-Mercaptoethanol For Ultra Comp Cells	No specific treatment.
	XL10-Gold 2-Mercaptoethanol	No specific treatment.
Protection of first-aiders	: XL10-Gold Kan (r) ultracompetent cells	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	SURE 2 supercompetent cells	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	ABLE K competent cells	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
	pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training.
	Beta Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	2-Mercaptoethanol For Ultra Comp Cells	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.

Section 4. First aid measures

XL10-Gold 2-Mercaptoethanol

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

XL10-Gold Kan (r) ultracompetent cells	Use an extinguishing agent suitable for the surrounding fire.
SURE 2 supercompetent cells	Use an extinguishing agent suitable for the surrounding fire.
ABLE K competent cells	Use an extinguishing agent suitable for the surrounding fire.
pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire.
Beta Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.
2-Mercaptoethanol For Ultra Comp Cells	Use an extinguishing agent suitable for the surrounding fire.
XL10-Gold 2-Mercaptoethanol	Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media

XL10-Gold Kan (r) ultracompetent cells	None known.
SURE 2 supercompetent cells	None known.
ABLE K competent cells	None known.
pUC 18 DNA Control Plasmid	None known.
Beta Mercaptoethanol	None known.
2-Mercaptoethanol For Ultra Comp Cells	None known.
XL10-Gold 2-Mercaptoethanol	None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical

XL10-Gold Kan (r) ultracompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
SURE 2 supercompetent cells	In a fire or if heated, a pressure increase will occur and the container may burst.
ABLE K competent cells	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.
Beta Mercaptoethanol	In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
2-Mercaptoethanol For Ultra Comp Cells	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

Section 5. Fire-fighting measures

Hazardous thermal decomposition products

XL10-Gold 2-Mercaptoethanol

any waterway, sewer or drain.

In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

: XL10-Gold Kan (r) ultracompetent cells

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

SURE 2 supercompetent cells

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

ABLE K competent cells

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

pUC 18 DNA Control Plasmid
Beta Mercaptoethanol

No specific data.

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides

2-Mercaptoethanol For Ultra
Comp Cells

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

XL10-Gold 2-Mercaptoethanol

Decomposition products may include the following materials:

carbon dioxide
carbon monoxide
sulfur oxides
halogenated compounds
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters

: XL10-Gold Kan (r) 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.

SURE 2 supercompetent 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.

ABLE K competent cells

Promptly isolate the scene by removing all persons

Section 5. Fire-fighting 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.
	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.
	Beta 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.
	2-Mercaptoethanol For Ultra Comp 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.
Special protective equipment for fire-fighters	: XL10-Gold Kan (r) 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.
	SURE 2 supercompetent cells	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	ABLE K competent cells	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.
	Beta Mercaptoethanol	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	2-Mercaptoethanol For Ultra Comp 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.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: XL10-Gold Kan (r) ultracompetent cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
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Section 6. Accidental release measures

SURE 2 supercompetent cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
ABLE K competent cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
Beta Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
2-Mercaptoethanol For Ultra Comp Cells	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
XL10-Gold 2-Mercaptoethanol	No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders : XL10-Gold Kan (r) ultracompetent cells	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
SURE 2 supercompetent cells	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
ABLE K competent cells	If specialized clothing is required to deal with the

Section 6. Accidental release measures

pUC 18 DNA Control Plasmid	spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel". If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Beta Mercaptoethanol	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
2-Mercaptoethanol For Ultra Comp Cells	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
XL10-Gold 2-Mercaptoethanol	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: XL10-Gold Kan (r) ultracompetent cells	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
SURE 2 supercompetent cells	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
ABLE K competent cells	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
pUC 18 DNA Control Plasmid	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
Beta Mercaptoethanol	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
2-Mercaptoethanol For Ultra Comp Cells	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.
XL10-Gold 2-Mercaptoethanol	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in

Section 6. Accidental release measures

large quantities.

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up	: XL10-Gold Kan (r) 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.
	SURE 2 supercompetent 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.
	ABLE K competent 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.
	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.
	Beta 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.
	2-Mercaptoethanol For Ultra Comp 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 7. Handling and storage

7.1 Precautions for safe handling

Protective measures	: XL10-Gold Kan (r) ultracompetent cells	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
	SURE 2 supercompetent cells	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with

Section 7. Handling and storage

ABLE K competent cells

eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

pUC 18 DNA Control Plasmid

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

Beta Mercaptoethanol

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

2-Mercaptoethanol For Ultra Comp Cells

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

XL10-Gold 2-Mercaptoethanol

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during

Section 7. Handling and storage

Advice on general occupational hygiene

: XL10-Gold Kan (r) ultracompetent cells	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. 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.
SURE 2 supercompetent 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.
ABLE K competent 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.
pUC 18 DNA Control Plasmid	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Beta Mercaptoethanol	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
2-Mercaptoethanol For Ultra Comp Cells	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
XL10-Gold 2-Mercaptoethanol	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

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

Section 7. Handling and storage

XL10-Gold 2-Mercaptoethanol

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

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

7.3 Specific end use(s)

Recommendations

- : XL10-Gold Kan (r) ultracompetent cells Industrial applications, Professional applications.
- SURE 2 supercompetent cells Industrial applications, Professional applications.
- ABLE K competent cells Industrial applications, Professional applications.
- pUC 18 DNA Control Plasmid Industrial applications, Professional applications.
- Beta Mercaptoethanol Industrial applications, Professional applications.
- 2-Mercaptoethanol For Ultra Comp Cells Industrial applications, Professional applications.
- XL10-Gold 2-Mercaptoethanol Industrial applications, Professional applications.

Industrial sector specific solutions

- : XL10-Gold Kan (r) ultracompetent cells Not available.
- SURE 2 supercompetent cells Not available.
- ABLE K competent cells Not available.
- pUC 18 DNA Control Plasmid Not available.
- Beta Mercaptoethanol Not available.
- 2-Mercaptoethanol For Ultra Comp Cells Not available.
- XL10-Gold 2-Mercaptoethanol Not available.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
XL10-Gold Kan (r) ultracompetent cells Glycerol	<p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>TWA: 10 mg/m³ 8 hours. Form: Total dust</p> <p>OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</p> <p>TWA: 15 mg/m³ 8 hours. Form: Total dust</p> <p>CAL OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: respirable</p>

Section 8. Exposure controls/personal protection

<p>Dimethyl sulfoxide</p> <p>Potassium chloride</p> <p>SURE 2 supercompetent cells Glycerol</p>	<p>fraction TWA: 10 mg/m³ 8 hours. Form: total dust OARS WEEL (United States, 4/2022). TWA: 250 ppm 8 hours. None.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust CAL OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: respirable fraction TWA: 10 mg/m³ 8 hours. Form: total dust</p>
<p>Dimethyl sulfoxide</p> <p>Potassium chloride</p> <p>ABLE K competent cells Glycerol</p>	<p>OARS WEEL (United States, 4/2022). TWA: 250 ppm 8 hours. None.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 15 mg/m³ 8 hours. Form: Total dust CAL OSHA PEL (United States, 5/2018). TWA: 5 mg/m³ 8 hours. Form: respirable fraction TWA: 10 mg/m³ 8 hours. Form: total dust</p>
<p>Dimethyl sulfoxide</p> <p>Potassium chloride</p> <p>Beta Mercaptoethanol 2-Mercaptoethanol</p> <p>2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol</p> <p>XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol</p>	<p>OARS WEEL (United States, 4/2022). TWA: 250 ppm 8 hours. None.</p> <p>OARS WEEL (United States, 4/2022). Absorbed through skin. TWA: 0.2 ppm 8 hours.</p> <p>OARS WEEL (United States, 4/2022). Absorbed through skin. TWA: 0.2 ppm 8 hours.</p> <p>OARS WEEL (United States, 4/2022). Absorbed through skin. TWA: 0.2 ppm 8 hours.</p>

[Biological exposure indices](#)

No exposure indices known.

Section 8. Exposure controls/personal protection

8.2 Exposure controls

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

- Hygiene measures** : Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles 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.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties and safety characteristics

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

Appearance

- Physical state**
- | | |
|--|---------|
| XL10-Gold Kan (r) ultracompetent cells | Liquid. |
| SURE 2 supercompetent cells | Liquid. |
| ABLE K competent cells | Liquid. |
| pUC 18 DNA Control Plasmid | Liquid. |
| Beta Mercaptoethanol | Liquid. |
| 2-Mercaptoethanol For Ultra Comp Cells | Liquid. |
| XL10-Gold 2-Mercaptoethanol | Liquid. |

Section 9. Physical and chemical properties and safety characteristics

Color	:	XL10-Gold Kan (r) ultracompetent cells	Not available.
		SURE 2 supercompetent cells	Not available.
		ABLE K competent cells	Not available.
		pUC 18 DNA Control Plasmid	Not available.
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
Odor	:	XL10-Gold Kan (r) ultracompetent cells	Not available.
		SURE 2 supercompetent cells	Not available.
		ABLE K competent cells	Not available.
		pUC 18 DNA Control Plasmid	Not available.
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
Odor threshold	:	XL10-Gold Kan (r) ultracompetent cells	Not available.
		SURE 2 supercompetent cells	Not available.
		ABLE K competent cells	Not available.
		pUC 18 DNA Control Plasmid	Not available.
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
pH	:	XL10-Gold Kan (r) ultracompetent cells	6.4
		SURE 2 supercompetent cells	6.4
		ABLE K competent cells	6.4
		pUC 18 DNA Control Plasmid	7.5
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
Melting point/freezing point	:	XL10-Gold Kan (r) ultracompetent cells	Not available.
		SURE 2 supercompetent cells	Not available.
		ABLE K competent cells	Not available.
		pUC 18 DNA Control Plasmid	0°C (32°F)
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
Boiling point, initial boiling point, and boiling range	:	XL10-Gold Kan (r) ultracompetent cells	Not available.
		SURE 2 supercompetent cells	Not available.
		ABLE K competent cells	Not available.
		pUC 18 DNA Control Plasmid	100°C (212°F)
		Beta Mercaptoethanol	Not available.
		2-Mercaptoethanol For Ultra Comp Cells	Not available.
		XL10-Gold 2-Mercaptoethanol	Not available.
Flash point	:		

Section 9. Physical and chemical properties and safety characteristics

Ingredient name	Closed cup			Open cup		
	°C	°F	Method	°C	°F	Method
XL10-Gold Kan (r) ultracompetent cells						
Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6	
Glycerol				177	350.6	
SURE 2 supercompetent cells						
Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6	
Glycerol				177	350.6	
ABLE K competent cells						
Dimethyl sulfoxide	87	188.6	ASTM D 93	87	188.6	
Glycerol				177	350.6	
Beta Mercaptoethanol						
2-Mercaptoethanol	74	165.2		74	165.2	
2-Mercaptoethanol For Ultra Comp Cells						
2-Mercaptoethanol	74	165.2		74	165.2	
XL10-Gold 2-Mercaptoethanol						
2-Mercaptoethanol	74	165.2		74	165.2	

Evaporation rate

- : XL10-Gold Kan (r) ultracompetent cells Not available.
- SURE 2 supercompetent cells Not available.
- ABLE K competent cells Not available.
- pUC 18 DNA Control Plasmid Not available.
- Beta Mercaptoethanol Not available.
- 2-Mercaptoethanol For Ultra Comp Cells Not available.
- XL10-Gold 2-Mercaptoethanol Not available.

Section 9. Physical and chemical properties and safety characteristics

- Flammability** : XL10-Gold Kan (r) ultracompetent cells Not applicable.
 SURE 2 supercompetent cells Not applicable.
 ABLE K competent cells Not applicable.
 pUC 18 DNA Control Plasmid Not applicable.
 Beta Mercaptoethanol Not applicable.
 2-Mercaptoethanol For Ultra Comp Cells Not applicable.
 XL10-Gold 2-Mercaptoethanol Not applicable.
- Lower and upper explosion limit/flammability limit** : XL10-Gold Kan (r) ultracompetent cells Not available.
 SURE 2 supercompetent cells Not available.
 ABLE K competent cells Not available.
 pUC 18 DNA Control Plasmid Not available.
 Beta Mercaptoethanol Not available.
 2-Mercaptoethanol For Ultra Comp Cells Not available.
 XL10-Gold 2-Mercaptoethanol Not available.

Vapor pressure :

Ingredient name	Vapor Pressure at 20°C			Vapor pressure at 50°C		
	mm Hg	kPa	Method	mm Hg	kPa	Method
XL10-Gold Kan (r) ultracompetent cells						
water	17.5	2.3		92.258	12.3	
Dimethyl sulfoxide	0.42	0.056	EU A.4			
SURE 2 supercompetent cells						
water	17.5	2.3		92.258	12.3	
Dimethyl sulfoxide	0.42	0.056	EU A.4			
ABLE K competent cells						
water	17.5	2.3		92.258	12.3	
Dimethyl sulfoxide	0.42	0.056	EU A.4			
pUC 18 DNA Control Plasmid						
water	17.5	2.3		92.258	12.3	
Beta Mercaptoethanol						
water	17.5	2.3		92.258	12.3	
2-Mercaptoethanol	0.98	0.13				

Section 9. Physical and chemical properties and safety characteristics

2-Mercaptoethanol For Ultra Comp Cells					
water	17.5	2.3		92.258	12.3
2-Mercaptoethanol	0.98	0.13			
XL10-Gold 2-Mercaptoethanol					
water	17.5	2.3		92.258	12.3
2-Mercaptoethanol	0.98	0.13			

Relative vapor density : XL10-Gold Kan (r) ultracompetent cells Not available.
 SURE 2 supercompetent cells Not available.
 ABLE K competent cells Not available.
 pUC 18 DNA Control Plasmid Not available.
 Beta Mercaptoethanol Not available.
 2-Mercaptoethanol For Ultra Comp Cells Not available.

Relative density : XL10-Gold 2-Mercaptoethanol Not available.
 XL10-Gold Kan (r) ultracompetent cells Not available.
 SURE 2 supercompetent cells Not available.
 ABLE K competent cells Not available.
 pUC 18 DNA Control Plasmid Not available.
 Beta Mercaptoethanol Not available.
 2-Mercaptoethanol For Ultra Comp Cells Not available.
 XL10-Gold 2-Mercaptoethanol Not available.

Solubility(ies) :

Media	Result
<input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells	
water	Soluble
SURE 2 supercompetent cells	
water	Soluble
ABLE K competent cells	
water	Soluble
pUC 18 DNA Control Plasmid	
water	Soluble
Beta Mercaptoethanol	
water	Soluble
2-Mercaptoethanol For Ultra Comp Cells	
water	Soluble
XL10-Gold 2-Mercaptoethanol	
water	Soluble

Section 9. Physical and chemical properties and safety characteristics

Partition coefficient: n-octanol/water :

- XL10-Gold Kan (r) ultracompetent cells Not applicable.
- SURE 2 supercompetent cells Not applicable.
- ABLE K competent cells Not applicable.
- pUC 18 DNA Control Plasmid Not applicable.
- Beta Mercaptoethanol Not applicable.
- 2-Mercaptoethanol For Ultra Comp Cells Not applicable.
- XL10-Gold 2-Mercaptoethanol Not applicable.

Auto-ignition temperature :

Ingredient name	°C	°F	Method
<input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells			
Dimethyl sulfoxide	300 to 302	572 to 575.6	
Glycerol	370	698	
SURE 2 supercompetent cells			
Dimethyl sulfoxide	300 to 302	572 to 575.6	
Glycerol	370	698	
ABLE K competent cells			
Dimethyl sulfoxide	300 to 302	572 to 575.6	
Glycerol	370	698	
Beta Mercaptoethanol			
2-Mercaptoethanol	295	563	
2-Mercaptoethanol For Ultra Comp Cells			
2-Mercaptoethanol	295	563	
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	295	563	

Decomposition temperature :

- XL10-Gold Kan (r) ultracompetent cells Not available.
- SURE 2 supercompetent cells Not available.
- ABLE K competent cells Not available.
- pUC 18 DNA Control Plasmid Not available.
- Beta Mercaptoethanol Not available.
- 2-Mercaptoethanol For Ultra Comp Cells Not available.
- XL10-Gold 2-Mercaptoethanol Not available.

Section 9. Physical and chemical properties and safety characteristics

Viscosity	: XL10-Gold Kan (r) ultracompetent cells	Not available.
	SURE 2 supercompetent cells	Not available.
	ABLE K competent cells	Not available.
	pUC 18 DNA Control Plasmid	Not available.
	Beta Mercaptoethanol	Not available.
	2-Mercaptoethanol For Ultra Comp Cells	Not available.
	XL10-Gold 2-Mercaptoethanol	Not available.

Particle characteristics

Median particle size	: <input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells	Not applicable.
	SURE 2 supercompetent cells	Not applicable.
	ABLE K competent cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.
	Beta Mercaptoethanol	Not applicable.
	2-Mercaptoethanol For Ultra Comp Cells	Not applicable.
	XL10-Gold 2-Mercaptoethanol	Not applicable.

Section 10. Stability and reactivity

10.1 Reactivity	: XL10-Gold Kan (r) ultracompetent cells	No specific test data related to reactivity available for this product or its ingredients.
	SURE 2 supercompetent cells	No specific test data related to reactivity available for this product or its ingredients.
	ABLE K competent cells	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.
	Beta Mercaptoethanol	No specific test data related to reactivity available for this product or its ingredients.
	2-Mercaptoethanol For Ultra Comp 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.

10.2 Chemical stability	: XL10-Gold Kan (r) ultracompetent cells	The product is stable.
	SURE 2 supercompetent cells	The product is stable.
	ABLE K competent cells	The product is stable.
	pUC 18 DNA Control Plasmid	The product is stable.
	Beta Mercaptoethanol	The product is stable.
	2-Mercaptoethanol For Ultra Comp Cells	The product is stable.
	XL10-Gold 2-Mercaptoethanol	The product is stable.

10.3 Possibility of hazardous reactions	: XL10-Gold Kan (r) ultracompetent cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	SURE 2 supercompetent cells	Under normal conditions of storage and use, hazardous reactions will not occur.
	ABLE K competent cells	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.
	Beta Mercaptoethanol	Under normal conditions of storage and use, hazardous reactions will not occur.
	2-Mercaptoethanol For Ultra Comp Cells	Under normal conditions of storage and use, hazardous reactions will not occur.

Section 10. Stability and reactivity

XL10-Gold 2-Mercaptoethanol Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid :

XL10-Gold Kan (r) ultracompetent cells	No specific data.
SURE 2 supercompetent cells	No specific data.
ABLE K competent cells	No specific data.
pUC 18 DNA Control Plasmid	No specific data.
Beta Mercaptoethanol	No specific data.
2-Mercaptoethanol For Ultra Comp Cells	No specific data.
XL10-Gold 2-Mercaptoethanol	No specific data.

10.5 Incompatible materials :

XL10-Gold Kan (r) ultracompetent cells	May react or be incompatible with oxidizing materials.
SURE 2 supercompetent cells	May react or be incompatible with oxidizing materials.
ABLE K competent cells	May react or be incompatible with oxidizing materials.
pUC 18 DNA Control Plasmid	May react or be incompatible with oxidizing materials.
Beta Mercaptoethanol	May react or be incompatible with oxidizing materials.
2-Mercaptoethanol For Ultra Comp Cells	May react or be incompatible with oxidizing materials.
XL10-Gold 2-Mercaptoethanol	May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products :

XL10-Gold Kan (r) ultracompetent cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
SURE 2 supercompetent cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
ABLE K competent cells	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.
Beta Mercaptoethanol	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
2-Mercaptoethanol For Ultra Comp Cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced.
XL10-Gold 2-Mercaptoethanol	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

[11.1 Information on toxicological effects](#)

[Acute toxicity](#)

Section 11. Toxicological information

Product/ingredient name	Result	Species	Dose	Exposure
XL10-Gold Kan (r) ultracompetent cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
SURE 2 supercompetent cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
ABLE K competent cells				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Dimethyl sulfoxide	LD50 Dermal	Rat	40000 mg/kg	-
	LD50 Oral	Rat	14500 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
Beta Mercaptoethanol				
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-
2-Mercaptoethanol For Ultra Comp Cells				
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-
XL10-Gold 2-Mercaptoethanol				
2-Mercaptoethanol	LD50 Oral	Rat	244 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
XL10-Gold Kan (r) ultracompetent cells					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	100 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
SURE 2 supercompetent cells					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-

Section 11. Toxicological information

Potassium chloride	Skin - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	100 mg 24 hours 500 mg	- -
ABLE K competent cells Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
Dimethyl sulfoxide	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Potassium chloride	Eyes - Mild irritant Eyes - Mild irritant	Rabbit Rabbit	- -	100 mg 24 hours 500 mg	- -
Beta Mercaptoethanol 2-Mercaptoethanol	Skin - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	100 mg 24 hours 500 mg	- -
2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	2 mg	-
	Eyes - Severe irritant	Rabbit	-	2 mg	-
	Eyes - Severe irritant	Rabbit	-	2 mg	-

Sensitization

Not available.

Mutagenicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Beta Mercaptoethanol 2-Mercaptoethanol	Category 3	-	Respiratory tract irritation
2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol	Category 3	-	Respiratory tract irritation
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Category 3	-	Respiratory tract irritation

Section 11. Toxicological information

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
Beta Mercaptoethanol 2-Mercaptoethanol	Category 2	oral	heart, liver
2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol	Category 2	oral	heart, liver
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	Category 2	oral	heart, liver

Aspiration hazard

Not available.

Information on the likely routes of exposure

- : XL10-Gold Kan (r) ultracompetent cells
SURE 2 supercompetent cells
ABLE K competent cells
pUC 18 DNA Control Plasmid
Beta Mercaptoethanol
2-Mercaptoethanol For Ultra Comp Cells
XL10-Gold 2-Mercaptoethanol
- Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Not available.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.
Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Potential acute health effects

Eye contact

- : XL10-Gold Kan (r) ultracompetent cells
SURE 2 supercompetent cells
ABLE K competent cells
pUC 18 DNA Control Plasmid
Beta Mercaptoethanol
2-Mercaptoethanol For Ultra Comp Cells
XL10-Gold 2-Mercaptoethanol
- Causes eye irritation.
Causes eye irritation.
Causes eye irritation.
No known significant effects or critical hazards.
Causes serious eye damage.
Causes serious eye damage.
Causes serious eye damage.

Inhalation

- : XL10-Gold Kan (r) ultracompetent cells
SURE 2 supercompetent cells
ABLE K competent cells
pUC 18 DNA Control Plasmid
Beta Mercaptoethanol
2-Mercaptoethanol For Ultra Comp Cells
XL10-Gold 2-Mercaptoethanol
- 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.

Skin contact

- : XL10-Gold Kan (r) ultracompetent cells
SURE 2 supercompetent cells
ABLE K competent cells
pUC 18 DNA Control Plasmid
Beta Mercaptoethanol
2-Mercaptoethanol For Ultra Comp Cells
XL10-Gold 2-Mercaptoethanol
- 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.
Harmful in contact with skin. Causes skin irritation.
May cause an allergic skin reaction.
May cause an allergic skin reaction.
May cause an allergic skin reaction.

Section 11. Toxicological information

Ingestion	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
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Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness Adverse symptoms may include the following: irritation watering redness No specific data. Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness Adverse symptoms may include the following: pain watering redness
Inhalation	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol	No specific data. No specific data. No specific data. No specific data. Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations Adverse symptoms may include the following: reduced fetal weight increase in fetal deaths skeletal malformations

Section 11. Toxicological information

Skin contact	: XL10-Gold Kan (r) ultracompetent cells	No specific data.
	SURE 2 supercompetent cells	No specific data.
	ABLE K competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	Beta Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
	2-Mercaptoethanol For Ultra Comp Cells	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: pain or irritation redness blistering may occur reduced fetal weight increase in fetal deaths skeletal malformations
Ingestion	: XL10-Gold Kan (r) ultracompetent cells	No specific data.
	SURE 2 supercompetent cells	No specific data.
	ABLE K competent cells	No specific data.
	pUC 18 DNA Control Plasmid	No specific data.
	Beta Mercaptoethanol	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
	2-Mercaptoethanol For Ultra Comp Cells	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations
	XL10-Gold 2-Mercaptoethanol	Adverse symptoms may include the following: stomach pains reduced fetal weight increase in fetal deaths skeletal malformations

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

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

General	<ul style="list-style-type: none"> : XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol 	<ul style="list-style-type: none"> 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. May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. May cause damage to organs through prolonged or repeated exposure. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.
Carcinogenicity	<ul style="list-style-type: none"> : XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> : XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol 	<ul style="list-style-type: none"> No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
Reproductive toxicity	<ul style="list-style-type: none"> : XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol 2-Mercaptoethanol For Ultra Comp Cells XL10-Gold 2-Mercaptoethanol 	<ul style="list-style-type: none"> 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. Suspected of damaging fertility or the unborn child. Suspected of damaging fertility or the unborn child. Suspected of damaging fertility or the unborn child.

Numerical measures of toxicity

Acute toxicity estimates

Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
XL10-Gold Kan (r) ultracompetent cells					
XL10-Gold Kan (r) ultracompetent cells	136842.1	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Potassium chloride	2600	N/A	N/A	N/A	N/A
SURE 2 supercompetent cells					
SURE 2 supercompetent cells	136842.1	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Potassium chloride	2600	N/A	N/A	N/A	N/A
ABLE K competent cells					
ABLE K competent cells	136842.1	N/A	N/A	N/A	N/A
Glycerol	12600	N/A	N/A	N/A	N/A
Dimethyl sulfoxide	14500	40000	N/A	N/A	N/A
Potassium chloride	2600	N/A	N/A	N/A	N/A
Beta Mercaptoethanol					
Beta Mercaptoethanol	2440.0	2000	N/A	30	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A
2-Mercaptoethanol For Ultra Comp Cells					
2-Mercaptoethanol For Ultra Comp Cells	2417.3	2105.3	N/A	31.6	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A
XL10-Gold 2-Mercaptoethanol					
XL10-Gold 2-Mercaptoethanol	4615.5	4545.5	N/A	60.7	N/A
2-Mercaptoethanol	244	200	N/A	3	N/A

Section 12. Ecological information

12.1 Toxicity

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

Section 12. Ecological information

SURE 2 supercompetent cells Glycerol Dimethyl sulfoxide	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Ulva lactuca	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	21 days
	Potassium chloride	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus
Acute EC50 1337000 µg/l Fresh water		Algae - Navicula seminulum	96 hours
Acute LC50 9.68 mg/l Fresh water		Crustaceans - Pseudosida ramosa - Neonate	48 hours
Acute LC50 93000 µg/l Fresh water		Daphnia - Daphnia magna	48 hours
Acute LC50 509.65 mg/l Fresh water		Fish - Danio rerio	96 hours
ABLE K competent cells Glycerol Dimethyl sulfoxide		Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 ul/L Marine water	Algae - Ulva lactuca	72 hours
	Chronic NOEC 100 ul/L Fresh water	Daphnia - Daphnia magna - Juvenile (Fledgling, Hatchling, Weanling)	21 days
	Potassium chloride	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus
Acute EC50 1337000 µg/l Fresh water		Algae - Navicula seminulum	96 hours
Acute LC50 9.68 mg/l Fresh water		Crustaceans - Pseudosida ramosa - Neonate	48 hours
Acute LC50 93000 µg/l Fresh water		Daphnia - Daphnia magna	48 hours
Acute LC50 509.65 mg/l Fresh water		Fish - Danio rerio	96 hours

12.2 Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
XL10-Gold Kan (r) ultracompetent cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
	Dimethyl sulfoxide	OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-
SURE 2 supercompetent cells Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
	Dimethyl sulfoxide	OECD 301D Ready	31 % - Not readily - 28 days	-

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ABLE K competent cells Glycerol	Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Dimethyl sulfoxide	301D Ready Biodegradability - Closed Bottle Test OECD 301D Ready Biodegradability - Closed Bottle Test	31 % - Not readily - 28 days	-	-
Beta Mercaptoethanol 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO ₂ in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-
2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO ₂ in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	OECD 310 Ready Biodegradability - CO ₂ in Sealed Vessels (Headspace Test)	69 % - Not readily - 60 days	20 mg/l	-

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
XL10-Gold Kan (r) ultracompetent cells Dimethyl sulfoxide Potassium chloride	- -	- -	Not readily Readily
SURE 2 supercompetent cells Dimethyl sulfoxide Potassium chloride	- -	- -	Not readily Readily
ABLE K competent cells Dimethyl sulfoxide Potassium chloride	- -	- -	Not readily Readily
Beta Mercaptoethanol 2-Mercaptoethanol	-	-	Not readily

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2-Mercaptoethanol For Ultra Comp Cells 2-Mercaptoethanol	-	-	Not readily
XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	-	-	Not readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
XL10-Gold Kan (r) ultracompetent cells			
Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
SURE 2 supercompetent cells			
Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
ABLE K competent cells			
Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low
Beta Mercaptoethanol			
2-Mercaptoethanol	-0.056	-	low
2-Mercaptoethanol For Ultra Comp Cells			
2-Mercaptoethanol	-0.056	-	low
XL10-Gold 2-Mercaptoethanol			
2-Mercaptoethanol	-0.056	-	low

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

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

Section 13. Disposal considerations

cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

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

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

Section 14. Transport information

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

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

Transport in bulk according to IMO instruments : Not available.

Section 15. Regulatory information

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

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: Edetic acid

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

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Section 15. Regulatory information

Classification	: XL10-Gold Kan (r) ultracompetent cells SURE 2 supercompetent cells ABLE K competent cells pUC 18 DNA Control Plasmid Beta Mercaptoethanol	EYE IRRITATION - Category 2B EYE IRRITATION - Category 2B EYE IRRITATION - Category 2B Not applicable. ACUTE TOXICITY (dermal) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
	2-Mercaptoethanol For Ultra Comp Cells	SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
	XL10-Gold 2-Mercaptoethanol	SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2

Composition/information on ingredients

Name	%	Classification
XL10-Gold Kan (r) ultracompetent cells		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2B
SURE 2 supercompetent cells		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2B
ABLE K competent cells		
Glycerol	≥10 - ≤25	EYE IRRITATION - Category 2B
Dimethyl sulfoxide	≤10	FLAMMABLE LIQUIDS - Category 4 EYE IRRITATION - Category 2B
Sucrose	≤10	COMBUSTIBLE DUSTS
Potassium chloride	≤3	EYE IRRITATION - Category 2B
Beta Mercaptoethanol		
2-Mercaptoethanol	≤12	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
2-Mercaptoethanol For Ultra Comp Cells		
2-Mercaptoethanol	<10	FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A TOXIC TO REPRODUCTION - Category 2

Section 15. Regulatory information

XL10-Gold 2-Mercaptoethanol 2-Mercaptoethanol	≤ 5	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 FLAMMABLE LIQUIDS - Category 4 ACUTE TOXICITY (oral) - Category 3 ACUTE TOXICITY (dermal) - Category 2 ACUTE TOXICITY (inhalation) - Category 3 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1A TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
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State regulations

- Massachusetts** : The following components are listed: GLYCERINE MIST; 2-MERCAPTOETHANOL; SUCROSE DUST
- New York** : None of the components are listed.
- New Jersey** : The following components are listed: GLYCERIN; THIOGLYCOL; DIMETHYL SULFOXIDE
- Pennsylvania** : The following components are listed: 1,2,3-PROPANETRIOL; ETHANOL, 2-MERCAPTO-; .ALPHA.-D-GLUCOPYRANOSIDE, .BETA.-D-FRUCTOFURANOSYL

California Prop. 65

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

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

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

Section 15. Regulatory information

United States : All components are active or exempted.

Viet Nam : All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
<input checked="" type="checkbox"/> XL10-Gold Kan (r) ultracompetent cells EYE IRRITATION - Category 2B	Calculation method
SURE 2 supercompetent cells EYE IRRITATION - Category 2B	Calculation method
ABLE K competent cells EYE IRRITATION - Category 2B	Calculation method
Beta Mercaptoethanol ACUTE TOXICITY (dermal) - Category 4 SKIN IRRITATION - Category 2 SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method Calculation method
2-Mercaptoethanol For Ultra Comp Cells SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method
XL10-Gold 2-Mercaptoethanol SERIOUS EYE DAMAGE - Category 1 SKIN SENSITIZATION - Category 1 TOXIC TO REPRODUCTION - Category 2 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 AQUATIC HAZARD (LONG-TERM) - Category 3	Calculation method Calculation method Calculation method Calculation method Calculation method

History

Date of issue : 06/06/2023

Date of previous issue : 12/22/2020

Version : 7

Key to abbreviations

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

Indicates information that has changed from previously issued version.

Notice to reader

Section 16. Other information

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