

# Material Safety Data Sheet

## XL1-Blue Competent Cells

### 1. Product and company identification

<b>Product name</b>	: XL1-Blue Competent Cells	
<b>Material uses</b>	: Analytical reagent.	
	pUC18 Control Plasmid DNA	0.01 ml
	1.42 M 2-Mercaptoethanol	0.025 ml
	XL1-Blue supercompetent cells	1.92 ml
<b>Supplier/Manufacturer</b>	: Agilent Technologies, Inc. 1834 State Highway 71 West Cedar Creek, TX 78612 800-227-9770	
<b>Part No. (Chemical Kit)</b>	: 200249	
<b>Part No.</b>	pUC18 Control Plasmid DNA	200231-42
	1.42 M 2-Mercaptoethanol	210200-43
	XL1-Blue supercompetent cells	200236-41
<b>Validation date</b>	: 04/23/2013	
<b>In case of emergency</b>	: Chemtrec: 1-800-424-9300	

### 2. Hazards identification

<b>Physical state</b>	: pUC18 Control Plasmid DNA	Liquid.
	1.42 M 2-Mercaptoethanol	Liquid.
	XL1-Blue supercompetent cells	Liquid.
<b>Odor</b>	: pUC18 Control Plasmid DNA	Not available.
	1.42 M 2-Mercaptoethanol	Not available.
	XL1-Blue supercompetent cells	Not available.
<b>OSHA/HCS status</b>	: pUC18 Control Plasmid DNA	While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.
	1.42 M 2-Mercaptoethanol	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
	XL1-Blue supercompetent cells	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Emergency overview</b>		
<b>Signal word</b>	: pUC18 Control Plasmid DNA	No signal word.
	1.42 M 2-Mercaptoethanol	DANGER!
	XL1-Blue supercompetent cells	WARNING!
<b>Hazard statements</b>	: pUC18 Control Plasmid DNA	NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED.
	1.42 M 2-Mercaptoethanol	MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
	XL1-Blue supercompetent cells	HARMFUL IF INHALED. MAY CAUSE

## 2. Hazards identification

		RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
<b>Precautions</b>	: pUC18 Control Plasmid DNA  1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	No known significant effects or critical hazards. Avoid prolonged contact with eyes, skin and clothing. Do not breathe vapor or mist. Do not ingest. Do not get in eyes or on skin or clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.
<b>Routes of entry</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b><u>Potential acute health effects</u></b>		
<b>Inhalation</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. Irritating to respiratory system. Toxic by inhalation. Slightly irritating to the respiratory system.
<b>Ingestion</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. Toxic if swallowed. No known significant effects or critical hazards.
<b>Skin</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	No known significant effects or critical hazards. Very toxic in contact with skin. Irritating to skin. May cause sensitization by skin contact. Slightly irritating to the skin.
<b>Eyes</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	No known significant effects or critical hazards. Severely irritating to eyes. Risk of serious damage to eyes. Slightly irritating to the eyes.
<b><u>Potential chronic health effects</u></b>		
<b>Chronic effects</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	No known significant effects or critical hazards. Contains material that may cause target organ damage, based on animal data. Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. Contains material that may cause target organ damage, based on animal data.
<b>Carcinogenicity</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No known significant effects or critical hazards. No known significant effects or critical hazards. No known significant effects or critical hazards.

## 2. Hazards identification

**Target organs** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

Not available.  
Contains material which may cause damage to the following organs: upper respiratory tract, skin, eyes.  
Contains material which may cause damage to the following organs: kidneys, liver, gastrointestinal tract, upper respiratory tract, skin, eye, lens or cornea, teeth.

### Over-exposure signs/symptoms

**Inhalation** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

No specific data.  
Adverse symptoms may include the following:  
respiratory tract irritation  
coughing  
Adverse symptoms may include the following:  
respiratory tract irritation  
coughing

**Ingestion** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

No specific data.  
No specific data.  
No specific data.

**Skin** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

No specific data.  
Adverse symptoms may include the following:  
irritation  
redness  
Adverse symptoms may include the following:  
irritation  
redness

**Eyes** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

No specific data.  
Adverse symptoms may include the following:  
pain or irritation  
watering  
redness  
Adverse symptoms may include the following:  
irritation  
watering  
redness

**Medical conditions aggravated by over-exposure** : pUC18 Control Plasmid DNA  
1.42 M 2-Mercaptoethanol  
XL1-Blue supercompetent cells

None known.  
Pre-existing skin disorders and disorders involving any other target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.  
Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

## 3. Composition/information on ingredients

Name	CAS number	%
<b>1.42 M 2-Mercaptoethanol</b> 2-Mercaptoethanol	60-24-2	5 - 10
<b>XL1-Blue supercompetent cells</b> Glycerol	56-81-5	5 - 10
Dimethyl sulfoxide	67-68-5	3 - 7
Sucrose	57-50-1	1 - 5
Potassium chloride	7447-40-7	1 - 5

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

## 4. First aid measures

<b>Eye contact</b>	: pUC18 Control Plasmid DNA	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.
	1.42 M 2-Mercaptoethanol	Call medical doctor or poison control center immediately. Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
	XL1-Blue supercompetent cells	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
<b>Skin contact</b>	: pUC18 Control Plasmid DNA	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if symptoms occur.
	1.42 M 2-Mercaptoethanol	Call medical doctor or poison control center immediately. In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
	XL1-Blue supercompetent cells	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
<b>Inhalation</b>	: pUC18 Control Plasmid DNA	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms occur.
	1.42 M 2-Mercaptoethanol	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
	XL1-Blue supercompetent cells	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
<b>Ingestion</b>	: pUC18 Control Plasmid DNA	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms occur.
	1.42 M 2-Mercaptoethanol	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
	XL1-Blue supercompetent cells	Wash out mouth with water. Do not induce

## 4. First aid measures

<p><b>Protection of first-aiders</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.</p> <p>No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.</p>
<p><b>Notes to physician</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</p> <p>No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</p> <p>No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</p>

## 5. Fire-fighting measures

<p><b>Flammability of the product</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>In a fire or if heated, a pressure increase will occur and the container may burst.</p> <p>In a fire or if heated, a pressure increase will occur and the container may burst.</p> <p>In a fire or if heated, a pressure increase will occur and the container may burst.</p>
<p><b>Extinguishing media</b></p> <p><b>Suitable</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p> <p>Use an extinguishing agent suitable for the surrounding fire.</p>
<p><b>Not suitable</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>None known.</p> <p>None known.</p> <p>None known.</p>
<p><b>Special exposure hazards</b></p>	<p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p> <p>No action shall be taken involving any personal risk or without suitable training.</p>

## 5. Fire-fighting measures

<b>Hazardous thermal decomposition products</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol	No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides
	XL1-Blue supercompetent cells	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides
<b>Special protective equipment for fire-fighters</b>	: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.	

## 6. Accidental release measures

<b>Personal precautions</b>	: pUC18 Control Plasmid DNA	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 (see Section 8).
	1.42 M 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 (see Section 8).
	XL1-Blue 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. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
<b>Environmental precautions</b>	: pUC18 Control Plasmid DNA	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).
	1.42 M 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).
	XL1-Blue 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).

## 6. Accidental release measures

<b>Methods for cleaning up</b>	: pUC18 Control Plasmid DNA	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.
	1.42 M 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.
	XL1-Blue 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.

## 7. Handling and storage

<b>Handling</b>	: pUC18 Control Plasmid DNA	Put on appropriate personal protective equipment (see Section 8). 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.
	1.42 M 2-Mercaptoethanol	Put on appropriate personal protective equipment (see Section 8). 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. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.
	XL1-Blue supercompetent cells	Potentially biohazardous material. Put on appropriate personal protective equipment (see Section 8). 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. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. 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.

## 7. Handling and storage

<p><b>Storage</b></p> <p>: pUC18 Control Plasmid DNA</p> <p>1.42 M 2-Mercaptoethanol</p> <p>XL1-Blue supercompetent cells</p>	<p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p> <p>Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.</p>
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## 8. Exposure controls/personal protection

Ingredient	Exposure limits
1.42 M 2-Mercaptoethanol 2-Mercaptoethanol	<b>AIHA WEEL (United States, 5/2010). Absorbed through skin.</b> TWA: 0.2 ppm 8 hour(s).
XL1-Blue supercompetent cells Glycerol	<b>ACGIH TLV (United States, 2/2010).</b> TWA: 10 mg/m <sup>3</sup> 8 hour(s). Form: Inhalable fraction. See Appendix C, paragraph A. Inhalable Particulate Mass TLVs (IPM-TLVs) for those materials that are hazardous when deposited anywhere in the respiratory tract. <b>OSHA PEL (United States, 6/2010).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hour(s). Form: Total dust <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hour(s). Form: Total dust
Dimethyl sulfoxide	<b>AIHA WEEL (United States, 5/2010).</b> TWA: 250 ppm 8 hour(s).
Sucrose	<b>ACGIH TLV (United States, 2/2010).</b> TWA: 10 mg/m <sup>3</sup> 8 hour(s). <b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hour(s). Form: Total dust <b>NIOSH REL (United States, 6/2009).</b> TWA: 5 mg/m <sup>3</sup> 10 hour(s). Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 10 hour(s). Form: Total <b>OSHA PEL (United States, 6/2010).</b> TWA: 5 mg/m <sup>3</sup> 8 hour(s). Form: Respirable fraction



## 8. Exposure controls/personal protection

TWA: 15 mg/m<sup>3</sup> 8 hour(s). Form: Total dust

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.
- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- 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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Personal protection**
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : 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.
- Eyes** : 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 or dusts.
- Skin** : 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.
- 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.
- Other protection** : Not available.

## 9. Physical and chemical properties

- Physical state** : pUC18 Control Plasmid DNA Liquid.  
1.42 M 2-Mercaptoethanol Liquid.  
XL1-Blue supercompetent cells Liquid.
- Flash point** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.
- Auto-ignition temperature** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.
- Flammable limits** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.
- Color** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.
- Odor** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.
- pH** : pUC18 Control Plasmid DNA 7.5  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells 6.4
- Boiling/condensation point** : pUC18 Control Plasmid DNA 100°C (212°F)  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.

## 9. Physical and chemical properties

<b>Melting/freezing point</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	0°C (32°F) Not available. Not available.
<b>Specific gravity</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Vapor pressure</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Vapor density</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Volatility</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Odor threshold</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Evaporation rate</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Viscosity</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	Not available. Not available. Not available.
<b>Solubility</b>	: pUC18 Control Plasmid DNA  1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.

## 10. Stability and reactivity

<b>Chemical stability</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	The product is stable. The product is stable. The product is stable.
<b>Conditions to avoid</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No specific data. No specific data. No specific data.
<b>Materials to avoid</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol XL1-Blue supercompetent cells	No specific data. No specific data. No specific data.
<b>Hazardous decomposition products</b>	: pUC18 Control Plasmid DNA  1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced. Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	: pUC18 Control Plasmid DNA  1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur. Under normal conditions of storage and use, hazardous reactions will not occur.

## 10. Stability and reactivity

## 11. Toxicological information

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>1.42 M 2-Mercaptoethanol</b> 2-Mercaptoethanol	LD50 Dermal LD50 Oral	Rabbit Rat	200 mg/kg 244 mg/kg	- -
<b>XL1-Blue supercompetent cells</b> Dimethyl sulfoxide	LC50 Inhalation Dusts and mists LD50 Dermal LD50 Oral	Rat Rat Rat	>1600 mg/m3 40000 mg/kg 14500 mg/kg	4 hours - -
Sucrose	LD50 Oral	Rat	29700 mg/kg	-
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>1.42 M 2-Mercaptoethanol</b> 2-Mercaptoethanol	Eyes - Severe irritant	Rabbit	-	-	-
<b>XL1-Blue supercompetent cells</b> Dimethyl sulfoxide	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	- -	- -
Glycerol	Eyes - Mild irritant Skin - Mild irritant	Rabbit Rabbit	- -	- -	- -
Potassium chloride	Eyes - Mild irritant	Rabbit	-	-	-

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

#### Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
<b>XL1-Blue supercompetent cells</b> Sucrose	A4	-	-	-	-	-

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

**Other adverse symptoms** : pUC18 Control Plasmid DNA Not available.  
1.42 M 2-Mercaptoethanol Not available.  
XL1-Blue supercompetent cells Not available.

## 12. Ecological information

**Ecotoxicity** : May cause long-term adverse effects in the aquatic environment.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
XL1-Blue supercompetent cells Dimethyl sulfoxide	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate - <24 hours	48 hours
	Acute LC50 34000000 ug/L Fresh water	Fish - Pimephales promelas - 31 days - 15.8 mm - 0.062 g	96 hours
Glycerol	Acute LC50 54 to 57 ml/L Fresh water	Fish - Oncorhynchus mykiss - 0.9 g	96 hours
Potassium chloride	Acute LC50 290 mg/L Marine water	Crustaceans - Americamysis bahia - 4 to 5 days	48 hours
	Acute LC50 30.1 mg/L Fresh water	Daphnia - Moinodaphnia macleayi - Neonate - 24 hours	48 hours
	Acute LC50 435000 ug/L Fresh water Chronic NOEC 240.45 mg/L Marine water	Fish - Gambusia affinis - Adult Crustaceans - Americamysis bahia - 4 to 5 days	96 hours 48 hours

**Conclusion/Summary** : Not available.

**Partition coefficient: n-octanol/water** :  
 pUC18 Control Plasmid DNA Not available.  
 1.42 M 2-Mercaptoethanol Not available.  
 XL1-Blue supercompetent cells Not available.

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

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. 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. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

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

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

## 14. Transport information

### Regulatory information

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

## 15. Regulatory information

<b>HCS Classification</b>	: pUC18 Control Plasmid DNA 1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	Not regulated. Highly toxic material Irritating material Sensitizing material Target organ effects Toxic material Target organ effects
<b>U.S. Federal regulations</b>	: <b>TSCA 8(a) CDR Exempt/Partial exemption:</b> Partial exemption <b>United States inventory (TSCA 8b):</b> All components are listed or exempted. <b>SARA 302/304/311/312 extremely hazardous substances:</b> No products were found. <b>SARA 302/304 emergency planning and notification:</b> No products were found. <b>SARA 302/304/311/312 hazardous chemicals:</b> Potassium chloride; Glycerol; Sucrose; Dimethyl sulfoxide <b>SARA 311/312 MSDS distribution - chemical inventory - hazard identification:</b> Potassium chloride: Immediate (acute) health hazard, Delayed (chronic) health hazard; Glycerol: Immediate (acute) health hazard, Delayed (chronic) health hazard; Sucrose: Delayed (chronic) health hazard; Dimethyl sulfoxide: Immediate (acute) health hazard, Delayed (chronic) health hazard <b>Clean Water Act (CWA) 311:</b> Edetic acid	
<b>Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)</b>	: Not listed	
<b>Clean Air Act Section 602 Class I Substances</b>	: Not listed	
<b>Clean Air Act Section 602 Class II Substances</b>	: Not listed	
<b>DEA List I Chemicals (Precursor Chemicals)</b>	: Not listed	
<b>DEA List II Chemicals (Essential Chemicals)</b>	: Not listed	
<b>State regulations</b>		
<b>Massachusetts</b>	: The following components are listed: SUCROSE DUST; GLYCERINE MIST	
<b>New York</b>	: None of the components are listed.	
<b>New Jersey</b>	: The following components are listed: DIMETHYL SULFOXIDE; METHANE, SULFINYLBIS-; GLYCERIN; 1,2,3-PROPANETRIOL	
<b>Pennsylvania</b>	: The following components are listed: .ALPHA.-D-GLUCOPYRANOSIDE, .BETA.-D-FRUCTOFURANOSYL; 1,2,3-PROPANETRIOL	
<b>California Prop. 65</b>		
No products were found.		

## 16. Other information

<b>Label requirements</b>	: pUC18 Control Plasmid DNA  1.42 M 2-Mercaptoethanol  XL1-Blue supercompetent cells	NOT EXPECTED TO PRODUCE SIGNIFICANT ADVERSE HEALTH EFFECTS WHEN THE RECOMMENDED INSTRUCTIONS FOR USE ARE FOLLOWED. MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. MAY CAUSE ALLERGIC SKIN REACTION. CONTAINS MATERIAL THAT MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. HARMFUL IF INHALED. MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL THAT MAY
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## 16. Other information

CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

**Date of issue** : 04/23/2013

**Date of previous issue** : 04/23/2011.

**Version** : 3

✔ Indicates information that has changed from previously issued version.

### Notice to reader

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