

# SAFETY DATA SHEET



BL21-Gold Competent Cells, Part Number 230130

## Section 1. Identification

### 1.1 Product identifier

**Product name** : BL21-Gold Competent Cells, Part Number 230130  
**Part No. (Chemical Kit)** : 230130  
**Part No.** : BL21-Gold competent cells 230130-41  
 pUC 18 DNA Control Plasmid 200231-42  
**Validation date** : 9/29/2016

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

**Material uses** : Analytical reagent.  
 BL21-Gold competent cells 1 mL (10 x 0.1 mL)  
 pUC 18 DNA Control Plasmid 0.01 mL (0.1 ng/µl)

### 1.3 Details of the supplier of the safety data sheet

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

### 1.4 Emergency telephone number

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

## Section 2. Hazards identification

### 2.1 Classification of the substance or mixture

**OSHA/HCS status** : BL21-Gold competent cells This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
 pUC 18 DNA Control Plasmid While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

### Classification of the substance or mixture

**BL21-Gold competent cells**  
 H320 EYE IRRITATION - Category 2B

### 2.2 GHS label elements

**Signal word** : BL21-Gold competent cells Warning  
 pUC 18 DNA Control Plasmid No signal word.  
**Hazard statements** : BL21-Gold competent cells H320 - Causes eye irritation.  
 pUC 18 DNA Control Plasmid No known significant effects or critical hazards.  
**Precautionary statements**  
**Prevention** : BL21-Gold competent cells P264 - Wash hands thoroughly after handling.  
 pUC 18 DNA Control Plasmid Not applicable.

## Section 2. Hazards identification

<b>Response</b>	: BL21-Gold 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 attention.
	pUC 18 DNA Control Plasmid	Not applicable.
<b>Storage</b>	: BL21-Gold competent cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.
<b>Disposal</b>	: BL21-Gold competent cells	Not applicable.
	pUC 18 DNA Control Plasmid	Not applicable.
<b>Supplemental label elements</b>	: BL21-Gold competent cells	None known.
	pUC 18 DNA Control Plasmid	None known.

### 2.3 Other hazards

<b>Hazards not otherwise classified</b>	: BL21-Gold competent cells	None known.
	pUC 18 DNA Control Plasmid	None known.

## Section 3. Composition/information on ingredients

<b>Substance/mixture</b>	: BL21-Gold competent cells	Mixture
	pUC 18 DNA Control Plasmid	Mixture

Ingredient name	%	CAS number
<b>BL21-Gold competent cells</b>		
Glycerol	≥10 - ≤25	56-81-5
Dimethyl sulfoxide	≤10	67-68-5
Potassium chloride	≤3	7447-40-7

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 as hazardous to health or the environment and hence require reporting in this section.**

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

## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<b>Eye contact</b>	: BL21-Gold 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.
<b>Inhalation</b>	: BL21-Gold competent cells	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain

## Section 4. First aid measures

	pUC 18 DNA Control Plasmid	an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
<b>Skin contact</b>	: BL21-Gold 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.
<b>Ingestion</b>	: BL21-Gold competent cells	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
	pUC 18 DNA Control Plasmid	Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

### 4.2 Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<b>Eye contact</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Causes eye irritation. No known significant effects or critical hazards.
<b>Inhalation</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Skin contact</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Ingestion</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.

#### Over-exposure signs/symptoms

<b>Eye contact</b>	: BL21-Gold competent cells	Adverse symptoms may include the following: irritation watering redness
	pUC 18 DNA Control Plasmid	No specific data.
<b>Inhalation</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No specific data. No specific data.

## Section 4. First aid measures

<b>Skin contact</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No specific data. No specific data.
<b>Ingestion</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No specific data. No specific data.

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

<b>Notes to physician</b>	: BL21-Gold competent cells  pUC 18 DNA Control Plasmid	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
<b>Specific treatments</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: BL21-Gold competent cells  pUC 18 DNA Control Plasmid	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### 5.1 Extinguishing media

<b>Suitable extinguishing media</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	None known. None known.

### 5.2 Special hazards arising from the substance or mixture

<b>Specific hazards arising from the chemical</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	In a fire or if heated, a pressure increase will occur and the container may burst. In a fire or if heated, a pressure increase will occur and the container may burst.
<b>Hazardous thermal decomposition products</b>	: BL21-Gold competent cells  pUC 18 DNA Control Plasmid	Decomposition products may include the following materials: carbon dioxide carbon monoxide sulfur oxides halogenated compounds metal oxide/oxides No specific data.

### 5.3 Advice for firefighters

## Section 5. Fire-fighting measures

<b>Special protective actions for fire-fighters</b>	: BL21-Gold competent 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.
	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.
<b>Special protective equipment for fire-fighters</b>	: BL21-Gold 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.

## Section 6. Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	: BL21-Gold 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.
<b>For emergency responders</b>	: BL21-Gold competent 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".
	pUC 18 DNA Control Plasmid	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

### 6.2 Environmental precautions

: BL21-Gold 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).

### 6.3 Methods and materials for containment and cleaning up

## Section 6. Accidental release measures

<b>Methods for cleaning up</b>	: BL21-Gold 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.

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<b>Protective measures</b>	: BL21-Gold competent 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.
	pUC 18 DNA Control Plasmid	Put on appropriate personal protective equipment (see Section 8).
<b>Advice on general occupational hygiene</b>	: BL21-Gold 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.

### 7.2 Conditions for safe storage, including any incompatibilities

: BL21-Gold 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.
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

## Section 7. Handling and storage

opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

### 7.3 Specific end use(s)

<b>Recommendations</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Industrial applications, Professional applications. Industrial applications, Professional applications.
<b>Industrial sector specific solutions</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters

#### Occupational exposure limits

Ingredient name	Exposure limits
BL21-Gold competent cells	<b>OSHA PEL 1989 (United States, 3/1989).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>OSHA PEL (United States, 2/2013).</b> TWA: 5 mg/m <sup>3</sup> 8 hours. Form: Respirable fraction TWA: 15 mg/m <sup>3</sup> 8 hours. Form: Total dust <b>AIHA WEEL (United States, 10/2011).</b> TWA: 250 ppm 8 hours. None.
Glycerol	
Dimethyl sulfoxide	
Potassium chloride	

### 8.2 Exposure controls

<b>Appropriate engineering controls</b>	: Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
<b>Environmental exposure controls</b>	: 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

<b>Hygiene measures</b>	: 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.
<b>Eye/face protection</b>	: 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: safety glasses with side-shields.
<b>Skin protection</b>	
<b>Hand protection</b>	: 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.

## Section 8. Exposure controls/personal protection

- 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

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Liquid. Liquid.
<b>Color</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Odor</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Odor threshold</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>pH</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	6.4 7.5
<b>Melting point</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. 0°C (32°F)
<b>Boiling point</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. 100°C (212°F)
<b>Flash point</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Evaporation rate</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Flammability (solid, gas)</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not applicable. Not applicable.
<b>Lower and upper explosive (flammable) limits</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Vapor pressure</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Vapor density</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Relative density</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Solubility</b>	: BL21-Gold competent cells  pUC 18 DNA Control Plasmid	Easily soluble in the following materials: cold water and hot water. Easily soluble in the following materials: cold water and hot water.
<b>Partition coefficient: n-octanol/water</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Auto-ignition temperature</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.
<b>Decomposition temperature</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	Not available. Not available.



## Section 9. Physical and chemical properties

**Viscosity** : BL21-Gold competent cells Not available.  
pUC 18 DNA Control Plasmid Not available.

## Section 10. Stability and reactivity

**10.1 Reactivity** : BL21-Gold 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.

**10.2 Chemical stability** : BL21-Gold competent cells The product is stable.  
pUC 18 DNA Control Plasmid The product is stable.

**10.3 Possibility of hazardous reactions** : BL21-Gold 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.

**10.4 Conditions to avoid** : BL21-Gold competent cells No specific data.  
pUC 18 DNA Control Plasmid No specific data.

**10.5 Incompatible materials** : BL21-Gold competent cells May react or be incompatible with oxidizing materials.  
pUC 18 DNA Control Plasmid May react or be incompatible with oxidizing materials.

**10.6 Hazardous decomposition products** : BL21-Gold 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.

## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>BL21-Gold competent cells</b>				
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	-

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
<b>BL21-Gold competent cells</b>					
Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
Dimethyl sulfoxide	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	100 milligrams	-
	Skin - Mild irritant	Rabbit	-	24 hours 500	-

## Section 11. Toxicological information

Potassium chloride	Skin - Mild irritant	Rabbit	-	milligrams 100	-
	Eyes - Mild irritant	Rabbit	-	milligrams 24 hours 500 milligrams	-

### Sensitization

Not available.

### Mutagenicity

Not available.

### Carcinogenicity

Not available.

### Reproductive toxicity

Not available.

### Teratogenicity

Not available.

### Specific target organ toxicity (single exposure)

Not available.

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

### Information on the likely routes of exposure

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

Routes of entry anticipated: Oral, Dermal,  
Inhalation.  
Not available.

### Potential acute health effects

#### Eye contact

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

Causes eye irritation.  
No known significant effects or critical hazards.

#### Inhalation

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No known significant effects or critical hazards.  
No known significant effects or critical hazards.

#### Skin contact

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No known significant effects or critical hazards.  
No known significant effects or critical hazards.

#### Ingestion

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No known significant effects or critical hazards.  
No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics

#### Eye contact

: BL21-Gold competent cells  
  
pUC 18 DNA Control Plasmid

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

#### Inhalation

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No specific data.  
No specific data.

#### Skin contact

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No specific data.  
No specific data.

#### Ingestion

: BL21-Gold competent cells  
pUC 18 DNA Control Plasmid

No specific data.  
No specific data.

## Section 11. Toxicological information

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

#### Short term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Long term exposure

**Potential immediate effects** : Not available.

**Potential delayed effects** : Not available.

#### Potential chronic health effects

<b>General</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Teratogenicity</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Developmental effects</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Fertility effects</b>	: BL21-Gold competent cells pUC 18 DNA Control Plasmid	No known significant effects or critical hazards. No known significant effects or critical hazards.

### Numerical measures of toxicity

#### Acute toxicity estimates

Route	ATE value
BL21-Gold competent cells Oral	136842.1 mg/kg

## Section 12. Ecological information

### 12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
BL21-Gold competent cells	Acute LC50 54000 mg/l Fresh water	Fish - Oncorhynchus mykiss	96 hours
	Acute LC50 25000 ppm Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Glycerol Dimethyl sulfoxide	Acute LC50 34000000 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 100 µl/L Marine water	Algae - Ulva lactuca	72 hours
	Acute EC50 1337000 µg/l Fresh water	Algae - Navicula seminulum	96 hours
	Acute EC50 9.24 g/L Fresh water	Algae - Desmodesmus subspicatus	72 hours
	Acute EC50 141460 µg/l Fresh water Acute LC50 12.77 mg/l Fresh water	Daphnia - Daphnia magna Crustaceans - Pseudosida ramosa - Neonate	48 hours 48 hours
Potassium chloride	Acute LC50 880000 µg/l Fresh water	Fish - Pimephales promelas	96 hours

### 12.2 Persistence and degradability

## Section 12. Ecological information

Not available.

### 12.3 Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>BL21-Gold competent cells</b>			
Glycerol	-1.76	-	low
Dimethyl sulfoxide	-1.35	3.16	low
Potassium chloride	-0.46	-	low

### 12.4 Mobility in soil

**Soil/water partition coefficient (K<sub>oc</sub>)** : 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. 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

### Regulatory information

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

## Section 15. Regulatory information

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

**U.S. Federal regulations** : **United States inventory (TSCA 8b)**: All components are listed or exempted.  
**Clean Water Act (CWA) 311**: Edetic acid

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

## Section 15. Regulatory information

**Clean Air Act Section 602 Class I Substances** : Not listed

**Clean Air Act Section 602 Class II Substances** : Not listed

**DEA List I Chemicals (Precursor Chemicals)** : Not listed

**DEA List II Chemicals (Essential Chemicals)** : Not listed

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Immediate (acute) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
<b>BL21-Gold competent cells</b>						
Glycerol	≥10 - ≤25	No.	No.	No.	Yes.	No.
Dimethyl sulfoxide	≤10	Yes.	No.	No.	Yes.	No.
Potassium chloride	≤3	No.	No.	No.	Yes.	No.

### State regulations

**Massachusetts** : The following components are listed: SUCROSE DUST; GLYCERINE MIST

**New York** : None of the components are listed.

**New Jersey** : The following components are listed: DIMETHYL SULFOXIDE; METHANE, SULFINYLBIS-; GLYCERIN; 1,2,3-PROPANETRIOL

**Pennsylvania** : The following components are listed: .ALPHA.-D-GLUCOPYRANOSIDE, .BETA.-D-FRUCTOFURANOSYL; 1,2,3-PROPANETRIOL

### California Prop. 65

No products were found.

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

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

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

## Section 15. Regulatory information

<b>Australia</b>	: All components are listed or exempted.
<b>Canada inventory</b>	: All components are listed or exempted.
<b>China</b>	: Not determined.
<b>Europe</b>	: All components are listed or exempted.
<b>Japan</b>	: <b>Japan inventory (ENCS)</b> : Not determined. <b>Japan inventory (ISHL)</b> : Not determined.
<b>Malaysia</b>	: Not determined.
<b>New Zealand</b>	: Not determined.
<b>Philippines</b>	: Not determined.
<b>Republic of Korea</b>	: All components are listed or exempted.
<b>Taiwan</b>	: All components are listed or exempted.
<b>Turkey</b>	: Not determined.

## Section 16. Other information

### History

<b>Date of issue</b>	: 09/29/2016
<b>Date of previous issue</b>	: 04/26/2013.
<b>Version</b>	: 4

✔ Indicates information that has changed from previously issued version.

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