
SAFETY DATA SHEET
ABLE C Electroporation-Competent Cells, Part Number 200161

Section 1. Identification

1.1 Product identifier
Product name : ABLE C Electroporation-Competent Cells, Part Number 200161
Part no. (chemical kit) : 200161
Part no. : ABLE C electroporation competent cells 200161-41
pUC 18 DNA Control Plasmid 200231-42
Validation date : 4/16/2019

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses : Analytical reagent.
ABLE C electroporation competent cells 5 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 : ABLE C electroporation competent cells
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
Not classified.

Ingredients of unknown toxicity : ABLE C electroporation competent cells Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 10 - 30%

2.2 GHS label elements
Signal word : ABLE C electroporation competent cells pUC 18 DNA Control Plasmid
No signal word.

Hazard statements : ABLE C electroporation competent cells pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Date of issue : 04/16/2019
Section 2. Hazards identification

Precautionary statements

Prevention: ABLE C electroporation competent cells Not applicable. pUC 18 DNA Control Plasmid Not applicable.

Response: ABLE C electroporation competent cells Not applicable. pUC 18 DNA Control Plasmid Not applicable.

Storage: ABLE C electroporation competent cells Not applicable. pUC 18 DNA Control Plasmid Not applicable.

Disposal: ABLE C electroporation competent cells Not applicable. pUC 18 DNA Control Plasmid Not applicable.

Supplemental label elements: ABLE C electroporation competent cells None known. pUC 18 DNA Control Plasmid None known.

Section 3. Composition/information on ingredients

Substance/mixture: ABLE C electroporation competent cells Mixture pUC 18 DNA Control Plasmid Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>&lt;10</td>
<td>56-81-5</td>
</tr>
</tbody>
</table>

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

Eye contact: ABLE C electroporation competent cells 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.

Inhalation: ABLE C electroporation competent cells pUC 18 DNA Control Plasmid

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

Date of issue: 04/16/2019
Section 4. First aid measures

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>ABLE C electroporation competent cells</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>pUC 18 DNA Control Plasmid</td>
</tr>
</tbody>
</table>

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

No known significant effects or critical hazards.

No specific data.

No specific data.

No specific data.

No specific data.

No specific data.

Potential acute health effects

4.3 Indication of immediate medical attention and special treatment needed, if necessary
**Section 4. First aid measures**

**Notes to physician**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
</tbody>
</table>

**Specific treatments**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

**Protection of first-aiders**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

**See toxicological information (Section 11)**

**Section 5. Fire-fighting measures**

**5.1 Extinguishing media**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Extinguishing agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suitable extinguishing media</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
</tr>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Substance</th>
<th>Extinguishing agent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsuitable extinguishing media</td>
<td>None known.</td>
</tr>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>None known.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>None known.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Substance</th>
<th>Hazards and actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific hazards arising from the chemical</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>Decomposition products may include the following materials:</td>
</tr>
<tr>
<td>Hazardous thermal decomposition products</td>
<td>carbon dioxide</td>
</tr>
<tr>
<td></td>
<td>carbon monoxide</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**5.3 Advice for firefighters**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special protective actions for fire-fighters</td>
<td>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.</td>
</tr>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>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.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
</tr>
<tr>
<td>Special protective equipment for fire-fighters</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
</tr>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</td>
</tr>
</tbody>
</table>
## Section 6. Accidental release measures

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

<table>
<thead>
<tr>
<th>For non-emergency personnel</th>
<th>ABLE C electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For emergency responders</th>
<th>ABLE C electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &quot;For non-emergency personnel&quot;.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &quot;For non-emergency personnel&quot;.</td>
</tr>
</tbody>
</table>

### 6.2 Environmental precautions

<table>
<thead>
<tr>
<th>ABLE C electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>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).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>ABLE C electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>ABLE C electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
</tbody>
</table>
# Section 7. Handling and storage

## Advice on general occupational hygiene
- **ABLE C electroporation 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
- **ABLE C electroporation 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.

## 7.3 Specific end use(s)
- **Recommendations**
  - **ABLE C electroporation competent cells** and **pUC 18 DNA Control Plasmid**: Industrial applications, Professional applications.
  - **ABLE C electroporation competent cells** and **pUC 18 DNA Control Plasmid**: Not applicable.

## Section 8. Exposure controls/personal protection

### 8.1 Control parameters
- **Occupational exposure limits**
Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
</table>
| ABLE C electroporation competent cells, Glycerol     | 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 |

8.2 Exposure controls

Appropriate engineering controls

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

Environmental exposure controls

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

Individual protection measures

Hygiene measures

: 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.

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: safety glasses with side-shields.

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.

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

Physical state

: ABLE C electroporation competent cells, Liquid.
pUC 18 DNA Control Plasmid, Liquid.
### Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>ABLE C electroporation competent cells</th>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Color</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Odor</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Odor threshold</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>Not available.</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
<td>Not available.</td>
<td>0°C (32°F)</td>
</tr>
<tr>
<td><strong>Boiling point</strong></td>
<td>Not available.</td>
<td>100°C (212°F)</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>Not available.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>Not available.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td><strong>Lower and upper explosive (flammable) limits</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapor pressure</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Vapor density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td><strong>Partition coefficient: n-octanol/water</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Auto-ignition temperature</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td><strong>Decomposition temperature</strong></td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Date of issue:** 04/16/2019
Section 9. Physical and chemical properties

Viscosity

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
Not available.

Section 10. Stability and reactivity

10.1 Reactivity

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
The product is stable.

10.3 Possibility of hazardous reactions

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No specific data.

10.5 Incompatible materials

ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products

ABLE C electroporation competent cells
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

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

Sensitization

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Section 11. Toxicological information

Not available.

**Mutagenicity**

**Conclusion/Summary**: Not available.

**Carcinogenicity**

**Conclusion/Summary**: Not available.

**Reproductive toxicity**

**Conclusion/Summary**: Not available.

**Teratogenicity**

**Conclusion/Summary**: Not available.

**Specific target organ toxicity (single exposure)**

Not available.

**Specific target organ toxicity (repeated exposure)**

Not available.

**Aspiration hazard**

Not available.

**Information on the likely routes of exposure**

- **ABLE C electroporation competent cells**
  - No available.
- **pUC 18 DNA Control Plasmid**
  - No available.

**Potential acute health effects**

- **Eye contact**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no known significant effects or critical hazards.
- **Inhalation**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no known significant effects or critical hazards.
- **Skin contact**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no known significant effects or critical hazards.
- **Ingestion**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no known significant effects or critical hazards.

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

- **Eye contact**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no specific data.
- **Inhalation**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no specific data.
- **Skin contact**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no specific data.
- **Ingestion**: ABLE C electroporation competent cells and pUC 18 DNA Control Plasmid, no specific data.

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

**Short term exposure**

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Section 11. Toxicological information

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Long term exposure
Potential immediate effects: Not available.
Potential delayed effects: Not available.

Potential chronic health effects
General: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Carcinogenicity: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Mutagenicity: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Teratogenicity: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Developmental effects: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Fertility effects: ABLE C electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Numerical measures of toxicity
Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

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Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Test</th>
<th>Result</th>
<th>Dose</th>
<th>Inoculum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>DOT / TDG / Mexico / IMDG / IATA</th>
<th>Special precautions for user</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not regulated.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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Section 14. Transport information

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Section 15. Regulatory information

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

U.S. Federal regulations

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not 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
Classification: Not applicable.

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABLE C electroporation competent cells</td>
<td></td>
<td>EYE IRRITATION - Category 2A</td>
</tr>
<tr>
<td>Glycerol</td>
<td>&lt;10</td>
<td></td>
</tr>
</tbody>
</table>

State regulations

Massachusetts: The following components are listed: GLYCERINE MIST
New York: None of the components are listed.
New Jersey: The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL
Pennsylvania: The following components are listed: 1,2,3-PROPANETRIOL

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

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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 : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : Japan inventory (ENCS): All components are listed or exempted.
Japan inventory (ISHL): All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.
Thailand : Not determined.
Turkey : Not determined.
United States : All components are listed or exempted.
Viet Nam : Not determined.

Section 16. Other information

History
Date of issue : 04/16/2019
Date of previous issue : 11/27/2017
Version : 6
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

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not classified.</td>
<td></td>
</tr>
</tbody>
</table>

**Indicates information that has changed from previously issued version.**

Notice to reader

**Date of issue :** 04/16/2019
Section 16. Other information

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