### Section 1. Identification

**1.1 Product identifier**

<table>
<thead>
<tr>
<th>Product name</th>
<th>:XL1-Blue MRF' Electroporation-Competent Cells, Part Number 200158</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part No. (Chemical Kit)</td>
<td>:200158</td>
</tr>
<tr>
<td>Part No.</td>
<td>:XL1-Blue MRF' electroporation competent cells 200158-41</td>
</tr>
<tr>
<td></td>
<td>:pUC 18 DNA Control Plasmid 200231-42</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Material uses</th>
<th>:Analytical reagent.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td>:5 x 0.1 ml</td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td>:0.01 ml (0.1 ng/µl)</td>
</tr>
</tbody>
</table>

**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**

<table>
<thead>
<tr>
<th>OSHA/HCS status</th>
<th>:XL1-Blue MRF' electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pUC 18 DNA Control Plasmid</td>
</tr>
</tbody>
</table>

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**
  - :XL1-Blue MRF' electroporation competent cells
  - Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%

**2.2 GHS label elements**

<table>
<thead>
<tr>
<th>Signal word</th>
<th>:XL1-Blue MRF' electroporation competent cells</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pUC 18 DNA Control Plasmid</td>
</tr>
</tbody>
</table>

No signal word.
Section 2. Hazards identification

Hazard statements:
- XL1-Blue MRF' electroporation competent cells: No known significant effects or critical hazards.
- pUC 18 DNA Control Plasmid: No known significant effects or critical hazards.

Precautionary statements:
- Prevention:
  - XL1-Blue MRF' electroporation competent cells: Not applicable.
  - pUC 18 DNA Control Plasmid: Not applicable.
- Response:
  - XL1-Blue MRF' electroporation competent cells: Not applicable.
  - pUC 18 DNA Control Plasmid: Not applicable.
- Storage:
  - XL1-Blue MRF' electroporation competent cells: Not applicable.
  - pUC 18 DNA Control Plasmid: Not applicable.
- Disposal:
  - XL1-Blue MRF' electroporation competent cells: Not applicable.
  - pUC 18 DNA Control Plasmid: Not applicable.

Supplemental label elements:
- XL1-Blue MRF' electroporation competent cells: None known.
- pUC 18 DNA Control Plasmid: None known.

2.3 Other hazards
- Hazards not otherwise classified:
  - XL1-Blue MRF' electroporation competent cells: None known.
  - pUC 18 DNA Control Plasmid: None known.

Section 3. Composition/information on ingredients

Substance/mixture:
- XL1-Blue MRF' 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>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
<td>56-81-5</td>
</tr>
<tr>
<td>Glycerol</td>
<td>&lt;10</td>
<td></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:
- XL1-Blue MRF' electroporation competent cells: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
- pUC 18 DNA Control Plasmid: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Section 4. First aid measures

**Inhalation**
- XL1-Blue MRF’ 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.

**Skin contact**
- XL1-Blue MRF’ electroporation competent cells
  Wash out mouth with water. Remove contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Ingestion**
- XL1-Blue MRF’ electroporation competent cells
  Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

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

**Potential acute health effects**

**Eye contact**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No known significant effects or critical hazards.

**Inhalation**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No known significant effects or critical hazards.

**Skin contact**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No known significant effects or critical hazards.

**Ingestion**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No known significant effects or critical hazards.

**Over-exposure signs/symptoms**

**Eye contact**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No specific data.

**Inhalation**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No specific data.

**Skin contact**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No specific data.

**Ingestion**
- XL1-Blue MRF’ electroporation competent cells
- pUC 18 DNA Control Plasmid
  No specific data.
Section 4. First aid measures

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

**Notes to physician**
- **XL1-Blue MRF’ electroporation competent cells**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **pUC 18 DNA Control Plasmid**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**
- **XL1-Blue MRF’ electroporation competent cells**: No specific treatment.
- **pUC 18 DNA Control Plasmid**: No specific treatment.

**Protection of first-aiders**
- **XL1-Blue MRF’ electroporation competent cells**: No action shall be taken involving any personal risk or without suitable training.
- **pUC 18 DNA Control Plasmid**: 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

**Suitable extinguishing media**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

**Unsuitable extinguishing media**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

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

**Specific hazards arising from the chemical**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

**Hazardous thermal decomposition products**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

#### 5.3 Advice for firefighters

**Special protective actions for fire-fighters**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

**Special protective equipment for fire-fighters**
- **XL1-Blue MRF’ electroporation competent cells**
- **pUC 18 DNA Control Plasmid**

Date of issue: 09/26/2017
### Section 5. Fire-fighting measures

- Pressure mode.

### Section 6. Accidental release measures

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

<table>
<thead>
<tr>
<th>For non-emergency personnel</th>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<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>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<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>pUC 18 DNA Control Plasmid</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>

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

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<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>
</tr>
</tbody>
</table>

**Date of issue:** 09/26/2017
Section 7. Handling and storage

7.1 Precautions for safe handling

**Protective measures**: XL1-Blue MRF' electroporation competent cells

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

pUC 18 DNA Control Plasmid

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

**Advice on general occupational hygiene**: XL1-Blue MRF' 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

**XL1-Blue MRF' 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**: XL1-Blue MRF' electroporation competent cells

Industrial applications, Professional applications.

pUC 18 DNA Control Plasmid

Industrial applications, Professional applications.

**Industrial sector specific solutions**: XL1-Blue MRF' electroporation competent cells

Not applicable.

pUC 18 DNA Control Plasmid

Not applicable.
Section 8. Exposure controls/personal protection

8.1 Control parameters

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</td>
</tr>
<tr>
<td>Glycerol</td>
<td>OSHA PEL (United States, 6/2016). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction</td>
</tr>
<tr>
<td></td>
<td>TWA: 10 mg/m³ 8 hours. Form: Total dust</td>
</tr>
<tr>
<td></td>
<td>TWA: 15 mg/m³ 8 hours. Form: Total dust</td>
</tr>
</tbody>
</table>

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                                       | 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. |
| Hand 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. |
| Body 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. |
| Other skin 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. |
| Respiratory protection                                 |                                                                                   |
### Section 9. Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>XL1-Blue MRF* electroporation competent cells</th>
<th>pUC 18 DNA Control Plasmid</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>Liquid.</td>
<td>Liquid.</td>
</tr>
<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 available.</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 applicable.</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>Easily 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>
</tbody>
</table>

**Date of issue**: 09/26/2017
Section 9. Physical and chemical properties

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

Section 10. Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : No specific data.

10.5 Incompatible materials : May react or be incompatible with oxidizing materials.

10.6 Hazardous decomposition products : 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>XL1-Blue MRF' electroperoration competent cells</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

Date of issue : 09/26/2017
Section 11. Toxicological information

<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>XL1-Blue MRF’ electroporation competent cells Glycerol</td>
<td>Eyes - Mild irritant Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

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:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
Not available.

Potential acute health effects

Eye contact:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Inhalation:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Skin contact:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Ingestion:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:
XL1-Blue MRF’ electroporation competent cells
pUC 18 DNA Control Plasmid
No specific data.

Date of issue: 09/26/2017
### Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Skin contact</td>
<td>No specific data.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Ingestion</td>
<td>No specific data.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
</tbody>
</table>

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

#### Short term exposure

<table>
<thead>
<tr>
<th>Potential immediate effects</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential delayed effects</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

#### Long term exposure

<table>
<thead>
<tr>
<th>Potential immediate effects</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential delayed effects</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Potential chronic health effects**

<table>
<thead>
<tr>
<th>General</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Mutagenicity</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Teratogenicity</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Developmental effects</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
<tr>
<td>Fertility effects</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>XL1-Blue MRF' electroporation competent cells</td>
<td></td>
</tr>
<tr>
<td>pUC 18 DNA Control Plasmid</td>
<td></td>
</tr>
</tbody>
</table>

**Numerical measures of toxicity**

**Acute toxicity estimates**

Not available.
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>XL1-Blue MRF(^\text{R}) electroporation competent cells</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

<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>XL1-Blue MRF(^\text{R}) electroporation competent cells</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP(_\text{ow})</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF(^\text{R}) electroporation competent cells</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

| Soil/water partition coefficient (K\(_\text{oc}\)) | Not available. |

12.5 Other adverse effects

: No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods

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

Date of issue : 09/26/2017
Section 13. Disposal considerations

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

Section 14. Transport information

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

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

Transport in bulk according to 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 : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: Edetic acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : 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>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF’ electroporation competent cells</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

State regulations

Date of issue : 09/26/2017
Section 15. Regulatory information

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

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

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.
Malaysia: Not determined.
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
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Date of previous issue: 07/31/2015.
Version: 2

Notice to reader

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