Section 1. Identification

Product identifier : pBC KS (+) Phagemid, Part Number 212217
Part no. (chemical kit) : 212217
Part no. : pBC KS+ Phagemid 212217-51
XL1-Blue MRF’ E.coli Strain 200301-81

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

Material uses : Analytical reagent.
- pBC KS+ Phagemid 0.02 ml (20 µg 1 µg/ µl)
- XL1-Blue MRF’ E.coli Strain 0.5 ml

Supplier/Manufacturer : Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation) : CHEMTREC®: +(61)-290372994

Section 2. Hazard(s) identification

Classification of the substance or mixture
Not classified.
- XL1-Blue MRF’ E.coli Strain
- Percentage of the mixture consisting of ingredient(s)
  of unknown inhalation toxicity: 10 - 30%

GHS label elements

Signal word : pBC KS+ Phagemid
- No signal word.
XL1-Blue MRF’ E.coli Strain
- No signal word.

Hazard statements : pBC KS+ Phagemid
- No known significant effects or critical hazards.
XL1-Blue MRF’ E.coli Strain
- No known significant effects or critical hazards.

Precautionary statements

Prevention : pBC KS+ Phagemid
- Not applicable.
XL1-Blue MRF’ E.coli Strain
- Not applicable.

Response : pBC KS+ Phagemid
- Not applicable.
XL1-Blue MRF’ E.coli Strain
- Not applicable.

Storage : pBC KS+ Phagemid
- Not applicable.
XL1-Blue MRF’ E.coli Strain
- Not applicable.

Disposal : pBC KS+ Phagemid
- Not applicable.
XL1-Blue MRF’ E.coli Strain
- Not applicable.

Supplemental label elements

Additional warning phrases : pBC KS+ Phagemid
- Not applicable.
XL1-Blue MRF’ E.coli Strain
- Not applicable.

Other hazards which do not result in classification : pBC KS+ Phagemid
- None known.
XL1-Blue MRF’ E.coli Strain
- None known.

Date of issue/Date of revision : 31/08/2018
Date of previous issue : 23/06/2017
Version : 5
1/11
Section 3. Composition and ingredient information

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>pBC KS+ Phagemid Mixture</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain Mixture</td>
</tr>
</tbody>
</table>

CAS number/other identifiers

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF’ E.coli Strain</td>
<td>≥10 - ≤30</td>
<td>56-81-5</td>
</tr>
</tbody>
</table>

Glycerol

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

**Description of necessary first aid measures**

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pBC KS+ Phagemid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Description of necessary first aid measures</td>
<td>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.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>pBC KS+ Phagemid</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Description of necessary first aid measures</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>pBC KS+ Phagemid</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Description of necessary first aid measures</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>pBC KS+ Phagemid</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Description of necessary first aid measures</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

**Potential acute health effects**

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pBC KS+ Phagemid</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Most important symptoms/effects, acute and delayed</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>pBC KS+ Phagemid</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Most important symptoms/effects, acute and delayed</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>pBC KS+ Phagemid</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF’ E.coli Strain</td>
</tr>
<tr>
<td>Most important symptoms/effects, acute and delayed</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 31/08/2018
Date of previous issue: 23/06/2017
Version: 5
Section 4. First aid measures

Ingestion:
- **pBC KS+ Phagemid**: No known significant effects or critical hazards.
- **XL1-Blue MRF' E.coli Strain**: No known significant effects or critical hazards.

Over-exposure signs/symptoms:
- **Eye contact**: No specific data.
- **Inhalation**: No specific data.
- **Skin contact**: No specific data.
- **Ingestion**: No specific data.

Notes to physician:
- **pBC KS+ Phagemid**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **XL1-Blue MRF' E.coli Strain**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Indication of immediate medical attention and special treatment needed, if necessary:
- **Notes to physician**: No specific treatment.
- **Protection of first-aiders**: No action shall be taken involving any personal risk or without suitable training.

Specific treatments:
- **pBC KS+ Phagemid**: No specific treatment.
- **XL1-Blue MRF' E.coli Strain**: No specific treatment.

Section 5. Firefighting measures

Extinguishing media:
- **Suitable extinguishing media**: Use an extinguishing agent suitable for the surrounding fire.
- **Unsuitable extinguishing media**: None known.

Specific hazards arising from the chemical:
- **pBC KS+ Phagemid**: In a fire or if heated, a pressure increase will occur and the container may burst.
- **XL1-Blue MRF' E.coli Strain**: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products:
- **pBC KS+ Phagemid**: Decomposition products may include the following materials:
  - Carbon dioxide
  - Carbon monoxide
  - Halogenated compounds
  - Metal oxide/oxides

Special protective actions for fire-fighters:
- **pBC KS+ Phagemid**: 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.
- **XL1-Blue MRF' E.coli Strain**: 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.
Section 5. Firefighting measures

Special protective equipment for fire-fighters

| pBC KS+ Phagemid | Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. |
| XL1-Blue MRF’ E.coli Strain | 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

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Methods and material for containment and cleaning up

Methods for cleaning up:

- 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.

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".

Environmental precautions:

- Avoid dispersal of spilt 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).

For non-emergency personnel:

- 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 spilt material. Put on appropriate personal protective equipment.

For emergency responders:

- If specialised 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".
Section 7. Handling and storage

Precautions for safe handling

**Protective measures**

- **pBC KS+ Phagemid**
  - Put on appropriate personal protective equipment (see Section 8).
- **XL1-Blue MRF’ E.coli Strain**
  - Put on appropriate personal protective equipment (see Section 8).

**Advice on general occupational hygiene**

- **pBC KS+ Phagemid**
  - 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.
- **XL1-Blue MRF’ E.coli Strain**
  - 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.

**Conditions for safe storage, including any incompatibilities**

- **pBC KS+ Phagemid**
  - 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.
- **XL1-Blue MRF’ E.coli Strain**
  - 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 unlabelled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls and personal protection

**Control parameters**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF’ E.coli Strain Glycerol</td>
<td>Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m³ 8 hours.</td>
</tr>
</tbody>
</table>

**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.
Section 8. Exposure controls and personal protection

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

Appearance

Physical state:
- pBC KS+ Phagemid: Liquid.
- XL1-Blue MRF E.coli Strain: Liquid.

Colour:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Odour:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Odour threshold:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

pH:
- pBC KS+ Phagemid: 7.5
- XL1-Blue MRF E.coli Strain: 7

Melting point:
- pBC KS+ Phagemid: 0°C (32°F)
- XL1-Blue MRF E.coli Strain: Not available.

Boiling point:
- pBC KS+ Phagemid: 100°C (212°F)
- XL1-Blue MRF E.coli Strain: Not available.

Flash point:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Evaporation rate:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Flammability (solid, gas):
- pBC KS+ Phagemid: Not applicable.
- XL1-Blue MRF E.coli Strain: Not applicable.

Lower and upper explosive (flammable) limits:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Vapour pressure:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.

Vapour density:
- pBC KS+ Phagemid: Not available.
- XL1-Blue MRF E.coli Strain: Not available.
Section 9. Physical and chemical properties

Relative density: Not available.
Solubility:
- pBC KS+ Phagemid: Easily soluble in the following materials: cold water and hot water.
- XL1-Blue MRF’ E.coli Strain: Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water: Not available.
Auto-ignition temperature: Not available.
Decomposition temperature: Not available.
Viscosity: Not available.

Section 10. Stability and reactivity

Reactivity:
- pBC KS+ Phagemid: No specific test data related to reactivity available for this product or its ingredients.
- XL1-Blue MRF’ E.coli Strain: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability:
- pBC KS+ Phagemid: The product is stable.
- XL1-Blue MRF’ E.coli Strain: The product is stable.

Possibility of hazardous reactions:
- pBC KS+ Phagemid: Under normal conditions of storage and use, hazardous reactions will not occur.
- XL1-Blue MRF’ E.coli Strain: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid:
- pBC KS+ Phagemid: No specific data.
- XL1-Blue MRF’ E.coli Strain: No specific data.

Incompatible materials:
- pBC KS+ Phagemid: May react or be incompatible with oxidising materials.
- XL1-Blue MRF’ E.coli Strain: May react or be incompatible with oxidising materials.

Hazardous decomposition products:
- pBC KS+ Phagemid: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- XL1-Blue MRF’ E.coli Strain: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

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’ E.coli Strain</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 31/08/2018  Date of previous issue: 23/06/2017  Version: 5 7/11
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’ E.coli Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Sensitisation
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 likely routes of exposure
**XL1-Blue MRF’ E.coli Strain**: Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

<table>
<thead>
<tr>
<th>Exposure</th>
<th>pBC KS+ Phagemid</th>
<th>XL1-Blue MRF’ E.coli Strain</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingestion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Exposure</th>
<th>pBC KS+ Phagemid</th>
<th>XL1-Blue MRF’ E.coli Strain</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inhalation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skin</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingestion</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

#### Short term exposure
**Potential immediate effects**: Not available.
Section 11. Toxicological information

Potential delayed effects: Not available.

Long term exposure
Potential immediate effects: Not available.

Potential delayed effects: Not available.

Potential chronic health effects

General:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Carcinogenicity:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Mutagenicity:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Teratogenicity:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Developmental effects:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Fertility effects:
- pBC KS+ Phagemid: No known significant effects or critical hazards.
- XL1-Blue MRF' E.coli Strain: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates
Not available.

Section 12. Ecological information

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' E.coli Strain Glycerol</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

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' E.coli Strain Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

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>XL1-Blue MRF' E.coli Strain Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

Soil/water partition coefficient (K<sub>oc</sub>): Not available.

Date of issue/Date of revision: 31/08/2018  Date of previous issue: 23/06/2017  Version: 5
Section 12. Ecological information

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

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimised 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

ADG / IMDG / IATA : Not regulated as Dangerous Goods according to the ADG Code.

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

Standard Uniform Schedule of Medicine and Poisons
Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances
No listed substance

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.

Date of issue/Date of revision : 31/08/2018  Date of previous issue : 23/06/2017  Version : 5
Section 15. Regulatory information

<table>
<thead>
<tr>
<th>Country</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Thailand</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Turkey</td>
<td>Not determined.</td>
</tr>
<tr>
<td>United States</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Not determined.</td>
</tr>
</tbody>
</table>

Section 16. Any other relevant information

History

| Date of issue/Date of revision | 31/08/2018 |
| Date of previous issue        | 23/06/2017 |
| Version                      | 5          |

Key to abbreviations

- ADG = Australian Dangerous Goods
- 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
- NOHSC = National Occupational Health and Safety Commission
- SUSMP = Standard Uniform Schedule of Medicine and Poisons
- 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>

References

- Not available.

Indicates information that has changed from previously issued version.

Notice to reader

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