SAFETY DATA SHEET
pBC SK (-) Phagemid, Part Number 212216

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: pBC SK (-) Phagemid, Part Number 212216
Part no. (chemical kit): 212216
Part no.: pBC SK - Phagemid 212216-51
XL1-Blue MRF' E.coli Strain 200301-81

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses: Analytical reagent.
pBC SK - Phagemid 0.02 ml (20 µg 1 µg/µl)
XL1-Blue MRF' E.coli Strain 0.5 ml

1.3 Details of the supplier of the safety data sheet
Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000
E-mail address of person responsible for this SDS: pdl-msds_author@agilent.com

1.4 Emergency telephone number
Emergency telephone number (with hours of operation): CHEMTREC®: +(44)-870-8200418

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Product definition:
pBC SK - Phagemid Mixture
XL1-Blue MRF' E.coli Mixture
Strain
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Not classified.

Ingredients of unknown toxicity:
XL1-Blue MRF' E.coli Strain Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%

See Section 16 for the full text of the H statements declared above.
See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements
Signal word: pBC SK - Phagemid XL1-Blue MRF' E.coli No signal word.
Strain
XL1-Blue MRF' E.coli No signal word.
Strain

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

Precautionary statements:

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SECTION 2: Hazards identification

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

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

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

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

Hazardous ingredients:
- pBC SK - Phagemid: Not applicable.
- XL1-Blue MRF’ E.coli Strain: Not applicable.

Supplemental label elements:
- pBC SK - Phagemid: Not applicable.
- XL1-Blue MRF’ E.coli Strain: Safety data sheet available on request.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles
- pBC SK - Phagemid: Not applicable.
- XL1-Blue MRF’ E.coli Strain: Not applicable.

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

SECTION 3: Composition/information on ingredients

3.1 Substances:

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF’ E.coli Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EC: 200-289-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAS: 56-81-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>EC: 231-598-3</td>
<td>≤3</td>
<td>Eye Irrit. 2, H319</td>
<td>[1]</td>
</tr>
<tr>
<td>CAS: 7647-14-5</td>
<td></td>
<td></td>
<td>See Section 16 for the full text</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>of the H statements declared</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>above.</td>
<td></td>
</tr>
</tbody>
</table>

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.

Type
SECTION 3: Composition/information on ingredients

1. Substance classified with a health or environmental hazard
2. Substance with a workplace exposure limit
3. Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII
4. Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII
5. Substance of equivalent concern
6. Additional disclosure due to company policy

SECTION 4: First aid measures

4.1 Description of first aid measures

**Eye contact**
- **pBC SK - Phagemid**
  - Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- **XL1-Blue MRF E.coli Strain**
  - Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Inhalation**
- **pBC SK - Phagemid**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- **XL1-Blue MRF E.coli Strain**
  - Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

**Skin contact**
- **pBC SK - Phagemid**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- **XL1-Blue MRF E.coli Strain**
  - Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

**Ingestion**
- **pBC SK - Phagemid**
  - 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.
- **XL1-Blue MRF E.coli Strain**
  - 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.

**Protection of first-aiders**
- **pBC SK - Phagemid**
  - No action shall be taken involving any personal risk or without suitable training.
- **XL1-Blue MRF E.coli Strain**
  - No action shall be taken involving any personal risk or without suitable training.

4.2 Most important symptoms and effects, both acute and delayed

**Potential acute health effects**

**Eye contact**
- **pBC SK - Phagemid**
  - No known significant effects or critical hazards.
- **XL1-Blue MRF E.coli Strain**
  - No known significant effects or critical hazards.

**Inhalation**
- **pBC SK - Phagemid**
  - No known significant effects or critical hazards.
- **XL1-Blue MRF E.coli Strain**
  - No known significant effects or critical hazards.

**Skin contact**
- **pBC SK - Phagemid**
  - No known significant effects or critical hazards.
- **XL1-Blue MRF E.coli Strain**
  - No known significant effects or critical hazards.

**Ingestion**
- **pBC SK - Phagemid**
  - No known significant effects or critical hazards.
- **XL1-Blue MRF E.coli Strain**
  - No known significant effects or critical hazards.
SECTION 4: First aid measures

Over-exposure signs/symptoms

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pBC SK - Phagemid</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>pBC SK - Phagemid</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>pBC SK - Phagemid</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>pBC SK - Phagemid</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

XL1-Blue MRF' E.coli Strain

Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

| pBC SK - 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. |

Specific treatments

| pBC SK - Phagemid | No specific data. |
| XL1-Blue MRF' E.coli Strain | No specific data. |

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

| pBC SK - Phagemid | Use an extinguishing agent suitable for the surrounding fire. |
| XL1-Blue MRF' E.coli Strain | Use an extinguishing agent suitable for the surrounding fire. |

Unsuitable extinguishing media

| pBC SK - Phagemid | None known. |
| XL1-Blue MRF' E.coli Strain | None known. |

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products

| pBC SK - 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. |

Decomposition products may include the following materials:

- carbon dioxide
- carbon monoxide
- halogenated compounds
- metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters

| pBC SK - 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. |

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SECTION 5: Firefighting measures

Special protective equipment for firefighters:

- **pBC SK - Phagemid**
  - Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

- **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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

**SECTION 6: Accidental release measures**

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:

- **pBC SK - Phagemid**
  - 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.

- **XL1-Blue MRF' E.coli Strain**
  - 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:

- **pBC SK - Phagemid**
  - 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".

- **XL1-Blue MRF' E.coli Strain**
  - 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".

6.2 Environmental precautions:

- **pBC SK - Phagemid**
  - 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).

- **XL1-Blue MRF' E.coli Strain**
  - 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).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up:

- **pBC SK - Phagemid**
  - Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

- **XL1-Blue MRF' E.coli Strain**
  - 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.

6.4 Reference to other sections

- See Section 1 for emergency contact information.
- See Section 8 for information on appropriate personal protective equipment.
- See Section 13 for additional waste treatment information.

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SECTION 7: Handling and storage

7.1 Precautions for safe handling

Protective measures:
- Put on appropriate personal protective equipment (see Section 8).
  - pBC SK - Phagemid
  - XL1-Blue MRF' E.coli Strain

Advice on general occupational hygiene:
- 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.
  - pBC SK - Phagemid
  - XL1-Blue MRF' E.coli Strain

7.2 Conditions for safe storage, including any incompatibilities

Storage:
- 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.
  - pBC SK - Phagemid
  - XL1-Blue MRF' E.coli Strain

7.3 Specific end use(s)

Recommendations:
- Industrial applications, Professional applications.
  - pBC SK - Phagemid
  - XL1-Blue MRF' E.coli Strain

Industrial sector specific solutions:
- Not applicable.
  - pBC SK - Phagemid
  - XL1-Blue MRF' E.coli Strain

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Exposure limit values</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' E.coli Strain Glycerol</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 31/08/2018
## SECTION 8: Exposure controls/personal protection

### Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

### Hand protection

Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Appropriate respirators may be required according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

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.

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to protect against airborne contaminants. Safety glasses with side-shields should be worn, unless the assessment indicates a higher degree of protection.

### Skin 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.

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.

### 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.

### 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 protect against airborne contaminants. Safety glasses with side-shields should be worn, unless the assessment indicates a higher degree of protection.

### Body 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.

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.

### Date of issue/Date of revision

31/08/2018

7/14
### SECTION 9: Physical and chemical properties

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

<table>
<thead>
<tr>
<th>Property</th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odour</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>7.5</td>
<td>7</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>0°C</td>
<td>Not available.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>100°C</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

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SECTION 9: Physical and chemical properties

Decomposition temperature: pBC SK - Phagemid Not available.
XL1-Blue MRF' E.coli Strain Not available.
Viscosity: pBC SK - Phagemid Not available.
XL1-Blue MRF' E.coli Strain Not available.
Explosive properties: pBC SK - Phagemid Not available.
XL1-Blue MRF' E.coli Strain Not available.
Oxidising properties: pBC SK - Phagemid Not available.
XL1-Blue MRF' E.coli Strain Not available.

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity: pBC SK - 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.

10.2 Chemical stability: pBC SK - Phagemid The product is stable.
XL1-Blue MRF' E.coli Strain The product is stable.

10.3 Possibility of hazardous reactions: pBC SK - 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.

10.4 Conditions to avoid: pBC SK - Phagemid No specific data.
XL1-Blue MRF' E.coli Strain No specific data.

10.5 Incompatible materials: pBC SK - Phagemid May react or be incompatible with oxidising materials.
XL1-Blue MRF' E.coli Strain May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products: pBC SK- Phagemid
XL1-Blue MRF' Strain
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' E.coli Strain</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>3000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Acute toxicity estimates
Not available.

Irritation/Corrosion

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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 Sodium chloride</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>10 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>
</tbody>
</table>

**Sensitiser**

Conclusion/Summary: 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**

Not available.

**Potential acute health effects**

Inhalation:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No known significant effects or critical hazards.
  - No known significant effects or critical hazards.

Ingestion:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No known significant effects or critical hazards.
  - No known significant effects or critical hazards.

Skin contact:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No known significant effects or critical hazards.
  - No known significant effects or critical hazards.

Eye contact:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No known significant effects or critical hazards.
  - No known significant effects or critical hazards.

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

Inhalation:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No specific data.
  - No specific data.

Ingestion:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No specific data.
  - No specific data.

Skin contact:

- pBC SK - Phagemid
- XL1-Blue MRF' E.coli Strain
  - No specific data.
  - No specific data.
SECTION 11: Toxicological information

**Potential chronic health effects**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**XL1-Blue MRF' E.coli Strain**

No known significant effects or critical hazards.

**Carcinogenicity**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
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</table>

**Mutagenicity**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
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</table>

**Teratogenicity**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
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</tbody>
</table>

**Developmental effects**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
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<td></td>
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<td></td>
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</tbody>
</table>

**Fertility effects**

<table>
<thead>
<tr>
<th></th>
<th>pBC SK - Phagemid</th>
<th>XL1-Blue MRF' E.coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
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</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>XL1-Blue MRF' E.coli Strain Sodium chloride</td>
<td>Acute EC50 4.74 g/L Fresh water</td>
<td>Algae - Chlamydomonas reinhardtii</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 519.6 mg/l Fresh water</td>
<td>Crustaceans - Cypris subglobosa</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 402600 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute IC50 6.87 g/L Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 1000000 μg/l Fresh water</td>
<td>Fish - Morone saxatilis - Larvae</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic LC10 781 mg/l Fresh water</td>
<td>Crustaceans - Hyalella azteca - Juvenile</td>
<td>3 weeks</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 6 g/L Fresh water</td>
<td>(Fledgling, Hatchling, Weanling)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.314 g/L Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 100 mg/l Fresh water</td>
<td>Fish - Gambusia holbrooki - Adult</td>
<td>21 days</td>
</tr>
</tbody>
</table>

### 12.2 Persistence and degradability

**Date of issue/Date of revision**: 31/08/2018
SECTION 12: Ecological information

12.3 Bioaccumulative potential

Not available.

12.4 Mobility in soil

| Soil/water partition coefficient ($K_{OC}$) | Not available. |
| Mobility                               | Not available. |

12.5 Results of PBT and vPvB assessment

| PBT                               | Not applicable. |
| vPvB                              | Not applicable. |

12.6 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

<table>
<thead>
<tr>
<th>Product</th>
<th>Methods of disposal</th>
<th>Hazardous waste</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>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.</td>
<td>Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Packaging</th>
<th>Methods of disposal</th>
<th>Special precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.</td>
<td>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.</td>
</tr>
</tbody>
</table>

SECTION 14: Transport information

<table>
<thead>
<tr>
<th>ADR/RID / IMDG / IATA</th>
<th>Not regulated.</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.6 Special precautions for user</td>
<td><strong>Transport within user's premises</strong>: 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>
<tr>
<td>14.7 Transport in bulk according to Annex II of Marpol and the IBC Code</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision : 31/08/2018
SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Ozone depleting substances (1005/2009/EU)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Seveso Directive

This product is not controlled under the Seveso Directive.

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.

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SECTION 15: Regulatory information

Viet Nam: Not determined.

15.2 Chemical safety assessment: This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms:
- ATE = Acute Toxicity Estimate
- CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
- DNEL = Derived No Effect Level
- EUH statement = CLP-specific Hazard statement
- PNEC = Predicted No Effect Concentration
- RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

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

Full text of abbreviated H statements

XL1-Blue MRF' E.coli Strain
H319
Causes serious eye irritation.

Full text of classifications [CLP/GHS]

XL1-Blue MRF' E.coli Strain
Eye Irrit. 2, H319
SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2

Date of issue/Date of revision: 31/08/2018
Date of previous issue: 23/06/2017
Version: 2

Notice to reader

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