SAFETY DATA SHEET

pBC KS (+) Phagemid, Part Number 212217

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

1.1 Product identifier

Product name : pBC KS (+) Phagemid, Part Number 212217
Part No. (Kit) : 212217
Part No. : pBC KS (+) Phagemid 212217-51
          XL1-Blue MRF' E.coli 200301-81
Strain

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

<table>
<thead>
<tr>
<th>Identified uses</th>
<th>0.02 ml</th>
<th>0.5 ml</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical reagent.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>pBC KS (+) Phagemid</td>
<td></td>
<td></td>
</tr>
<tr>
<td>XL1-Blue MRF' E.coli Strain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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 KS (+) 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 KS (+) Phagemid No signal word.
              XL1-Blue MRF' E.coli No signal word.
              Strain

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

Date of issue/Date of revision : 23/06/2017
SECTION 2: Hazards identification

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.

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

Supplemental label elements:
- pBC KS (+) 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 KS (+) Phagemid: Not applicable.
- XL1-Blue MRF’ E.coli Strain: Not applicable.

Special packaging requirements:
- Tactile warning of danger:
  - pBC KS (+) Phagemid: Not applicable.
  - XL1-Blue MRF’ E.coli Strain: Not applicable.

2.3 Other hazards

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

SECTION 3: Composition/information on ingredients

3.1 Substances:
- pBC KS (+) Phagemid: Mixture
- XL1-Blue MRF’ E.coli Strain: Mixture

<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>Sodium chloride</td>
<td>EC: 231-598-3 CAS: 7647-14-5</td>
<td>≤3</td>
<td>Eye Irrit. 2, H319</td>
<td>[1]</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
[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 KS (+) Phagemid
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.

XL1-Blue MRF’ E.coli Strain
Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : pBC KS (+) 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 KS (+) 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 KS (+) 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 KS (+) 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 KS (+) Phagemid
No known significant effects or critical hazards.

XL1-Blue MRF’ E.coli Strain
No known significant effects or critical hazards.

Inhalation : pBC KS (+) Phagemid
No known significant effects or critical hazards.

XL1-Blue MRF’ E.coli Strain
No known significant effects or critical hazards.

Skin contact : pBC KS (+) Phagemid
No known significant effects or critical hazards.

XL1-Blue MRF’ E.coli Strain
No known significant effects or critical hazards.

Ingestion : pBC KS (+) Phagemid
No known significant effects or critical hazards.

XL1-Blue MRF’ E.coli Strain
No known significant effects or critical hazards.

Date of issue/Date of revision : 23/06/2017
**SECTION 4: First aid measures**

**Over-exposure signs/symptoms**

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>pBC KS (+) Phagemid</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>pBC KS (+) Phagemid</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**4.3 Indication of any immediate medical attention and special treatment needed**

Notes to physician:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
</tbody>
</table>

Specific treatments:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

Suitable extinguishing media:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>Use an extinguishing agent suitable for the surrounding fire.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
</tr>
</tbody>
</table>

Unsuitable extinguishing media:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>None known.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>None known.</td>
</tr>
</tbody>
</table>

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

Hazard from the substance or mixture:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>In a fire or if heated, a pressure increase will occur and the container may burst.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
</tbody>
</table>

Hazardous combustion products:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>Decomposition products may include the following materials:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>carbon dioxide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>carbon monoxide</td>
</tr>
<tr>
<td></td>
<td></td>
<td>halogenated compounds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>metal oxide/oxides</td>
</tr>
</tbody>
</table>

**5.3 Advice for firefighters**

Special precautions for fire-fighters:

<table>
<thead>
<tr>
<th></th>
<th>pBC KS (+) Phagemid</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF E.coli</td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

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SECTION 5: Firefighting measures

Special protective equipment for firefighters:
- pBC KS (+) Phagemid
- 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 KS (+) Phagemid
- 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 KS (+) Phagemid
- 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 KS (+) Phagemid
- 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 KS (+) Phagemid
- 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.
SECTION 7: Handling and storage

7.1 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.

7.2 Conditions for safe storage, including any incompatibilities

**Storage**
- 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.

7.3 Specific end use(s)

**Recommendations**
- pBC KS (+) Phagemid
  - Industrial applications, Professional applications.
- XL1-Blue MRF' E.coli Strain
  - Industrial applications, Professional applications.

**Industrial sector specific solutions**
- pBC KS (+) Phagemid
  - Not applicable.
- XL1-Blue MRF' E.coli Strain
  - Not applicable.

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>

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6/14
### 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.

**DNEls/DMELs**

No DNEls/DMELs available.

**PNECs**

No PNECs available

#### 8.2 Exposure controls

**Appropriate engineering controls**

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

**Individual protection measures**

<table>
<thead>
<tr>
<th>Hygiene measures</th>
<th>Hand protection</th>
<th>Body protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Eye/face protection</th>
<th>Other skin protection</th>
<th>Respiratory protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**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.

**Date of issue/Date of revision**

23/06/2017
## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>pBC KS (+) Phagemid Liquid.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Odour</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>pBC KS (+) Phagemid 0°C</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>pBC KS (+) Phagemid 100°C</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Flash point</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>pBC KS (+) Phagemid Not applicable.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>pBC KS (+) Phagemid Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>pBC KS (+) Phagemid Not available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain Not available.</td>
</tr>
</tbody>
</table>
SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Decomposition temperature</th>
<th>pBC KS (+) Phagemid</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Viscosity</th>
<th>pBC KS (+) Phagemid</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explosive properties</th>
<th>pBC KS (+) Phagemid</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Oxidising properties</th>
<th>pBC KS (+) Phagemid</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

<table>
<thead>
<tr>
<th>pBC KS (+) Phagemid</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

10.2 Chemical stability

<table>
<thead>
<tr>
<th>pBC KS (+) Phagemid</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

10.3 Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>pBC KS (+) Phagemid</th>
<th>Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

10.4 Conditions to avoid

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

10.5 Incompatible materials

<table>
<thead>
<tr>
<th>pBC KS (+) Phagemid</th>
<th>May react or be incompatible with oxidising materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' E.coli Strain</td>
<td>May react or be incompatible with oxidising materials.</td>
</tr>
</tbody>
</table>

10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>pBC KS+ Phagemid</th>
<th>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XL1-Blue MRF' Strain</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>

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 Sodium chloride</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

#### Potential acute health effects

**Inhalation**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Ingestion**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Skin contact**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Eye contact**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

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

**Inhalation**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Ingestion**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Skin contact**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

**Eye contact**
- **pBC KS (+) Phagemid**
  - No specific data.
- **XL1-Blue MRF' E.coli Strain**
  - No specific data.

#### Sensitiser

**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.

#### Product/ingredient name | Result | Species | Score | Exposure | Observation
---|---|---|---|---|---
**XL1-Blue MRF' E.coli Strain**
Sodium chloride | Eyes - Moderate irritant, Skin - Mild irritant | Rabbit | - | 24 hours | -
| Rabbit | - | 10 milligrams | -
| Rabbit | - | 24 hours | -

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**pBC KS (+) Phagemid, Part Number 212217**

SECTION 11: Toxicological information

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.

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</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 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 1.56 g/L Fresh water</td>
<td>Daphnia - Daphnia magna</td>
<td>48 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>Aquatic plants - Lemna minor</td>
<td>3 weeks</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 6 g/L Fresh water</td>
<td>Daphnia - Daphnia pulex</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.314 g/L Fresh water</td>
<td>Fish - Gambusia holbrooki - Adult</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 100 mg/l Fresh water</td>
<td></td>
<td>8 weeks</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability
Not available.

12.3 Bioaccumulative potential
Not available.

12.4 Mobility in soil
Soil/water partition coefficient \((K_{OC})\): Not available.
Mobility: Not available.

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SECTION 12: Ecological information

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

Product

Methods of disposal : 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.

Hazardous waste : Within the present knowledge of the supplier, this product is not regarded as hazardous waste, as defined by EU Directive 2008/98/EC.

Packaging

Methods of disposal : 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.

Special precautions : 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 spill material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

ADR/RID / IMDG / IATA : Not regulated.

14.6 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.

14.7 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

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

pBC KS (+) Phagemid : Not applicable.

XL1-Blue MRF’ E.coli Strain : Not applicable.

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SECTION 15: Regulatory information

**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**: Not determined.
- **China**: All components are listed or exempted.
- **Europe**: All components are listed or exempted.
- **Japan**: Japan inventory (ENCS): Not determined. 
  Japan inventory (ISHL): All components are listed or exempted.
- **Malaysia**: Not determined.
- **New Zealand**: All components are listed or exempted.
- **Philippines**: Not determined.
- **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.

**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]**

**Date of issue/Date of revision**: 23/06/2017

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SECTION 16: Other information

<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**: 23/06/2017

**Date of previous issue**: No previous validation.

**Version**: 1

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