SAFETY DATA SHEET
pCAL-n Vector, Part Number 214302

Section 1. Identification

Product identifier: pCAL-n Vector, Part Number 214302
Part no. (chemical kit): 214302
Part no.: pCAL-N Vector 204302-51
          pTC 12 Control Vector 214407-56
          XL1-Blue E. coli Strain 200268-81

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.

Signal word:
- pCAL-N Vector No signal word.
- pTC 12 Control Vector No signal word.
- XL1-Blue E. coli Strain No signal word.

Hazard statements:
- pCAL-N Vector No known significant effects or critical hazards.
- pTC 12 Control Vector No known significant effects or critical hazards.
- XL1-Blue E. coli Strain No known significant effects or critical hazards.

Precautionary statements

Prevention:
- pCAL-N Vector Not applicable.
- pTC 12 Control Vector Not applicable.
- XL1-Blue E. coli Strain Not applicable.

Response:
- pCAL-N Vector Not applicable.
- pTC 12 Control Vector Not applicable.
- XL1-Blue E. coli Strain Not applicable.

Storage:
- pCAL-N Vector Not applicable.
- pTC 12 Control Vector Not applicable.
- XL1-Blue E. coli Strain Not applicable.

Disposal:
- pCAL-N Vector Not applicable.
- pTC 12 Control Vector Not applicable.
- XL1-Blue E. coli Strain Not applicable.

Supplemental label elements:

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

GHS label elements

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Date of previous issue: 29/03/2017
Version: 5
Section 2. Hazard(s) identification

Additional warning phrases:
- pCAL-N Vector: Not applicable.
- pTC 12 Control Vector: Not applicable.
- XL1-Blue E. coli Strain: Not applicable.

Other hazards which do not result in classification:
- pCAL-N Vector: None known.
- pTC 12 Control Vector: None known.
- XL1-Blue E. coli Strain: None known.

Section 3. Composition and ingredient information

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>pCAL-N Vector</th>
<th>pTC 12 Control Vector</th>
<th>XL1-Blue E. coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS number/other identifiers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingredient name</td>
<td>% (w/w)</td>
<td>CAS number</td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥10 - ≤30</td>
<td>56-81-5</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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

**Description of necessary first aid measures**

Eye contact:
- pCAL-N Vector: 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.
- pTC 12 Control Vector: 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 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:
- pCAL-N Vector: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- pTC 12 Control Vector: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
- XL1-Blue 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:
- pCAL-N Vector: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- pTC 12 Control Vector: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
- XL1-Blue E. coli Strain: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Section 4. First aid measures

**Ingestion**
- pCAL-N Vector: 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.
- pTC 12 Control Vector: 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 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.

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

**Potential acute health effects**

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pCAL-N Vector</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>pCAL-N Vector</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>pCAL-N Vector</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
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</tbody>
</table>

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<th>Ingestion</th>
<th>pCAL-N Vector</th>
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<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Over-exposure signs/symptoms**

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pCAL-N Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>pCAL-N Vector</th>
<th>No specific data.</th>
</tr>
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<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No specific data.</td>
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<th>Skin contact</th>
<th>pCAL-N Vector</th>
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<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>No specific data.</td>
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<tr>
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<td>XL1-Blue E. coli Strain</td>
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</tr>
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</table>

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<th>pCAL-N Vector</th>
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<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
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</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

**Notes to physician**

<table>
<thead>
<tr>
<th>pCAL-N Vector</th>
<th>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pTC 12 Control Vector</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
</tbody>
</table>

*Date of issue/Date of revision*: 24/09/2018  
*Date of previous issue*: 29/03/2017  
*Version*: 5
Section 4. First aid measures

Specific treatments:
- **pCAL-N Vector**: No specific treatment.
- **pTC 12 Control Vector**: No specific treatment.
- **XL1-Blue E. coli Strain**: No specific treatment.

Protection of first-aiders:
- **pCAL-N Vector**: No action shall be taken involving any personal risk or without suitable training.
- **pTC 12 Control Vector**: No action shall be taken involving any personal risk or without suitable training.
- **XL1-Blue E. coli Strain**: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Firefighting measures

**Extinguishing media**

**Suitable extinguishing media**:
- **pCAL-N Vector**: Use an extinguishing agent suitable for the surrounding fire.
- **pTC 12 Control Vector**: Use an extinguishing agent suitable for the surrounding fire.
- **XL1-Blue E. coli Strain**: Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**:
- **pCAL-N Vector**: None known.
- **pTC 12 Control Vector**: None known.
- **XL1-Blue E. coli Strain**: None known.

Specific hazards arising from the chemical:
- **pCAL-N Vector**: In a fire or if heated, a pressure increase will occur and the container may burst.
- **pTC 12 Control Vector**: In a fire or if heated, a pressure increase will occur and the container may burst.
- **XL1-Blue E. coli Strain**: In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous thermal decomposition products:
- **pCAL-N Vector**: No specific data.
- **pTC 12 Control Vector**: No specific data.
- **XL1-Blue E. coli Strain**: Decomposition products may include the following materials:
  - carbon dioxide
  - carbon monoxide
  - halogenated compounds
  - metal oxide/oxides

Special protective actions for fire-fighters:
- **pCAL-N Vector**: 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.
- **pTC 12 Control Vector**: 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 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.

Special protective equipment for fire-fighters:
- **pCAL-N Vector**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **pTC 12 Control Vector**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
Section 5. Firefighting measures

XL1-Blue 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

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

pCAL-N Vector
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.

pTC 12 Control Vector
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 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

pCAL-N Vector
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".

pTC 12 Control Vector
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 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".

Environmental precautions

pCAL-N Vector
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).

pTC 12 Control Vector
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 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).

Methods and material for containment and cleaning up
## Section 6. Accidental release measures

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>pCAL-N Vector</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
</tbody>
</table>

## Section 7. Handling and storage

### Precautions for safe handling

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>pCAL-N Vector</th>
<th>Put on appropriate personal protective equipment (see Section 8).</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Advice on general occupational hygiene</th>
<th>pCAL-N Vector</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pTC 12 Control Vector</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain</td>
<td>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.</td>
</tr>
</tbody>
</table>

| Conditions for safe storage, including any incompatibilities | pCAL-N Vector                                                                 | 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. Store in accordance with local regulations. Store in |
|                                                           | pTC 12 Control Vector                                                         |                                                                                                                                  |
Section 7. Handling and storage

XL1-Blue 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 E. coli Strain</td>
<td>Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m³ 8 hours.</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
</tbody>
</table>

#### Appropriate engineering controls

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

#### Environmental exposure controls

- Appropriate engineering controls
- Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

### Individual protection measures

#### Hygiene measures

- Handle as biohazard material (Biosafety level 1). Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

#### Eye/face protection

- Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

#### Skin protection

- Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

#### Hand protection

- Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Section 8. Exposure controls and personal protection

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

<table>
<thead>
<tr>
<th><strong>Appearance</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical state</strong></td>
<td>pCAL-N VectorLiquid.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorLiquid.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainLiquid.</td>
</tr>
<tr>
<td><strong>Colour</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Odour</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Odour threshold</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>pH</strong></td>
<td>pCAL-N Vector7.5</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control Vector7.5</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli Strain7.5</td>
</tr>
<tr>
<td><strong>Melting point</strong></td>
<td>pCAL-N Vector0°C (32°F)</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control Vector0°C (32°F)</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Boiling point</strong></td>
<td>pCAL-N Vector100°C (212°F)</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control Vector100°C (212°F)</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Flash point</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Evaporation rate</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Flammability (solid, gas)</strong></td>
<td>pCAL-N VectorNot applicable.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot applicable.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot applicable.</td>
</tr>
<tr>
<td><strong>Lower and upper explosive (flammable) limits</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Vapour pressure</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Vapour density</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
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<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Relative density</strong></td>
<td>pCAL-N VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorNot available.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainNot available.</td>
</tr>
<tr>
<td><strong>Solubility</strong></td>
<td>pCAL-N VectorEasily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td></td>
<td>pTC 12 Control VectorEasily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td></td>
<td>XL1-Blue E. coli StrainSoluble in the following materials: cold water and hot water.</td>
</tr>
</tbody>
</table>
Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water:
- pCAL-N Vector: Not available.
- pTC 12 Control Vector: Not available.
- XL1-Blue E. coli Strain: Not available.

Auto-ignition temperature:
- pCAL-N Vector: Not available.
- pTC 12 Control Vector: Not available.
- XL1-Blue E. coli Strain: Not available.

Decomposition temperature:
- pCAL-N Vector: Not available.
- pTC 12 Control Vector: Not available.
- XL1-Blue E. coli Strain: Not available.

Viscosity:
- pCAL-N Vector: Not available.
- pTC 12 Control Vector: Not available.
- XL1-Blue E. coli Strain: Not available.

Section 10. Stability and reactivity

Reactivity:
- pCAL-N Vector: No specific test data related to reactivity available for this product or its ingredients.
- pTC 12 Control Vector: No specific test data related to reactivity available for this product or its ingredients.
- XL1-Blue E. coli Strain: No specific test data related to reactivity available for this product or its ingredients.

Chemical stability:
- pCAL-N Vector: The product is stable.
- pTC 12 Control Vector: The product is stable.
- XL1-Blue E. coli Strain: The product is stable.

Possibility of hazardous reactions:
- pCAL-N Vector: Under normal conditions of storage and use, hazardous reactions will not occur.
- pTC 12 Control Vector: Under normal conditions of storage and use, hazardous reactions will not occur.
- XL1-Blue E. coli Strain: Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid:
- pCAL-N Vector: No specific data.
- pTC 12 Control Vector: No specific data.
- XL1-Blue E. coli Strain: No specific data.

Incompatible materials:
- pCAL-N Vector: May react or be incompatible with oxidising materials.
- pTC 12 Control Vector: May react or be incompatible with oxidising materials.
- XL1-Blue E. coli Strain: May react or be incompatible with oxidising materials.

Hazardous decomposition products:
- pCAL-N Vector: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- pTC 12 Control Vector: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- XL1-Blue E. coli Strain: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

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

Irritation/Corrosion

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<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 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>
</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
pCAL-N Vector Not available.
pTC 12 Control Vector Not available.
XL1-Blue E. coli Strain Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects
Eye contact:
pCAL-N Vector No known significant effects or critical hazards.
pTC 12 Control Vector No known significant effects or critical hazards.
XL1-Blue E. coli Strain No known significant effects or critical hazards.

Inhalation:
pCAL-N Vector No known significant effects or critical hazards.
pTC 12 Control Vector No known significant effects or critical hazards.
XL1-Blue E. coli Strain No known significant effects or critical hazards.

Skin contact:
pCAL-N Vector No known significant effects or critical hazards.
pTC 12 Control Vector No known significant effects or critical hazards.
XL1-Blue E. coli Strain No known significant effects or critical hazards.

Ingestion:
pCAL-N Vector No known significant effects or critical hazards.
pTC 12 Control Vector No known significant effects or critical hazards.
XL1-Blue E. coli Strain No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact:
pCAL-N Vector No specific data.
pTC 12 Control Vector No specific data.
XL1-Blue E. coli Strain No specific data.

Inhalation:
pCAL-N Vector No specific data.
pTC 12 Control Vector No specific data.
XL1-Blue E. coli Strain No specific data.

Skin contact:
pCAL-N Vector No specific data.
pTC 12 Control Vector No specific data.
XL1-Blue E. coli Strain No specific data.
Section 11. Toxicological information

**Ingestion**
- pCAL-N Vector: No specific data.
- pTC 12 Control Vector: No specific data.
- XL1-Blue E. coli Strain: No specific data.

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

**Short term exposure**
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

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

**Potential chronic health effects**

**General**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

**Carcinogenicity**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

**Mutagenicity**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

**Teratogenicity**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

**Developmental effects**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

**Fertility effects**
- pCAL-N Vector: No known significant effects or critical hazards.
- pTC 12 Control Vector: No known significant effects or critical hazards.
- XL1-Blue 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 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 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>
Section 12. Ecological information

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 E. coli Strain</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mobility in soil

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

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

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Not listed.

Inventory list

<table>
<thead>
<tr>
<th>Country</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Canada</td>
<td>Not determined.</td>
</tr>
<tr>
<td>China</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Europe</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Japan</td>
<td>Japan inventory (ENCS): All components are listed or exempted.</td>
</tr>
<tr>
<td></td>
<td>Japan inventory (ISHL): All components are listed or exempted.</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not determined.</td>
</tr>
<tr>
<td>New Zealand</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Philippines</td>
<td>Not determined.</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>All components are listed or exempted.</td>
</tr>
<tr>
<td>Taiwan</td>
<td>All components are listed or exempted.</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

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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.

Notice to reader

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