SAFETY DATA SHEET

pDual Expression Vector - 20 micrograms, Part Number 214501

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

1.1 Product identifier

Product name: pDual Expression Vector - 20 micrograms, Part Number 214501
Part no. (chemical kit): 214501
Part no.: pDual expression vector 214501-51

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:
- pDual expression vector
- XL1-Blue E. coli Strain

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]
Not classified.

Ingredients of unknown toxicity:
- XL1-Blue 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:
- pDual expression vector: No signal word.
- XL1-Blue E. coli Strain: No signal word.

Hazard statements:
- pDual expression vector: No known significant effects or critical hazards.
- XL1-Blue E. coli Strain: No known significant effects or critical hazards.

Precautionary statements

Prevention:
- pDual expression vector: Not applicable.
- XL1-Blue E. coli Strain: Not applicable.

Date of issue/Date of revision: 25/09/2018
SECTION 2: Hazards identification

Response: 
pDual expression vector  Not applicable.
XL1-Blue E. coli Strain  Not applicable.

Storage: 
pDual expression vector  Not applicable.
XL1-Blue E. coli Strain  Not applicable.

Disposal: 
pDual expression vector  Not applicable.
XL1-Blue E. coli Strain  Not applicable.

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

Supplemental label elements: 
pDual expression vector  Not applicable.
XL1-Blue E. coli Strain  Safety data sheet available on request.

SECTION 3: Composition/information on ingredients

3.1 Substances: 
pDual expression vector  Mixture
XL1-Blue 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>XL1-Blue E. coli Strain</td>
<td>Glycerol</td>
<td>≥10 - ≤25</td>
<td>Not classified.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REACH #: Annex V</td>
<td></td>
<td></td>
<td>[2]</td>
</tr>
<tr>
<td></td>
<td>EC: 200-289-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAS: 56-81-5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sodium chloride</td>
<td>≤3</td>
<td>Eye Irrit. 2, H319</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>EC: 231-598-3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CAS: 7647-14-5</td>
<td></td>
<td></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:

[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: pDual expression 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: pDual expression 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: pDual expression 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.

Ingestion: pDual expression vector
- No known significant effects or critical hazards.
- XL1-Blue E. coli Strain
- No known significant effects or critical hazards.

Protection of first-aiders: pDual expression 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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact: pDual expression vector
- No known significant effects or critical hazards.
- XL1-Blue E. coli Strain
- No known significant effects or critical hazards.

Inhalation: pDual expression vector
- No known significant effects or critical hazards.
- XL1-Blue E. coli Strain
- No known significant effects or critical hazards.

Skin contact: pDual expression vector
- No known significant effects or critical hazards.
- XL1-Blue E. coli Strain
- No known significant effects or critical hazards.

Ingestion: pDual expression vector
- No known significant effects or critical hazards.
- XL1-Blue E. coli Strain
- No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact: pDual expression vector
- No specific data.
- XL1-Blue E. coli Strain
- No specific data.

Inhalation: pDual expression vector
- No specific data.
- XL1-Blue E. coli Strain
- No specific data.

Skin contact: pDual expression vector
- No specific data.
- XL1-Blue E. coli Strain
- No specific data.

Ingestion: pDual expression vector
- No specific data.
- XL1-Blue E. coli Strain
- No specific data.
SECTION 4: First aid measures

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression 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>

Specific treatments

<table>
<thead>
<tr>
<th>Substance</th>
<th>Specific treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression vector</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

SECTION 5: Firefighting measures

5.1 Extinguishing media

<table>
<thead>
<tr>
<th>Substance</th>
<th>Suitable extinguishing media</th>
<th>Unsuitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression vector</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
<td>None known.</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</td>
<td>Use an extinguishing agent suitable for the surrounding fire.</td>
<td>None known.</td>
</tr>
</tbody>
</table>

5.2 Special hazards arising from the substance or mixture

<table>
<thead>
<tr>
<th>Substance</th>
<th>Hazards from the substance or mixture</th>
<th>Hazardous combustion products</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression vector</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, halogenated compounds, metal oxide/oxides</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
<td></td>
</tr>
</tbody>
</table>

5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Substance</th>
<th>Special precautions for fire-fighters</th>
<th>Special protective equipment for fire-fighters</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression vector</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>
<td>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.</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</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>
<td>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.</td>
</tr>
</tbody>
</table>

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

<table>
<thead>
<tr>
<th>Substance</th>
<th>For non-emergency personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>pDual expression vector</td>
<td>No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Put on appropriate personal protective equipment.</td>
</tr>
<tr>
<td>XL1-Blue E. coli Strain</td>
<td>No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas.</td>
</tr>
</tbody>
</table>
SECTION 6: Accidental release measures

For emergency responders

pDual expression 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".

6.2 Environmental precautions

pDual expression 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).

6.3 Methods and material for containment and cleaning up

Methods for cleaning up

pDual expression vector

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 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

pDual expression vector

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

XL1-Blue E. coli Strain

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

Advice on general occupational hygiene

pDual expression vector

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 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

Date of issue/Date of revision: 25/09/2018
SECTION 7: Handling and storage

Storage: pDual expression 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.

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.

7.3 Specific end use(s)
Recommendations: pDual expression vector
Industrial applications, Professional applications.

Industrial sector specific solutions: pDual expression vector
Industrial applications, Professional applications.

XL1-Blue 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 E. coli Strain</td>
<td>EH40/2005 WELs (United Kingdom (UK), 12/2011).</td>
</tr>
<tr>
<td>Glycerol</td>
<td>TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
</tbody>
</table>

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.
SECTION 8: Exposure controls/personal protection

**Individual protection measures**

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

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

**Skin protection**

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

**Body protection**
Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Other skin protection**
Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

**Respiratory protection**
Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. ... 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.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

| Physical state       | pDual expression vector | Liquid.  
|----------------------|-------------------------|---------
|                      | XL1-Blue E. coli Strain | Liquid.  
| **Colour**           | pDual expression vector | Not available.  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Odour**            | pDual expression vector | Not available.  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Odour threshold**  | pDual expression vector | Not available.  
|                      | XL1-Blue E. coli Strain | Not available.  
| **pH**               | pDual expression vector | 7.5  
|                      | XL1-Blue E. coli Strain | 7.5  
| **Melting point/freezing point** | pDual expression vector | 0°C  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Initial boiling point and boiling range** | pDual expression vector | 100°C  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Flash point**      | pDual expression vector | Not available.  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Evaporation rate** | pDual expression vector | Not available.  
|                      | XL1-Blue E. coli Strain | Not available.  
| **Flammability (solid, gas)** | pDual expression vector | Not applicable.  
|                      | XL1-Blue E. coli Strain | Not applicable.  

Date of issue/Date of revision: 25/09/2018
SECTION 9: Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>pDual expression vector</th>
<th>XL1-Blue E. coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vapour pressure</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>Vapour 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>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity
pDual expression 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.

10.2 Chemical stability
pDual expression vector: The product is stable.
XL1-Blue E. coli Strain: The product is stable.

10.3 Possibility of hazardous reactions
pDual expression 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.

10.4 Conditions to avoid
pDual expression vector: No specific data.
XL1-Blue E. coli Strain: No specific data.

10.5 Incompatible materials
pDual expression vector: May react or be incompatible with oxidising materials.
XL1-Blue E. coli Strain: May react or be incompatible with oxidising materials.

10.6 Hazardous decomposition products
pDual expression 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

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 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

<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 - 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
- pDual expression vector
- XL1-Blue E. coli Strain

Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation
- pDual expression vector
- XL1-Blue E. coli Strain
No known significant effects or critical hazards.

Ingestion
- pDual expression vector
- XL1-Blue E. coli Strain
No known significant effects or critical hazards.

Skin contact
- pDual expression vector
- XL1-Blue E. coli Strain
No known significant effects or critical hazards.

Eye contact
- pDual expression vector
- XL1-Blue E. coli Strain
No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation
- pDual expression vector
- XL1-Blue E. coli Strain
No specific data.

Ingestion
- pDual expression vector
- XL1-Blue E. coli Strain
No specific data.

Date of issue/Date of revision : 25/09/2018
SECTION 11: Toxicological information

Skin contact: pDual expression vector No specific data. XL1-Blue E. coli Strain No specific data.

Eye contact: pDual expression 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: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue E. coli Strain No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue E. coli Strain No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue E. coli Strain No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue E. coli Strain No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue E. coli Strain No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards. pDual expression vector No known significant effects or critical hazards. XL1-Blue 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 E. coli Strain</td>
<td>Sodium chloride</td>
<td>Acute EC50 4.74 g/L Fresh water</td>
<td>Algae - Chlamydomonas reinhardtii</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute EC50 519.6 mg/l Fresh water</td>
<td>Crustaceans - Cypris subglobosa</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute EC50 402600 μg/l Fresh water</td>
<td>Daphnia - Daphnia magna</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute LC50 6.87 g/L Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acute LC50 1000000 μg/l Fresh water</td>
<td>Fish - Morone saxatilis - Larvae</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic LC10 781 mg/l Fresh water</td>
<td>Crustaceans - Hyalella azteca - Juvenile (Fledgling, Hatchling, Weanling)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic NOEC 6 g/L Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic NOEC 0.314 g/L Fresh water</td>
<td>Daphnia - Daphnia pulex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chronic NOEC 100 mg/l Fresh water</td>
<td>Fish - Gambusia holbrooki - Adult</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Not available.

12.3 Bioaccumulative potential

Not available.

Date of issue/Date of revision: 25/09/2018
SECTION 12: Ecological information

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
- **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 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

SECTION 14: Transport information

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.

Date of issue/Date of revision: 25/09/2018
## SECTION 15: Regulatory information

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

- **pDual expression vector**
  - Not applicable.
- **XL1-Blue E. coli Strain**
  - 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**
  - Not determined.
- **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**
  - 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.

---

**Date of issue/Date of revision**: 25/09/2018
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 E. coli Strain H319

Causes serious eye irritation.

Full text of classifications [CLP/GHS]

XL1-Blue E. coli Strain
Eye Irrit. 2, H319

SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2

Date of issue/Date of revision: 25/09/2018
Date of previous issue: 24/03/2017
Version: 2

Notice to reader

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