Section 1. Identification

Product identifier: Lambda gt11 - EcoR I - CIAP - Treated Vector Kit, Part Number 234211
Part no. (chemical kit): 234211
Part no.: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated 234211-51
pRheo/EcoR I Test Insert 210200-51
Y1088 E. coli Strain 200263-81
Y1089r- E. coli Strain 200260-81
Y1090r- E. coli Strain 200281-81

Material uses: Analytical reagent.

Material uses: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated 0.01 ml (10 µg 1 µg/µl)
pRheo/EcoR I Test Insert 0.005 ml (1.25 µg 0.25 µg/µl)
Y1088 E. coli Strain 0.5 ml
Y1089r- E. coli Strain 0.5 ml
Y1090r- E. coli Strain 0.5 ml

Supplier/Manufacturer: Agilent Technologies, Inc.
5301 Stevens Creek Blvd
Santa Clara, CA 95051, USA
800-227-9770

Emergency telephone number (with hours of operation): CHEMTREC®: 1-800-424-9300

Section 2. Hazard identification

Classification of the substance or mixture

Y1088 E. coli Strain
H319 EYE IRRITATION - Category 2A

Y1089r- E. coli Strain
H319 EYE IRRITATION - Category 2A

Y1090r- E. coli Strain
H319 EYE IRRITATION - Category 2A

GHS label elements
Section 2. Hazard identification

Hazard pictograms

- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

Signal word

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
- pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

No signal word.

Hazard statements

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
- pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

No known significant effects or critical hazards.

Precautionary statements

Prevention

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
- pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

Not applicable.

Response

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
- pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

Not applicable.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.

P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
Section 2. Hazard identification

Storage: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated Not applicable.

Disposal: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated Not applicable.

Supplemental label elements: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated None known.

Other hazards which do not result in classification: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated None known.

Section 3. Composition/information on ingredients

Substance/mixture: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1088 E. coli Strain</td>
<td>≥10 - ≤25, ≤3</td>
<td>56-81-5, 7647-14-5</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium chloride</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>≥10 - ≤25, ≤3</td>
<td>56-81-5, 7647-14-5</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium chloride</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>≥10 - ≤25, ≤3</td>
<td>56-81-5, 7647-14-5</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium chloride</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 08/20/2019
Date of previous issue: 06/23/2017
Version: 5
Section 3. Composition/information on ingredients

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

<table>
<thead>
<tr>
<th>Description of necessary first aid measures</th>
<th>Eye contact</th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lambda gt11 Vector</td>
<td>Lambda gt11 Vector</td>
</tr>
<tr>
<td></td>
<td>Digested With EcoR I And Dephosphorylated</td>
<td>Digested With EcoR I And Dephosphorylated</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert</td>
<td>pRheo/EcoR I Test Insert</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain</td>
<td>Y1088 E. coli Strain</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain</td>
<td>Y1089r- E. coli Strain</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain</td>
<td>Y1090r- E. coli Strain</td>
</tr>
</tbody>
</table>

Eye contact: 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: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Y1088 E. coli Strain: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Y1089r- E. coli Strain: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Y1090r- E. coli Strain: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if
## Section 4. First-aid measures

**Skin contact**

- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert**
  - Wash out mouth with water.
  - Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
  - Wash clothing thoroughly before reuse.
  - Clean shoes thoroughly before reuse.

- **Y1088 E. coli Strain**
  - Wash out mouth with water.
  - Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
  - Wash clothing thoroughly before reuse.
  - Clean shoes thoroughly before reuse.

- **Y1089r- E. coli Strain**
  - Wash out mouth with water.
  - Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
  - Wash clothing thoroughly before reuse.
  - Clean shoes thoroughly before reuse.

- **Y1090r- E. coli Strain**
  - Wash out mouth with water.
  - Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
  - Wash clothing thoroughly before reuse.
  - Clean shoes thoroughly before reuse.

**Ingestion**

- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  - 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.

- **pRheo/EcoR I Test Insert**
  - 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.

- **Y1088 E. coli Strain**
  - Wash out mouth with water. Remove dentures if any. 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. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

- **Y1089r- E. coli Strain**
  - Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a
Section 4. First-aid measures

position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Y1090r- E. coli Strain

Wash out mouth with water. Remove dentures if any. 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. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

**Potential acute health effects**

**Eye contact**

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

No known significant effects or critical hazards.

Causes serious eye irritation.

Causes serious eye irritation.

Causes serious eye irritation.

**Inhalation**

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

**Skin contact**

- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.

No known significant effects or critical hazards.
Section 4. First-aid measures

Ingestion:
Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
No known significant effects or critical hazards.

pRheo/EcoR I Test Insert
No known significant effects or critical hazards.

Y1088 E. coli Strain
No known significant effects or critical hazards.

Y1089r- E. coli Strain
No known significant effects or critical hazards.

Y1090r- E. coli Strain
No known significant effects or critical hazards.

Over-exposure signs/symptoms:

Eye contact:
Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
No specific data.

Y1088 E. coli Strain
No specific data.

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
No specific data.

Y1089r- E. coli Strain
Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Y1090r- E. coli Strain
Adverse symptoms may include the following:
- pain or irritation
- watering
- redness

Inhalation:
Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
No specific data.

Y1088 E. coli Strain
No specific data.

Y1089r- E. coli Strain
No specific data.

Y1090r- E. coli Strain
No specific data.

Skin contact:
Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
No specific data.

Y1088 E. coli Strain
No specific data.

Y1089r- E. coli Strain
No specific data.

Y1090r- E. coli Strain
No specific data.

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

Notes to physician:
Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Y1088 E. coli Strain
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Y1089r- E. coli Strain
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Date of issue/Date of revision: 08/20/2019  Date of previous issue: 06/23/2017  Version: 5
Section 4. First-aid measures

Y1090r- E. coli Strain
specialist immediately if large quantities have been ingested or inhaled.
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Protection of first-aiders:

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
pRheo/EcoR I Test Insert
No action shall be taken involving any personal risk or without suitable training.

pRheo/EcoR I Test Insert
No action shall be taken involving any personal risk or without suitable training.

Y1088 E. coli Strain
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Y1089r- E. coli Strain
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Y1090r- E. coli Strain
No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Specific treatments:

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
pRheo/EcoR I Test Insert
No specific treatment.

pRheo/EcoR I Test Insert
No specific treatment.

Y1088 E. coli Strain
No specific treatment.

Y1089r- E. coli Strain
No specific treatment.

Y1090r- E. coli Strain
No specific treatment.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
pRheo/EcoR I Test Insert
Use an extinguishing agent suitable for the surrounding fire.

pRheo/EcoR I Test Insert
Use an extinguishing agent suitable for the surrounding fire.

Y1088 E. coli Strain
Use an extinguishing agent suitable for the surrounding fire.

Y1089r- E. coli Strain
Use an extinguishing agent suitable for the surrounding fire.

Y1090r- E. coli Strain
Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media:

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
pRheo/EcoR I Test Insert
None known.

pRheo/EcoR I Test Insert
None known.

Y1088 E. coli Strain
None known.

Y1089r- E. coli Strain
None known.

Y1090r- E. coli Strain
None known.
## Section 5. Fire-fighting measures

### Specific hazards arising from the chemical

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>pRheo/EcoR I Test Insert</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>Y1088 E. coli Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
</tbody>
</table>

### Hazardous thermal decomposition products

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</td>
<td>No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides</td>
</tr>
<tr>
<td>pRheo/EcoR I Test Insert</td>
<td>No specific data. Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides</td>
</tr>
<tr>
<td>Y1088 E. coli Strain</td>
<td>Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Decomposition products may include the following materials: carbon dioxide carbon monoxide halogenated compounds metal oxide/oxides</td>
</tr>
</tbody>
</table>

### Special protective actions for fire-fighters

<table>
<thead>
<tr>
<th>Material</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</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>
<tr>
<td>pRheo/EcoR I Test Insert</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>
<tr>
<td>Y1088 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>
</tr>
<tr>
<td>Y1089r- 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>
</tr>
<tr>
<td>Y1090r- 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>
</tr>
</tbody>
</table>
Section 5. Fire-fighting measures

Special protective equipment for fire-fighters

<table>
<thead>
<tr>
<th>Product/Strain</th>
<th>Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</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.</td>
</tr>
<tr>
<td>pRheo/EcoR I Test Insert</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.</td>
</tr>
<tr>
<td>Y1088 E. coli Strain</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.</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</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.</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</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.</td>
</tr>
</tbody>
</table>

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

<table>
<thead>
<tr>
<th>Product/Strain</th>
<th>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 spilled material. Put on appropriate personal protective equipment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</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 spilled material. Put on appropriate personal protective equipment.</td>
</tr>
<tr>
<td>pRheo/EcoR I Test Insert</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 spilled material. Put on appropriate personal protective equipment.</td>
</tr>
<tr>
<td>Y1088 E. coli Strain</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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</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 spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate.</td>
</tr>
</tbody>
</table>
## Section 6. Accidental release measures

**For emergency responders:**
- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  - Put on appropriate personal protective equipment. If specialized 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".

- **pRheo/EcoR I Test Insert**
  - If specialized 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".

- **Y1088 E. coli Strain**
  - If specialized 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".

- **Y1089r- E. coli Strain**
  - If specialized 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".

- **Y1090r- E. coli Strain**
  - If specialized 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:**
- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  - Avoid dispersal of spilled 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).

- **pRheo/EcoR I Test Insert**
  - Avoid dispersal of spilled 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).

- **Y1088 E. coli Strain**
  - Avoid dispersal of spilled 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).

- **Y1089r- E. coli Strain**
  - Avoid dispersal of spilled 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).

- **Y1090r- E. coli Strain**
  - Avoid dispersal of spilled 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 materials for containment and cleaning up**

**Methods for cleaning up**
- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  - 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.

- **pRheo/EcoR I Test Insert**
  - Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble.
Section 6. Accidental release measures

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.

Y1088 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.

Y1089r- 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.

Y1090r- 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.

Section 7. Handling and storage

Precautions for safe handling

Protective measures

<table>
<thead>
<tr>
<th>Product Description</th>
<th>Precautions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
<tr>
<td>Y1088 E. coli Strain</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
</tr>
</tbody>
</table>
## Section 7. Handling and storage

### Advice on general occupational hygiene
- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  
  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.

- **pRheo/EcoR I Test Insert**
  
  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.

- **Y1088 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.

- **Y1089r- 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.

- **Y1090r- E. coli Strain**
  
  Potentially biohazardous material. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

### Conditions for safe storage, including any incompatibilities
- **Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
  
  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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

- **pRheo/EcoR I Test Insert**
  
  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 unlabeled containers.
Section 7. Handling and storage

Y1088 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Y1089r- 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Y1090r- 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

**Control parameters**

**Occupational exposure limits**

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1088 E. coli Strain Glycerol</td>
<td>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist  CA British Columbia Provincial (Canada, 7/2018). TWA: 10 mg/m³ 8 hours. Form: Mist  TWA: 3 mg/m³ 8 hours. Form: respirable mist  CA Quebec Provincial (Canada, 1/2014). TWAEV: 10 mg/m³ 8 hours. Form: mist  CA Saskatchewan Provincial (Canada, 7/2013). STEL: 20 mg/m³ 15 minutes. Form: mist  TWA: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 08/20/2019  Date of previous issue: 06/23/2017  Version: 5
### Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Y1089r- E. coli Strain</th>
<th>CA Ontario Provincial (Canada, 1/2018). TWA: 10 mg/m³ 8 hours. Form: mist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td></td>
<td>CA British Columbia Provincial (Canada, 7/2018). TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014). TWAEV: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 20 mg/m³ 15 minutes. Form: mist</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 1/2018). TWA: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Y1090r- E. coli Strain</th>
<th>CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycerol</td>
<td>CA British Columbia Provincial (Canada, 7/2018). TWA: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td></td>
<td>CA Quebec Provincial (Canada, 1/2014). TWAEV: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
<tr>
<td></td>
<td>CA Saskatchewan Provincial (Canada, 7/2013). STEL: 20 mg/m³ 15 minutes. Form: mist</td>
</tr>
<tr>
<td></td>
<td>CA Ontario Provincial (Canada, 1/2018). TWA: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
</tbody>
</table>

#### Appropriate engineering controls
- Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

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

#### Individual protection 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.
Section 8. Exposure controls/personal protection

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: chemical splash goggles.

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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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

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

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

Appearance

Physical state: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated Liquid.

Color: Not available.

Odor: Not available.

Odor threshold: Not available.

Date of issue/Date of revision: 08/20/2019
Date of previous issue: 06/23/2017
Version: 5

Lambda gt11 - EcoR I - CIAP - Treated Vector Kit, Part Number 234211
## Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Lambda gt11 Vector</th>
<th>pRheo/EcoR I Test Insert</th>
<th>Y1088 E. coli Strain</th>
<th>Y1089r- E. coli Strain</th>
<th>Y1090r- E. coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>7.5</td>
<td>7.5</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Melting point</td>
<td>0°C (32°F)</td>
<td>0°C (32°F)</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100°C (212°F)</td>
<td>100°C (212°F)</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
## Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated</th>
<th>pRheo/EcoR I Test Insert</th>
<th>Y1088 E. coli Strain</th>
<th>Y1089r- E. coli Strain</th>
<th>Y1090r- E. coli Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solubility</strong></td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
</tbody>
</table>

**Date of issue/Date of revision**: 08/20/2019

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

**Version**: 5
# Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th align="left"><strong>Reactivity</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th align="left"><strong>Chemical stability</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">The product is stable.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">The product is stable.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">The product is stable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th align="left"><strong>Possibility of hazardous reactions</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th align="left"><strong>Conditions to avoid</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific data.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific data.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th align="left"><strong>Incompatible materials</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">May react or be incompatible with oxidizing materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">May react or be incompatible with oxidizing materials.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th align="left"><strong>Hazardous decomposition products</strong></th>
<th align="left">Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert</th>
<th align="left">Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td align="left"></td>
<td align="left"></td>
<td align="left">Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
### Section 10. Stability and reactivity

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>Y1088 E. coli Strain</td>
<td>Glycerol</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sodium chloride</td>
<td>Rat</td>
<td>3000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Glycerol</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sodium chloride</td>
<td>Rat</td>
<td>3000 mg/kg</td>
<td></td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Glycerol</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sodium chloride</td>
<td>Rat</td>
<td>3000 mg/kg</td>
<td></td>
</tr>
</tbody>
</table>

**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>Y1088 E. coli Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></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>
</tbody>
</table>
## Section 11. Toxicological information

<table>
<thead>
<tr>
<th></th>
<th>Skin - Mild irritant</th>
<th>Rabbit</th>
<th>24 hours 500 milligrams</th>
<th></th>
</tr>
</thead>
</table>

### Sensitization
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 the likely routes of exposure

**Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
Not available.

**pRheo/EcoR I Test Insert**
Not available.

**Y1088 E. coli Strain**
Routes of entry anticipated: Oral, Dermal, Inhalation.

**Y1089r- E. coli Strain**
Routes of entry anticipated: Oral, Dermal, Inhalation.

**Y1090r- E. coli Strain**
Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

#### Eye contact

**Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
No known significant effects or critical hazards.

**pRheo/EcoR I Test Insert**
No known significant effects or critical hazards.

**Y1088 E. coli Strain**
Causes serious eye irritation.

**Y1089r- E. coli Strain**
Causes serious eye irritation.

**Y1090r- E. coli Strain**
Causes serious eye irritation.

#### Inhalation

**Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
No known significant effects or critical hazards.

**pRheo/EcoR I Test Insert**
No known significant effects or critical hazards.

**Y1088 E. coli Strain**
No known significant effects or critical hazards.

**Y1089r- E. coli Strain**
No known significant effects or critical hazards.

**Y1090r- E. coli Strain**
No known significant effects or critical hazards.

#### Skin contact

**Lambda gt11 Vector Digested With EcoR I And Dephosphorylated**
No known significant effects or critical hazards.

**pRheo/EcoR I Test Insert**
No known significant effects or critical hazards.

**Y1088 E. coli Strain**
No known significant effects or critical hazards.

**Y1089r- E. coli Strain**
No known significant effects or critical hazards.

**Y1090r- E. coli Strain**
No known significant effects or critical hazards.
Section 11. Toxicological information

Ingestion: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No known significant effects or critical hazards.
- No specific data.

Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No known significant effects or critical hazards.
- No specific data.

Y1088 E. coli Strain
- No known significant effects or critical hazards.
- No specific data.

Y1089- E. coli Strain
- No known significant effects or critical hazards.
- No specific data.

Y1090- E. coli Strain
- No known significant effects or critical hazards.
- No specific data.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No specific data.
- Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness

Inhalation: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No specific data.

Skin contact: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No specific data.

Ingestion: Lambda gt11 Vector Digested With EcoR I And Dephosphorylated pRheo/EcoR I Test Insert
- No specific data.

Delayed and immediate effects and also 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.
## Section 11. Toxicological information

### Potential delayed effects
- Not available.

### Potential chronic health effects

<table>
<thead>
<tr>
<th>Component</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Teratogenicity</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Developmental effects</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Fertility effects</strong></td>
<td>Lambda gt11 Vector Digested With EcoR I And Dephosphorylated No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>pRheo/EcoR I Test Insert No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1088 E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1089r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Y1090r- E. coli Strain No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

### Numerical measures of toxicity

#### Acute toxicity estimates
Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1088 E. coli Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1088 E. coli Strain</td>
<td>300000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>3000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>300000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>3000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>300000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Sodium chloride</td>
<td>3000</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Other information:
- Lambda gt11 Vector Digested With EcoR I And Dephosphorylated
- pRheo/EcoR I Test Insert
- Y1088 E. coli Strain
- Y1089r- E. coli Strain
- Y1090r- E. coli Strain

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>Y1088 E. coli Strain</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4.74 g/L Fresh water</td>
<td>Algae - Chlamydomonas</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 100000 µg/l Fresh water</td>
<td>Fish - Morone saxatilis - Larvae</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic LC10 781 mg/l Fresh water</td>
<td>Crustaceans - Hyalella azteca - Juvenile</td>
<td>3 weeks</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 6 g/L Fresh water</td>
<td>Aquatic plants - Lemna minor</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.314 g/L Fresh water</td>
<td>Daphnia - Daphnia pulex</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 100 mg/l Fresh water</td>
<td>Fish - Gambusia holbrooki - Adult</td>
<td>8 weeks</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 4.74 g/L Fresh water</td>
<td>Algae - Chlamydomonas</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 100000 µg/l Fresh water</td>
<td>Fish - Morone saxatilis - Larvae</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic LC10 781 mg/l Fresh water</td>
<td>Crustaceans - Hyalella azteca - Juvenile</td>
<td>3 weeks</td>
</tr>
</tbody>
</table>
# Section 12. Ecological information

<table>
<thead>
<tr>
<th>Y1090r- E. coli Strain</th>
<th>Glycerol</th>
<th>Chronic NOEC 6 g/L Fresh water</th>
<th>Chronic NOEC 0.314 g/L Fresh water</th>
<th>Chronic NOEC 100 mg/l Fresh water</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product/ingredient name</strong></td>
<td><strong>Test</strong></td>
<td><strong>Result</strong></td>
<td><strong>Dose</strong></td>
<td><strong>Inoculum</strong></td>
</tr>
<tr>
<td>Y1088 E. coli Strain</td>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</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>Y1088 E. coli Strain</td>
<td>-</td>
<td>93 %</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-</td>
<td>93 %</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

## Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP_{ow}</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1088 E. coli Strain</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision: 08/20/2019  
Date of previous issue: 06/23/2017  
Version: 5  
Page: 25/27
Section 12. Ecological information

**Mobility in soil**

- **Soil/water partition coefficient ($K_{oc}$)**: 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 minimized 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. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

**TDG / IMDG / IATA**: Not regulated.

**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

**Canadian lists**
- **Canadian NPRI**: None of the components are listed.
- **CEPA Toxic substances**: None of the components are listed.

**International regulations**
- **Chemical Weapon Convention List Schedules I, II & III Chemicals**: Not listed.
- **Montreal Protocol**: Not listed.
- **Stockholm Convention on Persistent Organic Pollutants**: Not listed.
- **UNECE Aarhus Protocol on POPs and Heavy Metals**: Not listed.

**Inventory list**
- **Australia**: Not determined.
Section 15. Regulatory information

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.
New Zealand : Not determined.
Philippines : Not determined.
Republic of Korea : Not determined.
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.

Section 16. Other information

History
Date of issue/Date of revision : 08/20/2019
Date of previous issue : 06/23/2017
Version : 5
Key to abbreviations : ATE = Acute Toxicity Estimate
                        BCF = Bioconcentration Factor
                        GHS = Globally Harmonized System of Classification and Labelling of Chemicals
                        HPR = Hazardous Products Regulations
                        IATA = International Air Transport Association
                        IBC = Intermediate Bulk Container
                        IMDG = International Maritime Dangerous Goods
                        LogPow = logarithm of the octanol/water partition coefficient
                        N/A = Not available
                        UN = United Nations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1088 E. coli Strain</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td></td>
</tr>
<tr>
<td>Y1089r- E. coli Strain</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td></td>
</tr>
<tr>
<td>Y1090r- E. coli Strain</td>
<td>Calculation method</td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2A</td>
<td></td>
</tr>
</tbody>
</table>

References : Not available.

▶ Indicates information that has changed from previously issued version.

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