Section 1. Identification

1.1 Product identifier

Product name: pET 11a-d Vectors, Part Number 211523
Part no. (chemical kit): 211523
Part no.: pET-11a Vector 211523-51
pET-11b Vector 211523-52
pET-11c Vector 211523-53
pET-11d Vector 211523-54

Validation date: 4/16/2019

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

Material uses:
- pET-11a Vector: 20 µl (20 µg 1 µg/µl)
- pET-11b Vector: 20 µl (20 µg 1 µg/µl)
- pET-11c Vector: 20 µl (20 µg 1 µg/µl)
- pET-11d Vector: 20 µl (20 µg 1 µg/µl)

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

In case of emergency: CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status: pET-11a Vector

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

pET-11b Vector

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

pET-11c Vector

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

pET-11d Vector

While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.
Section 2. Hazards identification

Classification of the substance or mixture

Not classified.

2.2 GHS label elements

Signal word : pET-11a Vector No signal word.
pET-11b Vector No signal word.
pET-11c Vector No signal word.
pET-11d Vector No signal word.

Hazard statements : pET-11a Vector No known significant effects or critical hazards.
pET-11b Vector No known significant effects or critical hazards.
pET-11c Vector No known significant effects or critical hazards.
pET-11d Vector No known significant effects or critical hazards.

Precautionary statements

Prevention : pET-11a Vector Not applicable.
pET-11b Vector Not applicable.
pET-11c Vector Not applicable.
pET-11d Vector Not applicable.

Response : pET-11a Vector Not applicable.
pET-11b Vector Not applicable.
pET-11c Vector Not applicable.
pET-11d Vector Not applicable.

Storage : pET-11a Vector Not applicable.
pET-11b Vector Not applicable.
pET-11c Vector Not applicable.
pET-11d Vector Not applicable.

Disposal : pET-11a Vector Not applicable.
pET-11b Vector Not applicable.
pET-11c Vector Not applicable.
pET-11d Vector Not applicable.

Supplemental label elements : pET-11a Vector None known.
pET-11b Vector None known.
pET-11c Vector None known.
pET-11d Vector None known.

2.3 Other hazards

Hazards not otherwise classified : pET-11a Vector None known.
pET-11b Vector None known.
pET-11c Vector None known.
pET-11d Vector None known.

Section 3. Composition/information on ingredients

Substance/mixture : pET-11a Vector Mixture
pET-11b Vector Mixture
pET-11c Vector Mixture
pET-11d Vector Mixture

There are no 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.

Date of issue : 04/16/2019
## Section 4. First aid measures

### 4.1 Description of necessary first aid measures

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>pET-11a Vector</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pET-11b Vector</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
<td>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.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>pET-11a Vector</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11b Vector</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
<td>Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>pET-11a Vector</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11b Vector</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>pET-11a Vector</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>pET-11b Vector</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>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.</td>
</tr>
</tbody>
</table>

**Date of issue:** 04/16/2019
Section 4. First aid measures

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.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : pET-11a Vector No known significant effects or critical hazards.
             : pET-11b Vector No known significant effects or critical hazards.
             : pET-11c Vector No known significant effects or critical hazards.
             : pET-11d Vector No known significant effects or critical hazards.

Inhalation : pET-11a Vector No known significant effects or critical hazards.
            : pET-11b Vector No known significant effects or critical hazards.
            : pET-11c Vector No known significant effects or critical hazards.
            : pET-11d Vector No known significant effects or critical hazards.

Skin contact : pET-11a Vector No known significant effects or critical hazards.
              : pET-11b Vector No known significant effects or critical hazards.
              : pET-11c Vector No known significant effects or critical hazards.
              : pET-11d Vector No known significant effects or critical hazards.

Ingestion : pET-11a Vector No known significant effects or critical hazards.
           : pET-11b Vector No known significant effects or critical hazards.
           : pET-11c Vector No known significant effects or critical hazards.
           : pET-11d Vector No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : pET-11a Vector No specific data.
             : pET-11b Vector No specific data.
             : pET-11c Vector No specific data.
             : pET-11d Vector No specific data.

Inhalation : pET-11a Vector No specific data.
            : pET-11b Vector No specific data.
            : pET-11c Vector No specific data.
            : pET-11d Vector No specific data.

Skin contact : pET-11a Vector No specific data.
              : pET-11b Vector No specific data.
              : pET-11c Vector No specific data.
              : pET-11d Vector No specific data.

Ingestion : pET-11a Vector No specific data.
           : pET-11b Vector No specific data.
           : pET-11c Vector No specific data.
           : pET-11d Vector No specific data.

4.3 Indication of immediate medical attention and special treatment needed, if necessary
Section 4. First aid measures

**Notes to physician**: pET-11a Vector
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
pET-11b Vector
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
pET-11c Vector
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
pET-11d Vector
Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**: pET-11a Vector
No specific treatment.
pET-11b Vector
No specific treatment.
pET-11c Vector
No specific treatment.
pET-11d Vector
No specific treatment.

**Protection of first-aiders**: pET-11a Vector
No action shall be taken involving any personal risk or without suitable training.
pET-11b Vector
No action shall be taken involving any personal risk or without suitable training.
pET-11c Vector
No action shall be taken involving any personal risk or without suitable training.
pET-11d Vector
No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

**5.1 Extinguishing media**

**Suitable extinguishing media**: pET-11a Vector
Use an extinguishing agent suitable for the surrounding fire.
pET-11b Vector
Use an extinguishing agent suitable for the surrounding fire.
pET-11c Vector
Use an extinguishing agent suitable for the surrounding fire.
pET-11d Vector
Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**: pET-11a Vector
None known.
pET-11b Vector
None known.
pET-11c Vector
None known.
pET-11d Vector
None known.

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

**Specific hazards arising from the chemical**: pET-11a Vector
In a fire or if heated, a pressure increase will occur and the container may burst.
pET-11b Vector
In a fire or if heated, a pressure increase will occur and the container may burst.
pET-11c Vector
In a fire or if heated, a pressure increase will occur and the container may burst.
pET-11d Vector
In a fire or if heated, a pressure increase will occur and the container may burst.

**Hazardous thermal decomposition products**: pET-11a Vector
No specific data.
pET-11b Vector
No specific data.
pET-11c Vector
No specific data.
pET-11d Vector
No specific data.
Section 5. Fire-fighting measures

5.3 Advice for firefighters

Special protective actions for fire-fighters

- pET-11a Vector
  Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- pET-11b Vector
  Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- pET-11c Vector
  Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

- pET-11d Vector
  Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters

- pET-11a Vector
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- pET-11b Vector
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- pET-11c Vector
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- pET-11d Vector
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

- pET-11a Vector
  No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

- pET-11b Vector
  No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

- pET-11c Vector
  No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

- pET-11d Vector
  No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.
Section 6. Accidental release measures

surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : pET-11a Vector
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".

pET-11b Vector
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".

pET-11c Vector
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".

pET-11d Vector
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".

6.2 Environmental precautions : pET-11a Vector
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).

pET-11b Vector
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).

pET-11c Vector
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).

pET-11d Vector
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).

6.3 Methods and materials for containment and cleaning up

Methods for cleaning up : pET-11a 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.

pET-11b 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.

pET-11c Vector
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.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures: pET-11a Vector
Put on appropriate personal protective equipment (see Section 8).

pET-11b Vector
Put on appropriate personal protective equipment (see Section 8).

pET-11c Vector
Put on appropriate personal protective equipment (see Section 8).

pET-11d Vector
Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene: pET-11a 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.

pET-11b 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.

pET-11c 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.

pET-11d 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.

7.2 Conditions for safe storage, including any incompatibilities: pET-11a 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.

Date of issue: 04/16/2019
Section 7. Handling and storage

pET-11b 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

pET-11c 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

pET-11d 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 unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>Industrial applications, Professional applications.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11a Vector</td>
<td></td>
</tr>
<tr>
<td>pET-11b Vector</td>
<td></td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td></td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td></td>
</tr>
</tbody>
</table>

Industrial sector specific solutions:

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>None.</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Date of issue: 04/16/2019
Section 8. Exposure controls/personal protection

**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**

**Hygiene measures**
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. 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

### 9.1 Information on basic physical and chemical properties

**Appearance**

<table>
<thead>
<tr>
<th>Physical state</th>
<th>pET-11a Vector</th>
<th>Liquid.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pET-11b Vector</td>
<td>Liquid.</td>
</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Liquid.</td>
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<tr>
<td></td>
<td>pET-11d Vector</td>
<td>Liquid.</td>
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<table>
<thead>
<tr>
<th>Color</th>
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<tbody>
<tr>
<td></td>
<td>pET-11b Vector</td>
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</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
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</table>

<table>
<thead>
<tr>
<th>Odor</th>
<th>pET-11a Vector</th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pET-11b Vector</td>
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</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
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</table>

<table>
<thead>
<tr>
<th>Odor threshold</th>
<th>pET-11a Vector</th>
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</thead>
<tbody>
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<td></td>
<td>pET-11b Vector</td>
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</tr>
<tr>
<td></td>
<td>pET-11c Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td>pET-11d Vector</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

| pH                      |                |               |

Date of issue: 04/16/2019
# Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>pET-11a Vector</th>
<th>pET-11b Vector</th>
<th>pET-11c Vector</th>
<th>pET-11d Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting point</td>
<td>0°C (32°F)</td>
<td>0°C (32°F)</td>
<td>0°C (32°F)</td>
<td>0°C (32°F)</td>
</tr>
<tr>
<td>Boiling point</td>
<td>100°C (212°F)</td>
<td>100°C (212°F)</td>
<td>100°C (212°F)</td>
<td>100°C (212°F)</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available</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>
</tr>
<tr>
<td>Lower and upper explosive</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
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</tr>
<tr>
<td>(flammable) limits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Relative density</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Solubility</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>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
<td>Not available</td>
</tr>
</tbody>
</table>

Date of issue: 04/16/2019
### Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>pET-11a Vector</th>
<th>pET-11b Vector</th>
<th>pET-11c Vector</th>
<th>pET-11d Vector</th>
</tr>
</thead>
</table>

### Section 10. Stability and reactivity

#### 10.1 Reactivity

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

#### 10.2 Chemical stability

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

#### 10.3 Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

#### 10.4 Conditions to avoid

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

#### 10.5 Incompatible materials

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>May react or be incompatible with oxidizing materials.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
</tbody>
</table>

#### 10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>pET-11a Vector</th>
<th>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11b Vector</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
Section 10. Stability and reactivity

pET-11d Vector

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
Not available.

Irritation/Corrosion
Not available.

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

<table>
<thead>
<tr>
<th>Route</th>
<th>pET-11a Vector</th>
<th>pET-11b Vector</th>
<th>pET-11c Vector</th>
<th>pET-11d Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>pET-11a Vector</td>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pET-11b Vector</td>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pET-11c Vector</td>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pET-11d Vector</td>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Potential acute health effects

Eye contact

| pET-11a Vector             | No known significant effects or critical hazards. |
| pET-11b Vector             | No known significant effects or critical hazards. |
| pET-11c Vector             | No known significant effects or critical hazards. |
| pET-11d Vector             | No known significant effects or critical hazards. |

Inhalation

| pET-11a Vector             | No known significant effects or critical hazards. |
| pET-11b Vector             | No known significant effects or critical hazards. |
| pET-11c Vector             | No known significant effects or critical hazards. |
| pET-11d Vector             | No known significant effects or critical hazards. |

Skin contact

| pET-11a Vector             | No known significant effects or critical hazards. |
| pET-11b Vector             | No known significant effects or critical hazards. |
| pET-11c Vector             | No known significant effects or critical hazards. |
| pET-11d Vector             | No known significant effects or critical hazards. |

Ingestion

| pET-11a Vector             | No known significant effects or critical hazards. |
| pET-11b Vector             | No known significant effects or critical hazards. |
| pET-11c Vector             | No known significant effects or critical hazards. |
| pET-11d Vector             | No known significant effects or critical hazards. |

Date of issue: 04/16/2019
## Section 11. Toxicological information

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

<table>
<thead>
<tr>
<th>Situation</th>
<th>pET-11a Vector</th>
<th>pET-11b Vector</th>
<th>pET-11c Vector</th>
<th>pET-11d Vector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye contact</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Inhalation</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Developmental</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Fertility</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

### 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. |
| Potential delayed effects   | Not available. |

### Potential chronic health effects

| General                | No known significant effects or critical hazards. |
| Carcinogenicity        | No known significant effects or critical hazards. |
| Mutagenicity           | No known significant effects or critical hazards. |
| Teratogenicity         | No known significant effects or critical hazards. |
| Developmental effects  | No known significant effects or critical hazards. |
| Fertility effects      | No known significant effects or critical hazards. |
Section 11. Toxicological information

Numerical measures of toxicity

Acute toxicity estimates
N/A

Section 12. Ecological information

12.1 Toxicity
Not available.

12.2 Persistence and degradability
Not available.

12.3 Bioaccumulative potential
Not available.

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

12.5 Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

13.1 Waste treatment methods
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. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.
Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA

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

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

U.S. Federal regulations

TSCA 8(a) CDR Exempt/Partial exemption: Not determined
Clean Water Act (CWA) 311: Edetic acid

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
DEA List I Chemicals (Precursor Chemicals): Not listed
DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304
Composition/information on ingredients
No products were found.

SARA 304 RQ: Not applicable.

SARA 311/312
Classification

pET-11a Vector: Not applicable.
pET-11b Vector: Not applicable.
pET-11c Vector: Not applicable.
pET-11d Vector: Not applicable.

Composition/information on ingredients
No products were found.

State regulations
Massachusetts: None of the components are listed.
New York: None of the components are listed.
New Jersey: None of the components are listed.
Pennsylvania: None of the components are listed.
California Prop. 65
This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Date of issue: 04/16/2019
Section 15. Regulatory information

Chemical Weapon Convention List Schedules I, II & III Chemicals
Not listed.

Montreal Protocol
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

Inventory list

Australia : All components are listed or exempted.
Canada : All components are listed or exempted.
China : All components are listed or exempted.
Europe : All components are listed or exempted.
Japan : Japan inventory (ENCS): All components are listed or exempted.
         Japan inventory (ISHL): All components are listed or exempted.
New Zealand : All components are listed or exempted.
Philippines : All components are listed or exempted.
Republic of Korea : All components are listed or exempted.
Taiwan : All components are listed or exempted.
Thailand : Not determined.
Turkey : Not determined.
United States : All components are listed or exempted.
Viet Nam : Not determined.

Section 16. Other information

History
Date of issue : 04/16/2019
Date of previous issue : 03/27/2017
Version : 3

Key to abbreviations : ATE = Acute Toxicity Estimate
                        BCF = Bioconcentration Factor
                        GHS = Globally Harmonized System of Classification and Labelling of Chemicals
                        IATA = International Air Transport Association
                        IBC = Intermediate Bulk Container
                        IMDG = International Maritime Dangerous Goods
                        LogPow = logarithm of the octanol/water partition coefficient
                        MARPOL = International Convention for the Prevention of Pollution From Ships, 1973
                        as modified by the Protocol of 1978. ("Marpol" = marine pollution)
                        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>Not classified.</td>
<td></td>
</tr>
</tbody>
</table>

Date of issue : 04/16/2019
Section 16. Other information

> Indicates information that has changed from previously issued version.

Notice to reader

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