SAFETY DATA SHEET

pESC-HIS Yeast Epitope Tagging Vector, Part Number 217451

Section 1. Identification

Product identifier : pESC-HIS Yeast Epitope Tagging Vector, Part Number 217451
Part no. (chemical kit) : 217451
Part no. : pESC-HIS Vector 217451-51
               GAL 1 Forward Primer Lyophilized 217451-52
               GAL 1 Reverse Primer Lyophilized 217451-53
               GAL 10 Forward Primer Lyophilized 217451-54
               GAL 10 Reverse Primer Lyophilized 217451-55
               YPH 499 Yeast Strain 200257-41
               YPH 500 Yeast Strain 200258-41
               YPH 501 Yeast Strain 200259-41

Material uses : Analytical reagent.

pESC-HIS Vector : 0.02 ml (20 µg  1 µg/µl)
GAL 1 Forward Primer Lyophilized : 0.0025 mg
GAL 1 Reverse Primer Lyophilized : 0.0025 mg
GAL 10 Forward Primer Lyophilized : 0.0025 mg
GAL 10 Reverse Primer Lyophilized : 0.0025 mg
YPH 499 Yeast Strain : 0.5 ml
YPH 500 Yeast Strain : 0.5 ml
YPH 501 Yeast 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

YPH 499 Yeast Strain
H320  EYE IRRITATION - Category 2B

YPH 500 Yeast Strain
H320  EYE IRRITATION - Category 2B

YPH 501 Yeast Strain
H320  EYE IRRITATION - Category 2B

GHS label elements

Signal word : pESC-HIS Vector  No signal word.
               GAL 1 Forward Primer Lyophilized  No signal word.
               GAL 1 Reverse Primer Lyophilized  No signal word.
               GAL 10 Forward Primer Lyophilized  No signal word.
               GAL 10 Reverse Primer Lyophilized  No signal word.
               YPH 499 Yeast Strain  Warning

Date of issue/Date of revision : 11/03/2021  Date of previous issue : 05/31/2019  Version : 5
## Section 2. Hazard identification

### Hazard statements

<table>
<thead>
<tr>
<th>Item</th>
<th>Hazard Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>H320 - Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>H320 - Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>H320 - Causes eye irritation.</td>
</tr>
</tbody>
</table>

### Precautionary statements

#### Prevention

<table>
<thead>
<tr>
<th>Item</th>
<th>Precautionary Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

#### Response

<table>
<thead>
<tr>
<th>Item</th>
<th>Precautionary Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>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 advice or attention.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>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 advice or attention.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>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 advice or attention.</td>
</tr>
</tbody>
</table>

#### Storage

<table>
<thead>
<tr>
<th>Item</th>
<th>Storage Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
Section 2. Hazard identification

**Disposal**

- pESC-HIS Vector: Not applicable.
- GAL 1 Forward Primer Lyophilized: Not applicable.
- GAL 1 Reverse Primer Lyophilized: Not applicable.
- GAL 10 Forward Primer Lyophilized: Not applicable.
- GAL 10 Reverse Primer Lyophilized: Not applicable.
- YPH 499 Yeast Strain: Not applicable.
- YPH 500 Yeast Strain: Not applicable.
- YPH 501 Yeast Strain: Not applicable.

**Supplemental label elements**

- pESC-HIS Vector: None known.
- GAL 1 Forward Primer Lyophilized: None known.
- GAL 1 Reverse Primer Lyophilized: None known.
- GAL 10 Forward Primer Lyophilized: None known.
- GAL 10 Reverse Primer Lyophilized: None known.
- YPH 499 Yeast Strain: None known.
- YPH 500 Yeast Strain: None known.
- YPH 501 Yeast Strain: None known.

**Other hazards which do not result in classification**

- pESC-HIS Vector: None known.
- GAL 1 Forward Primer Lyophilized: None known.
- GAL 1 Reverse Primer Lyophilized: None known.
- GAL 10 Forward Primer Lyophilized: None known.
- GAL 10 Reverse Primer Lyophilized: None known.
- YPH 499 Yeast Strain: None known.
- YPH 500 Yeast Strain: None known.
- YPH 501 Yeast Strain: None known.

Section 3. Composition/information on ingredients

**Substance/mixture**

- pESC-HIS Vector: Mixture
- GAL 1 Forward Primer Lyophilized: Mixture
- GAL 1 Reverse Primer Lyophilized: Mixture
- GAL 10 Forward Primer Lyophilized: Mixture
- GAL 10 Reverse Primer Lyophilized: Mixture
- YPH 499 Yeast Strain: Mixture
Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>% (w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain Glycerol</td>
<td>10 - 30</td>
<td>56-81-5</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain Glycerol</td>
<td>10 - 30</td>
<td>56-81-5</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain Glycerol</td>
<td>10 - 30</td>
<td>56-81-5</td>
</tr>
</tbody>
</table>

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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

Section 4. First-aid measures

**Description of necessary first aid measures**

- **Eye contact**: 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.

  - **GAL 1 Forward Primer Lyophilized**: 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.

  - **GAL 1 Reverse Primer Lyophilized**: 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.

  - **GAL 10 Forward Primer Lyophilized**: 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.

  - **GAL 10 Reverse Primer Lyophilized**: 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.

  - **YPH 499 Yeast Strain**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.

  - **YPH 500 Yeast Strain**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.

  - **YPH 501 Yeast Strain**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. If irritation persists, get medical attention.
## Section 4. First-aid measures

<table>
<thead>
<tr>
<th>Inhalation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS 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>GAL 1 Forward Primer</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>Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</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>Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer</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>Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</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>Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>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.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>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.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>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.</td>
</tr>
</tbody>
</table>
Section 4. First-aid measures

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>GAL 1 Reverse Primer Lyophilized</th>
<th>GAL 10 Forward Primer Lyophilized</th>
<th>GAL 10 Reverse Primer Lyophilized</th>
<th>YPH 499 Yeast Strain</th>
<th>YPH 500 Yeast Strain</th>
<th>YPH 501 Yeast Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
<td>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ingestion</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>GAL 1 Reverse Primer Lyophilized</th>
<th>GAL 10 Forward Primer Lyophilized</th>
<th>GAL 10 Reverse Primer Lyophilized</th>
<th>YPH 499 Yeast Strain</th>
<th>YPH 500 Yeast Strain</th>
<th>YPH 501 Yeast Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
<td>Wash out mouth with water.</td>
</tr>
</tbody>
</table>

Date of issue/Date of revision : 11/03/2021  Date of previous issue : 05/31/2019  Version : 5
Section 4. First-aid measures

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.

YPH 500 Yeast Strain
Wash out mouth with water. Remove dentures if any. 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.

YPH 501 Yeast Strain
Wash out mouth with water. Remove dentures if any. 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.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact
: pESC-HIS Vector
No known significant effects or critical hazards.
GAL 1 Forward Primer Lyophilized
No known significant effects or critical hazards.
GAL 1 Reverse Primer Lyophilized
No known significant effects or critical hazards.
GAL 10 Forward Primer Lyophilized
No known significant effects or critical hazards.
GAL 10 Reverse Primer Lyophilized
No known significant effects or critical hazards.
YPH 499 Yeast Strain
Causes eye irritation.
YPH 500 Yeast Strain
Causes eye irritation.
YPH 501 Yeast Strain
Causes eye irritation.

Inhalation
: pESC-HIS Vector
No known significant effects or critical hazards.
GAL 1 Forward Primer Lyophilized
No known significant effects or critical hazards.
GAL 1 Reverse Primer Lyophilized
No known significant effects or critical hazards.
GAL 10 Forward Primer Lyophilized
No known significant effects or critical hazards.
GAL 10 Reverse Primer Lyophilized
No known significant effects or critical hazards.
YPH 499 Yeast Strain
No known significant effects or critical hazards.
## Section 4. First-aid measures

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td>217451</td>
<td>pESC-HIS Yeast Epitope Tagging Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

### Skin contact

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

### Ingestion

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

### Over-exposure signs/symptoms

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pESC-HIS Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
</tbody>
</table>

### Eye contact

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pESC-HIS Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>Adverse symptoms may include the following: irritation, watering, redness</td>
</tr>
</tbody>
</table>

### Inhalation

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Effects or Hazards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>pESC-HIS Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>
Section 4. First-aid measures

Skin contact

<table>
<thead>
<tr>
<th>YPH 501 Yeast Strain</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

Ingestion

<table>
<thead>
<tr>
<th>YPH 501 Yeast Strain</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No specific data.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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

Notes to physician

<table>
<thead>
<tr>
<th>pESC-HIS Vector</th>
<th>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
</tr>
</tbody>
</table>
Section 4. First-aid measures

<table>
<thead>
<tr>
<th>Specific treatments</th>
<th>Protection of first-aiders</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

Protection of first-aiders:

No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Suitable extinguishing media</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
</tr>
</tbody>
</table>
## Section 5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Unsuitable extinguishing media</th>
<th>pESC-HIS Vector</th>
<th>None known.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>None known.</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>None known.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific hazards arising from the chemical</th>
<th>pESC-HIS Vector</th>
<th>In a fire or if heated, a pressure increase will occur and the container may burst.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No specific fire or explosion hazard.</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No specific fire or explosion hazard.</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No specific fire or explosion hazard.</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No specific fire or explosion hazard.</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous thermal decomposition products</th>
<th>pESC-HIS Vector</th>
<th>Decomposition products may include the following materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>carbon dioxide</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>carbon monoxide</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>nitrogen oxides</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>phosphorus oxides</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Decomposition products may include the following materials:</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Decomposition products may include the following materials:</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Decomposition products may include the following materials:</td>
<td></td>
</tr>
</tbody>
</table>
Section 5. Fire-fighting measures

- **pESC-HIS 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.
- **GAL 1 Forward Primer Lyophilized**: 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.
- **GAL 1 Reverse Primer Lyophilized**: 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.
- **GAL 10 Forward Primer Lyophilized**: 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.
- **GAL 10 Reverse Primer Lyophilized**: 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.
- **YPH 499 Yeast Strain**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- **YPH 500 Yeast Strain**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.
- **YPH 501 Yeast Strain**: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

**Special protective actions for fire-fighters**

- **pESC-HIS Vector**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **GAL 1 Forward Primer Lyophilized**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **GAL 1 Reverse Primer Lyophilized**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **GAL 10 Forward Primer Lyophilized**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- **GAL 10 Reverse Primer Lyophilized**: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
**Section 5. Fire-fighting measures**

<table>
<thead>
<tr>
<th>Yeast Strain</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499</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>YPH 500</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>YPH 501</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**: pESC-HIS 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.

**GAL 1 Forward Primer Lyophilized**

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.

**GAL 1 Reverse Primer Lyophilized**

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.

**GAL 10 Forward Primer Lyophilized**

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.

**GAL 10 Reverse Primer Lyophilized**

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.

**YPH 499 Yeast Strain**

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

**YPH 500 Yeast Strain**

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear
Section 6. Accidental release measures

YPH 501 Yeast Strain

appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
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.

For emergency responders : pESC-HIS 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".

GAL 1 Forward Primer Lyophilized

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".

GAL 1 Reverse Primer Lyophilized

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".

GAL 10 Forward Primer Lyophilized

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".

GAL 10 Reverse Primer Lyophilized

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".

YPH 499 Yeast 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".

YPH 500 Yeast 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".

YPH 501 Yeast 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 : pESC-HIS 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).

GAL 1 Forward Primer Lyophilized

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).

GAL 1 Reverse Primer Lyophilized

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).

GAL 10 Forward Primer

Avoid dispersal of spilled material and runoff and
## Section 6. Accidental release measures

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Yeast Epitope Tagging Vector</td>
<td>Lyophilized. Contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>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).</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>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).</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>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).</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>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).</td>
</tr>
</tbody>
</table>

### Methods and materials for containment and cleaning up

**Methods for cleaning up**: pESC-HIS 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.

- **GAL 1 Forward Primer Lyophilized**
  - Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

- **GAL 1 Reverse Primer Lyophilized**
  - Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

- **GAL 10 Forward Primer Lyophilized**
  - Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

- **GAL 10 Reverse Primer Lyophilized**
  - Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

- **YPH 499 Yeast 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.

- **YPH 500 Yeast 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 6. Accidental release measures

YPH 501 Yeast 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

- pESC-HIS Vector
  - Put on appropriate personal protective equipment (see Section 8).
- GAL 1 Forward Primer Lyophilized
  - Put on appropriate personal protective equipment (see Section 8).
- GAL 1 Reverse Primer Lyophilized
  - Put on appropriate personal protective equipment (see Section 8).
- GAL 10 Forward Primer Lyophilized
  - Put on appropriate personal protective equipment (see Section 8).
- GAL 10 Reverse Primer Lyophilized
  - Put on appropriate personal protective equipment (see Section 8).
- YPH 499 Yeast Strain
  - 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.
- YPH 500 Yeast Strain
  - 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.
- YPH 501 Yeast Strain
  - 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.

Advice on general occupational hygiene

- pESC-HIS 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.
- GAL 1 Forward Primer Lyophilized
  - 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.
- GAL 1 Reverse Primer
  - 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.
# Section 7. Handling and storage

<table>
<thead>
<tr>
<th>Material</th>
<th>Storage Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lyophilized</td>
<td>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.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.</td>
</tr>
</tbody>
</table>

**Conditions for safe storage, including any incompatibilities**

- **pESC-HIS Vector**
- **GAL 1 Forward Primer Lyophilized**
Section 7. Handling and storage

GAL 1 Reverse Primer Lyophilized
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.

GAL 10 Forward Primer Lyophilized
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.

GAL 10 Reverse Primer Lyophilized
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.

YPH 499 Yeast 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.

YPH 500 Yeast 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.

YPH 501 Yeast Strain
Store in accordance with local regulations. Store in
Section 7. Handling and storage

The original container should be 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><strong>YPH 499 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
<tr>
<td>CA Alberta Provincial (Canada, 6/2018).</td>
<td>8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td>CA Quebec Provincial (Canada, 7/2019).</td>
<td>TWAEV: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
<tr>
<td>CA Saskatchewan Provincial (Canada, 7/2013).</td>
<td>STEL: 20 mg/m³ 15 minutes. Form: mist</td>
</tr>
<tr>
<td>CA British Columbia Provincial (Canada, 1/2021).</td>
<td>TWA: 10 mg/m³ 8 hours. Form: total mist</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>YPH 500 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
<tr>
<td>CA Alberta Provincial (Canada, 6/2018).</td>
<td>8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td>CA Quebec Provincial (Canada, 7/2019).</td>
<td>TWAEV: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
<tr>
<td>CA Saskatchewan Provincial (Canada, 7/2013).</td>
<td>STEL: 20 mg/m³ 15 minutes. Form: mist</td>
</tr>
<tr>
<td>CA British Columbia Provincial (Canada, 1/2021).</td>
<td>TWA: 10 mg/m³ 8 hours. Form: total mist</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>YPH 501 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
<tr>
<td>CA Alberta Provincial (Canada, 6/2018).</td>
<td>8 hrs OEL: 10 mg/m³ 8 hours. Form: Mist</td>
</tr>
<tr>
<td>CA Quebec Provincial (Canada, 7/2019).</td>
<td>TWAEV: 10 mg/m³ 8 hours. Form: mist</td>
</tr>
<tr>
<td>CA Saskatchewan Provincial (Canada, 7/2013).</td>
<td>STEL: 20 mg/m³ 15 minutes. Form: mist</td>
</tr>
<tr>
<td>CA British Columbia Provincial (Canada, 1/2021).</td>
<td>TWA: 10 mg/m³ 8 hours. Form: total mist</td>
</tr>
</tbody>
</table>
Section 8. Exposure controls/personal protection

<table>
<thead>
<tr>
<th>Appropriate engineering controls</th>
<th>Good general ventilation should be sufficient to control worker exposure to airborne contaminants.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental exposure controls</td>
<td>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.</td>
</tr>
</tbody>
</table>

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 and safety characteristics

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

Physical state

- pESC-HIS Vector: Liquid.
- GAL 1 Forward Primer Lyophilized: Solid.
- GAL 1 Reverse Primer Lyophilized: Solid.
- GAL 10 Forward Primer Lyophilized: Solid.
- GAL 10 Reverse Primer Lyophilized: Solid.
- YPH 499 Yeast Strain: Liquid.
- YPH 500 Yeast Strain: Liquid.
- YPH 501 Yeast Strain: Liquid.
## Section 9. Physical and chemical properties and safety characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>GAL 1 Reverse Primer Lyophilized</th>
<th>GAL 10 Forward Primer Lyophilized</th>
<th>GAL 10 Reverse Primer Lyophilized</th>
<th>YPH 499 Yeast Strain</th>
<th>YPH 500 Yeast Strain</th>
<th>YPH 501 Yeast Strain</th>
</tr>
</thead>
</table>

**Date of issue/Date of revision**: 11/03/2021  
**Date of previous issue**: 05/31/2019  
**Version**: 5
Section 9. Physical and chemical properties and safety characteristics

Boiling point, initial boiling point, and boiling range

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Closed cup</th>
<th>Open cup</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edetic acid</td>
<td>&gt;100</td>
<td>&gt;212</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Flash point

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Closed cup</th>
<th>Open cup</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

Evaporation rate

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Closed cup</th>
<th>Open cup</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>°C</td>
<td>°F</td>
</tr>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>
Section 9. Physical and chemical properties and safety characteristics

Flammability:
- pESC-HIS Vector: Not applicable.
- GAL 1 Forward Primer Lyophilized: Not available.
- GAL 1 Reverse Primer Lyophilized: Not available.
- GAL 10 Forward Primer Lyophilized: Not available.
- GAL 10 Reverse Primer Lyophilized: Not available.
- YPH 499 Yeast Strain: Not applicable.
- YPH 500 Yeast Strain: Not applicable.
- YPH 501 Yeast Strain: Not applicable.

Lower and upper explosion limit/flammability limit:
- pESC-HIS Vector: Not available.
- GAL 1 Forward Primer Lyophilized: Not applicable.
- GAL 1 Reverse Primer Lyophilized: Not applicable.
- GAL 10 Forward Primer Lyophilized: Not applicable.
- GAL 10 Reverse Primer Lyophilized: Not applicable.
- YPH 499 Yeast Strain: Not available.
- YPH 500 Yeast Strain: Not available.
- YPH 501 Yeast Strain: Not available.

Vapor pressure:
- pESC-HIS Vector: Not available.
- GAL 1 Forward Primer Lyophilized: Not available.
- GAL 1 Reverse Primer Lyophilized: Not available.
- GAL 10 Forward Primer Lyophilized: Not available.
- GAL 10 Reverse Primer Lyophilized: Not available.
- YPH 499 Yeast Strain: Not available.
- YPH 500 Yeast Strain: Not available.
- YPH 501 Yeast Strain: Not available.

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Vapor Pressure at 20°C</th>
<th>Vapor Pressure at 50°C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mm Hg</td>
<td>kPa</td>
</tr>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>2-Amino-2-(hydroxymethyl)propane-1,3-diol hydrochloride</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Glycerol</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>23.8</td>
<td>3.2</td>
</tr>
<tr>
<td>Glycerol</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Section 9. Physical and chemical properties and safety characteristics

<table>
<thead>
<tr>
<th></th>
<th>YPH 501 Yeast Strain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative density</td>
<td></td>
</tr>
<tr>
<td>Relative vapor density</td>
<td></td>
</tr>
<tr>
<td>pESC-HIS Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer</td>
<td>Not available.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

| Solubility               |                       |
| pESC-HIS Vector          | Easily soluble in the following materials: cold water and hot water. |
| GAL 1 Forward Primer     | Soluble in the following materials: cold water and hot water.        |
| Lyophilized              |                       |
| GAL 1 Reverse Primer     | Soluble in the following materials: cold water and hot water.        |
| Lyophilized              |                       |
| GAL 10 Forward Primer    | Soluble in the following materials: cold water and hot water.        |
| Lyophilized              |                       |
| GAL 10 Reverse Primer    | Soluble in the following materials: cold water and hot water.        |
| Lyophilized              |                       |
| YPH 499 Yeast Strain     | Soluble in the following materials: cold water and hot water.        |
| YPH 500 Yeast Strain     | Soluble in the following materials: cold water and hot water.        |
| YPH 501 Yeast Strain     | Soluble in the following materials: cold water and hot water.        |

| Partition coefficient: n-octanol/water |                       |
| pESC-HIS Vector                   | Not applicable.       |
| GAL 1 Forward Primer              | Not applicable.       |
| Lyophilized                       |                       |
| GAL 1 Reverse Primer              | Not applicable.       |
| Lyophilized                       |                       |
| GAL 10 Forward Primer             | Not applicable.       |
| Lyophilized                       |                       |
| GAL 10 Reverse Primer             | Not applicable.       |
| Lyophilized                       |                       |
| YPH 499 Yeast Strain              | Not applicable.       |
| YPH 500 Yeast Strain              | Not applicable.       |
| YPH 501 Yeast Strain              | Not applicable.       |
Section 9. Physical and chemical properties and safety characteristics

Auto-ignition temperature

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>°C</th>
<th>°F</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Edetic acid</td>
<td>&gt;400</td>
<td>&gt;752</td>
<td>VDI 2263</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
</tbody>
</table>

Decomposition temperature

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>°C</th>
<th>°F</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
</tbody>
</table>

Viscosity

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>°C</th>
<th>°F</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>370</td>
<td>698</td>
<td></td>
</tr>
</tbody>
</table>

Particle characteristics
### Section 9. Physical and chemical properties and safety characteristics

<table>
<thead>
<tr>
<th>Median particle size</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

### Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Reactivity</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical stability</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>The product is stable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>The product is stable.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 501 Yeast Strain</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Possibility of hazardous reactions</th>
<th>pESC-HIS Vector</th>
<th>GAL 1 Forward Primer Lyophilized</th>
<th>Under normal conditions of storage and use, hazardous reactions will not occur.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 499 Yeast Strain</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>YPH 500 Yeast Strain</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>
## Section 10. Stability and reactivity

<table>
<thead>
<tr>
<th>Incompatible materials</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pESC-HIS Vector</strong></td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous decomposition products</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>pESC-HIS Vector</strong></td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
## Section 11. Toxicological information

**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>YPH 499 Yeast Strain</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></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>YPH 499 Yeast Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 mg</td>
<td>-</td>
</tr>
</tbody>
</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.
## Section 11. Toxicological information

### Information on the likely routes of exposure

<table>
<thead>
<tr>
<th>Product</th>
<th>Inhalation</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

### Potential acute health effects

#### Eye contact

<table>
<thead>
<tr>
<th>Product</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Causes eye irritation.</td>
</tr>
</tbody>
</table>

#### Inhalation

<table>
<thead>
<tr>
<th>Product</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

#### Skin contact

<table>
<thead>
<tr>
<th>Product</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

#### Ingestion

<table>
<thead>
<tr>
<th>Product</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>
## Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Yeast Strain</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 500</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 501</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

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

#### Eye contact

<table>
<thead>
<tr>
<th>pESC-HIS Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
</tbody>
</table>

YPH 499 Yeast Strain: Adverse symptoms may include the following: irritation, watering, redness.

YPH 500 Yeast Strain: Adverse symptoms may include the following: irritation, watering, redness.

YPH 501 Yeast Strain: Adverse symptoms may include the following: irritation, watering, redness.

#### Inhalation

<table>
<thead>
<tr>
<th>pESC-HIS Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
</tbody>
</table>

YPH 499 Yeast Strain: No specific data.

YPH 500 Yeast Strain: No specific data.

YPH 501 Yeast Strain: No specific data.

#### Skin contact

<table>
<thead>
<tr>
<th>pESC-HIS Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
</tbody>
</table>

YPH 499 Yeast Strain: No specific data.

YPH 500 Yeast Strain: No specific data.

YPH 501 Yeast Strain: No specific data.

#### Ingestion

<table>
<thead>
<tr>
<th>pESC-HIS Vector</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>GAL 1 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 1 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Forward Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
<tr>
<td>GAL 10 Reverse Primer</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Lyophilized</td>
<td></td>
</tr>
</tbody>
</table>

YPH 499 Yeast Strain: No specific data.

YPH 500 Yeast Strain: No specific data.

YPH 501 Yeast Strain: No specific data.
## Section 11. Toxicological information

### pESC-HIS Yeast Epitope Tagging Vector, Part Number 217451

#### No known significant effects or critical hazards.

**General**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Carcinogenicity**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Mutagenicity**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</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

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

#### Long term exposure

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Not available.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

#### Potential chronic health effects

**General**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>pESC-HIS Vector</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 1 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Forward Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>GAL 10 Reverse Primer Lyophilized</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

**Carcinogenicity**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

**Mutagenicity**

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>No specific data.</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

### Potential immediate effects

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Short term exposure

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Potential delayed effects

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Long term exposure

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Potential delayed effects

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

### Potential chronic health effects

<table>
<thead>
<tr>
<th>Product</th>
<th>Toxicological Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td></td>
</tr>
</tbody>
</table>

---

**Date of issue/Date of revision**: 11/03/2021  
**Date of previous issue**: 05/31/2019  
**Version**: 5  
**31/35**
Section 11. Toxicological information

Reproductive toxicity:
- pESC-HIS Vector: No known significant effects or critical hazards.
- GAL 1 Forward Primer Lyophilized: No known significant effects or critical hazards.
- GAL 1 Reverse Primer Lyophilized: No known significant effects or critical hazards.
- GAL 10 Forward Primer Lyophilized: No known significant effects or critical hazards.
- GAL 10 Reverse Primer Lyophilized: No known significant effects or critical hazards.
- YPH 499 Yeast Strain: No known significant effects or critical hazards.
- YPH 500 Yeast Strain: No known significant effects or critical hazards.
- YPH 501 Yeast Strain: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates:

<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>YPH 499 Yeast Strain</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>12600</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other information:
- pESC-HIS Vector: Not available.
- GAL 1 Forward Primer Lyophilized: Not available.
- GAL 1 Reverse Primer Lyophilized: Not available.
- GAL 10 Forward Primer Lyophilized: Not available.
- GAL 10 Reverse Primer Lyophilized: Not available.
- YPH 499 Yeast Strain: Not available.
- YPH 500 Yeast Strain: Not available.
- YPH 501 Yeast Strain: Not available.

Section 12. Ecological information

Toxicity:

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>YPH 499 Yeast Strain</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Section 12. Ecological information

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>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</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>YPH 499 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>YPH 500 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>YPH 501 Yeast Strain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

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. 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 IMO instruments: Not available.

Section 15. Regulatory information

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

International regulations
- UNECE Aarhus Protocol on POPs and Heavy Metals: Not listed.

Inventory list
- Australia: Not determined.
- Canada: Not determined.
- China: Not determined.
- Europe: Not determined.
- New Zealand: Not determined.
- Philippines: Not determined.
- Republic of Korea: Not determined.
- Taiwan: Not determined.
- Thailand: Not determined.
- Turkey: Not determined.
- United States: Not determined.
- Viet Nam: Not determined.
## Section 16. Other information

### History

| Date of issue/Date of revision | 11/03/2021 |
| Date of previous issue         | 05/31/2019 |
| 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><strong>YPH 499 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2B</td>
<td>Calculation method</td>
</tr>
<tr>
<td><strong>YPH 500 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2B</td>
<td>Calculation method</td>
</tr>
<tr>
<td><strong>YPH 501 Yeast Strain</strong></td>
<td></td>
</tr>
<tr>
<td>EYE IRRITATION - Category 2B</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

### References

- Not available.

### 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.