Section 1. Identification

1.1 Product identifier

Product name: Agilent Protein 230 Kit, Part Number 5067-1517
Part No. (Chemical Kit): 5067-1517
Part No.:
Reagents P230
Protein 230 Gel Matrix
Protein 230 Dye Concentrate
Reagents P230 frozen
Protein 230 Ladder
Protein 230 Sample Buffer

Validation date: 9/22/2017

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

Material uses:
Analytical chemistry.
Research and Development

Protein 230 Gel Matrix: 4 x 0.65 ml
Protein 230 Dye Concentrate: 1 x 0.09 ml
Protein 230 Ladder: 1 x 0.18 ml
Protein 230 Sample Buffer: 4 x 0.2 ml

1.3 Details of the supplier of the safety data sheet

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

1.4 Emergency telephone number

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

Section 2. Hazards identification

2.1 Classification of the substance or mixture

OSHA/HCS status:

Protein 230 Gel Matrix: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Protein 230 Dye Concentrate: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Protein 230 Ladder: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Protein 230 Sample Buffer: While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture

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Section 2. Hazards identification

Protein 230 Dye Concentrate

H227 FLAMMABLE LIQUIDS - Category 4
H319 EYE IRRITATION - Category 2A

Protein 230 Ladder

H319 EYE IRRITATION - Category 2A

Ingredients of unknown toxicity:
- Protein 230 Gel Matrix
  - Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
  - Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%
  - Percentage of the mixture consisting of ingredient(s) of unknown oral toxicity: 1 - 10%
- Protein 230 Dye Concentrate
  - Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
- Protein 230 Ladder
  - Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
  - Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 10 - 30%
- Protein 230 Sample Buffer
  - Percentage of the mixture consisting of ingredient(s) of unknown dermal toxicity: 1 - 10%
  - Percentage of the mixture consisting of ingredient(s) of unknown inhalation toxicity: 1 - 10%

2.2 GHS label elements

Hazard pictograms:
- Protein 230 Dye Concentrate
- Protein 230 Ladder

Signal word:
- Protein 230 Gel Matrix: No signal word.
- Protein 230 Dye Concentrate: Warning
- Protein 230 Ladder: Warning
- Protein 230 Sample Buffer: No signal word.

Hazard statements:
- Protein 230 Gel Matrix: No known significant effects or critical hazards.
  - H227 - Combustible liquid.
- Protein 230 Dye Concentrate: No known significant effects or critical hazards.
  - H319 - Causes serious eye irritation.
- Protein 230 Ladder: No known significant effects or critical hazards.
  - H319 - Causes serious eye irritation.
- Protein 230 Sample Buffer: No known significant effects or critical hazards.

Precautionary statements

Prevention:
- Protein 230 Gel Matrix: Not applicable.
- Protein 230 Dye Concentrate: P280 - Wear protective gloves. Wear eye or face protection.
  - P210 - Keep away from flames and hot surfaces. - No smoking.
  - P264 - Wash hands thoroughly after handling.
- Protein 230 Ladder: P280 - Wear eye or face protection.
  - P264 - Wash hands thoroughly after handling.
- Protein 230 Sample Buffer: Not applicable.
Section 2. Hazards identification

Response:
- Protein 230 Gel Matrix: Not applicable.
- Protein 230 Dye Concentrate: P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
- Protein 230 Ladder: P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical attention.
- Protein 230 Sample Buffer: Not applicable.

Storage:
- Protein 230 Gel Matrix: Not applicable.
- Protein 230 Ladder: Not applicable.
- Protein 230 Sample Buffer: Not applicable.

Disposal:
- Protein 230 Gel Matrix: Not applicable.
- Protein 230 Dye Concentrate: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Protein 230 Ladder: Not applicable.
- Protein 230 Sample Buffer: Not applicable.

Supplemental label elements:
- Protein 230 Gel Matrix: None known.
- Protein 230 Dye Concentrate: None known.
- Protein 230 Ladder: None known.
- Protein 230 Sample Buffer: None known.

2.3 Other hazards

Hazards not otherwise classified:
- Protein 230 Gel Matrix: None known.
- Protein 230 Dye Concentrate: None known.
- Protein 230 Ladder: None known.
- Protein 230 Sample Buffer: None known.

Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance/mixture</th>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>Trometamol</td>
<td>≤3</td>
<td>77-86-1</td>
</tr>
<tr>
<td></td>
<td>Protein 230 Dye Concentrate</td>
<td>DMSO</td>
<td>≥90</td>
</tr>
<tr>
<td></td>
<td>Sodium dodecyl sulphate</td>
<td>&lt;10</td>
<td>151-21-3</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>Glycerol</td>
<td>≥10 - ≤25</td>
<td>56-81-5</td>
</tr>
<tr>
<td></td>
<td>Trometamol</td>
<td>≤3</td>
<td>77-86-1</td>
</tr>
<tr>
<td></td>
<td>Lithium dodecyl sulphate</td>
<td>≤3</td>
<td>2044-56-6</td>
</tr>
</tbody>
</table>

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Section 3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concentration</th>
<th>CAS Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>≤5</td>
<td>2044-56-6</td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>77-86-1</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

4.1 Description of necessary first aid measures

**Eye contact**

- **Protein 230 Gel Matrix**: 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.

- **Protein 230 Dye Concentrate**: 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. Get medical attention.

- **Protein 230 Ladder**: 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. Get medical attention.

- **Protein 230 Sample Buffer**: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

**Inhalation**

- **Protein 230 Gel Matrix**: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur. 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.

- **Protein 230 Dye Concentrate**: 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.

- **Protein 230 Ladder**: 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
Section 4. First aid measures

Skin contact

Protein 230 Gel Matrix
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Protein 230 Dye Concentrate
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Protein 230 Ladder
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Protein 230 Sample Buffer
Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion

Protein 230 Gel Matrix
Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Protein 230 Dye Concentrate
Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protein 230 Ladder
Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protein 230 Sample Buffer
Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. 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. An open airway. Loosen tight clothing such as a collar, tie, belt or waistband. 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.
Section 4. First aid measures

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.

Protein 230 Sample Buffer Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Ingestion
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Over-exposure signs/symptoms

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Over-exposure signs/symptoms

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Potential acute health effects

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Ingestion
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Over-exposure signs/symptoms

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Over-exposure signs/symptoms

Eye contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Inhalation
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

Skin contact
- Protein 230 Gel Matrix
- Protein 230 Dye Concentrate
- Protein 230 Ladder
- Protein 230 Sample Buffer

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Section 4. First aid measures

### Ingestion

- **Protein 230 Gel Matrix**: No specific data.
- **Protein 230 Dye Concentrate**: No specific data.
- **Protein 230 Ladder**: No specific data.
- **Protein 230 Sample Buffer**: No specific data.

### Notes to physician

- **Protein 230 Gel Matrix**: 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.
- **Protein 230 Dye Concentrate**: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- **Protein 230 Ladder**: 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.
- **Protein 230 Sample Buffer**: 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.

### Specific treatments

- **Protein 230 Gel Matrix**: No specific treatment.
- **Protein 230 Dye Concentrate**: No specific treatment.
- **Protein 230 Ladder**: No specific treatment.
- **Protein 230 Sample Buffer**: No specific treatment.

### Protection of first-aiders

- **Protein 230 Gel Matrix**: No action shall be taken involving any personal risk or without suitable training.
- **Protein 230 Dye Concentrate**: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- **Protein 230 Ladder**: No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- **Protein 230 Sample Buffer**: No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

- **Protein 230 Gel Matrix**: Use an extinguishing agent suitable for the surrounding fire.
- **Protein 230 Dye Concentrate**: Use dry chemical, CO₂, water spray (fog) or foam.
- **Protein 230 Ladder**: Use an extinguishing agent suitable for the surrounding fire.
- **Protein 230 Sample Buffer**: Use an extinguishing agent suitable for the surrounding fire.

#### Unsuitable extinguishing media

- **Protein 230 Gel Matrix**: None known.
- **Protein 230 Dye Concentrate**: Do not use water jet.
- **Protein 230 Ladder**: None known.
- **Protein 230 Sample Buffer**: None known.

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

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# Section 5. Fire-fighting measures

<table>
<thead>
<tr>
<th>Specific hazards arising from the chemical</th>
<th>Protein 230 Gel Matrix</th>
<th>In a fire or if heated, a pressure increase will occur and the container may burst.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td></td>
<td>Combustible liquid. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td></td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td></td>
<td>In a fire or if heated, a pressure increase will occur and the container may burst.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous thermal decomposition products</th>
<th>Protein 230 Gel Matrix</th>
<th>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td></td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides, metal oxide/oxides.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td></td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, metal oxide/oxides.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td></td>
<td>Decomposition products may include the following materials: carbon dioxide, carbon monoxide, nitrogen oxides, sulfur oxides, metal oxide/oxides.</td>
</tr>
</tbody>
</table>

### 5.3 Advice for firefighters

<table>
<thead>
<tr>
<th>Special protective actions for fire-fighters</th>
<th>Protein 230 Gel Matrix</th>
<th>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.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td></td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td></td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td></td>
<td>Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.</td>
</tr>
</tbody>
</table>

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Section 5. Fire-fighting measures

Special protective equipment for fire-fighters:

- **Protein 230 Gel Matrix**
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- **Protein 230 Dye Concentrate**
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- **Protein 230 Ladder**
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

- **Protein 230 Sample Buffer**
  Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:

**For non-emergency personnel**:

- **Protein 230 Gel Matrix**
  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.

- **Protein 230 Dye Concentrate**
  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. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- **Protein 230 Ladder**
  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.

- **Protein 230 Sample Buffer**
  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.

**For emergency responders**:

- **Protein 230 Gel Matrix**
  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”.

- **Protein 230 Dye Concentrate**
  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”.

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## Section 6. Accidental release measures

### 6.2 Environmental precautions

<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</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>Protein 230 Dye Concentrate</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>Protein 230 Ladder</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>Protein 230 Sample Buffer</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>

### 6.3 Methods and materials for containment and cleaning up

<table>
<thead>
<tr>
<th>Methods for cleaning up</th>
<th>Protein 230 Gel Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.</td>
</tr>
</tbody>
</table>
## Section 7. Handling and storage

### 7.1 Precautions for safe handling

<table>
<thead>
<tr>
<th>Protective measures</th>
<th>Protein 230 Gel Matrix</th>
<th>Protein 230 Dye Concentrate</th>
<th>Protein 230 Ladder</th>
<th>Protein 230 Sample Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
<td>Put on appropriate personal protective equipment (see Section 8).</td>
</tr>
</tbody>
</table>

### Advice on general occupational hygiene

<table>
<thead>
<tr>
<th>: Protein 230 Gel Matrix</th>
<th>Protein 230 Dye Concentrate</th>
<th>Protein 230 Ladder</th>
<th>Protein 230 Sample Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<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>
<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>
<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>
<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>
Section 7. Handling and storage

7.2 Conditions for safe storage, including any incompatibilities

Protein 230 Gel Matrix
Storage temperature: 4°C (39.2°F). 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.

Protein 230 Dye Concentrate
Storage temperature: 4°C (39.2°F). Store in accordance with local regulations. Store in a segregated and approved area. 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. Eliminate all ignition sources. Separate from oxidizing materials. 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.

Protein 230 Ladder
Storage temperature: -20°C (-4°F). 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.

Protein 230 Sample Buffer
Storage temperature: -20°C (-4°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations
- Protein 230 Gel Matrix: Industrial applications, Professional applications.
- Protein 230 Dye Concentrate: Industrial applications, Professional applications.
- Protein 230 Ladder: Industrial applications, Professional applications.
- Protein 230 Sample Buffer: Industrial applications, Professional applications.
Section 7. Handling and storage

<table>
<thead>
<tr>
<th>Industrial sector specific solutions</th>
<th>Protein 230 Gel Matrix</th>
<th>Not applicable.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Protein 230 Dye Concentrate</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Protein 230 Ladder</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Protein 230 Sample Buffer</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>None.</td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td></td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td></td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>OSHA PEL 1989 (United States, 3/1989). TWA: 5 mg/m³ 8 hours. Form: Respirable fraction TWA: 10 mg/m³ 8 hours. Form: Total dust None.</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td></td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>None.</td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
</tr>
</tbody>
</table>

8.2 Exposure controls

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

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

Individual protection measures

Hygiene measures:
- Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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

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Section 8. Exposure controls/personal protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

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

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

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

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

**Appearance**

**Physical state**
- Protein 230 Gel Matrix: Liquid.
- Protein 230 Dye Concentrate: Liquid.
- Protein 230 Ladder: Liquid.
- Protein 230 Sample Buffer: Liquid.

**Color**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Blue.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**Odor**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Not available.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**Odor threshold**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Not available.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**pH**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Not available.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**Melting point**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Not available.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**Boiling point**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Not available.
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

**Flash point**
- Protein 230 Gel Matrix: Not available.
- Protein 230 Dye Concentrate: Closed cup: 93°C (199.4°F)
- Protein 230 Ladder: Not available.
- Protein 230 Sample Buffer: Not available.

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## Section 9. Physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Protein 230 Gel Matrix</th>
<th>Protein 230 Dye Concentrate</th>
<th>Protein 230 Ladder</th>
<th>Protein 230 Sample Buffer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Lower and upper explosive (flammable) limits</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Solubility</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
</tbody>
</table>
# Section 10. Stability and reactivity

## 10.1 Reactivity

<table>
<thead>
<tr>
<th>Product</th>
<th>Reactivity Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
</tr>
</tbody>
</table>

## 10.2 Chemical stability

<table>
<thead>
<tr>
<th>Product</th>
<th>Stability Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>The product is stable.</td>
</tr>
</tbody>
</table>

## 10.3 Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>Product</th>
<th>Possibility Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
</tbody>
</table>

## 10.4 Conditions to avoid

<table>
<thead>
<tr>
<th>Product</th>
<th>Conditions to Avoid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

## 10.5 Incompatible materials

<table>
<thead>
<tr>
<th>Product</th>
<th>Incompatibility Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>Reactive or incompatible with the following materials: oxidizing materials.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>May react or be incompatible with oxidizing materials.</td>
</tr>
</tbody>
</table>

## 10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>Product</th>
<th>Decomposition Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
</tr>
</tbody>
</table>
## Section 11. Toxicological information

### 11.1 Information on toxicological effects

#### Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>40000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>14500 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1288 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protein 230 Ladder</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protein 230 Sample Buffer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>LD50 Dermal</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>5000 mg/kg</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><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>25 Percent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>500 milligrams</td>
<td></td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>100 milligrams</td>
<td></td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>250 Micrograms</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 100 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>10 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Guinea pig</td>
<td>-</td>
<td>24 hours 25 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Mouse</td>
<td>-</td>
<td>24 hours 25 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 50 milligrams</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Skin - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 25 milligrams</td>
<td></td>
</tr>
</tbody>
</table>

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## Section 11. Toxicological information

<table>
<thead>
<tr>
<th>Compound</th>
<th>Eyes - Mild irritant</th>
<th>Skin - Mild irritant</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glycerol</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trometamol</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Protein 230 Sample Buffer</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trometamol</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sensitization**

Not available.

**Mutagenicity**

Not available.

**Carcinogenicity**

Not available.

**Reproductive toxicity**

Not available.

**Teratogenicity**

Not available.

### Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td><strong>Protein 230 Ladder</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td><strong>Protein 230 Sample Buffer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
<tr>
<td>Trometamol</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

### Specific target organ toxicity (repeated exposure)

Not available.

**Aspiration hazard**

Not available.

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## Information on the likely routes of exposure

<table>
<thead>
<tr>
<th>Product</th>
<th>Routes of entry anticipated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>Protein 230 Dye Concentrate</td>
<td>Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>Protein 230 Ladder</td>
<td>Oral, Dermal, Inhalation.</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer</td>
<td>Oral, Dermal, Inhalation.</td>
</tr>
</tbody>
</table>

## Potential acute health effects

### Eye contact

- **Protein 230 Gel Matrix**: No known significant effects or critical hazards.
- **Protein 230 Dye Concentrate**: Causes serious eye irritation.
- **Protein 230 Ladder**: Causes serious eye irritation.
- **Protein 230 Sample Buffer**: No known significant effects or critical hazards.

### Inhalation

- **Protein 230 Gel Matrix**: No known significant effects or critical hazards.
- **Protein 230 Dye Concentrate**: No known significant effects or critical hazards.
- **Protein 230 Ladder**: No known significant effects or critical hazards.
- **Protein 230 Sample Buffer**: No known significant effects or critical hazards.

### Skin contact

- **Protein 230 Gel Matrix**: No known significant effects or critical hazards.
- **Protein 230 Dye Concentrate**: No known significant effects or critical hazards.
- **Protein 230 Ladder**: No known significant effects or critical hazards.
- **Protein 230 Sample Buffer**: No known significant effects or critical hazards.

### Ingestion

- **Protein 230 Gel Matrix**: No known significant effects or critical hazards.
- **Protein 230 Dye Concentrate**: No known significant effects or critical hazards.
- **Protein 230 Ladder**: No known significant effects or critical hazards.
- **Protein 230 Sample Buffer**: No known significant effects or critical hazards.

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

### Eye contact

- **Protein 230 Gel Matrix**: No specific data.
- **Protein 230 Dye Concentrate**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Protein 230 Ladder**: Adverse symptoms may include the following:
  - pain or irritation
  - watering
  - redness
- **Protein 230 Sample Buffer**: No specific data.

### Inhalation

- **Protein 230 Gel Matrix**: No specific data.
- **Protein 230 Dye Concentrate**: No specific data.
- **Protein 230 Ladder**: No specific data.
- **Protein 230 Sample Buffer**: No specific data.

### Skin contact

- **Protein 230 Gel Matrix**: No specific data.
- **Protein 230 Dye Concentrate**: No specific data.
- **Protein 230 Ladder**: No specific data.
- **Protein 230 Sample Buffer**: No specific data.

### Ingestion

- **Protein 230 Gel Matrix**: No specific data.
- **Protein 230 Dye Concentrate**: No specific data.
- **Protein 230 Ladder**: No specific data.
- **Protein 230 Sample Buffer**: No specific data.

## Delayed and immediate effects and also chronic effects from short and long term exposure

### Short term exposure

<table>
<thead>
<tr>
<th>Potential immediate effects</th>
<th>Date of issue: 09/22/2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available.</td>
<td>19/24</td>
</tr>
</tbody>
</table>
Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

General : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Carcinogenicity : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Mutagenicity : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Teratogenicity : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Developmental effects : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Fertility effects : Protein 230 Gel Matrix No known significant effects or critical hazards.
Protein 230 Dye Concentrate No known significant effects or critical hazards.
Protein 230 Ladder No known significant effects or critical hazards.
Protein 230 Sample Buffer No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

<table>
<thead>
<tr>
<th>Route</th>
<th>ATE value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>343892.7 mg/kg</td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>23320.7 mg/kg</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>27.16 mg/l</td>
</tr>
<tr>
<td><strong>Protein 230 Ladder</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>44627 mg/kg</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>129.4 mg/l</td>
</tr>
<tr>
<td><strong>Protein 230 Sample Buffer</strong></td>
<td></td>
</tr>
<tr>
<td>Oral</td>
<td>15713.4 mg/kg</td>
</tr>
<tr>
<td>Inhalation (dusts and mists)</td>
<td>50 mg/l</td>
</tr>
</tbody>
</table>
## 12. Ecological information

### 12.1 Toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Acute EC50 &gt;980 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute NOEC 520 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>Acute LC50 25000 ppm Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 34000000 µg/l Fresh water</td>
<td>Fish - Pimephales promelas - Neonate</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 100 ul/L Marine water</td>
<td>Algae - Ulva lactuca</td>
<td>72 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 1200 µg/l Marine water</td>
<td>Algae - Skeletonema costatum</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 900 µg/l Marine water</td>
<td>Crustaceans - Artemia salina - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>Acute LC50 1400 µg/l Fresh water</td>
<td>Daphnia - Daphnia pulex - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 590 µg/l Fresh water</td>
<td>Fish - Cirrhinus mrigala - Larvae</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1.25 mg/l Marine water</td>
<td>Algae - Ulva fasciata - Zoea</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 1 mg/l Fresh water</td>
<td>Crustaceans - Pseudosida ramosa - Neonate</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 3.2 mg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>21 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC &gt;1357 µg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>42 days</td>
</tr>
<tr>
<td><strong>Protein 230 Ladder</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td>Trometamol</td>
<td>Acute EC50 &gt;980 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute NOEC 520 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td><strong>Protein 230 Sample Buffer</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>Acute EC50 &gt;980 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute NOEC 520 mg/l Fresh water</td>
<td>Daphnia</td>
<td>48 hours</td>
</tr>
</tbody>
</table>

### 12.2 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><strong>Protein 230 Ladder</strong></td>
<td>301D Ready Biodegradability - Closed Bottle Test</td>
<td>93 % - 30 days</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein 230 Gel Matrix</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trometamol</td>
<td>-1.56</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td><strong>Protein 230 Dye Concentrate</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>-1.35</td>
<td>3.16</td>
<td>low</td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>-2.03</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td><strong>Protein 230 Ladder</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

**Date of issue:** 09/22/2017
Section 12. Ecological information

<table>
<thead>
<tr>
<th></th>
<th>Trometamol</th>
<th>Protein 230 Sample Buffer</th>
<th>Trometamol</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-1.56</td>
<td>-</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

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

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

Section 13. Disposal considerations

13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

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

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

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

Section 14. Transport information

DOT / TDG / Mexico / IMDG / IATA : Not regulated.

Special precautions for user : Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Date of issue : 09/22/2017
Section 15. Regulatory information

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

U.S. Federal regulations: TSCA 8(a) CDR Exempt/Partial exemption: Not determined

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

SARA 302/304

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>EHS</th>
<th>SARA 302 TPQ</th>
<th>SARA 304 RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(lbs)</td>
<td>(gallons)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(lbs)</td>
<td>(gallons)</td>
</tr>
<tr>
<td>Protein 230 Ladder Sodium azide</td>
<td>≤0.1</td>
<td>Yes.</td>
<td>500</td>
<td>1000</td>
</tr>
<tr>
<td>Protein 230 Sample Buffer Sodium azide</td>
<td>≤0.1</td>
<td>Yes.</td>
<td>500</td>
<td>1000</td>
</tr>
</tbody>
</table>

SARA 304 RQ: 5594405.6 lbs / 2539860.1 kg

SARA 311/312

Classification:
- Protein 230 Gel Matrix: Not applicable.
- Protein 230 Dye Concentrate: Fire hazard
- Protein 230 Ladder: Immediate (acute) health hazard
- Protein 230 Sample Buffer: Not applicable.

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Fire hazard</th>
<th>Sudden release of pressure</th>
<th>Reactive</th>
<th>Immediate (acute) health hazard</th>
<th>Delayed (chronic) health hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protein 230 Gel Matrix</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Dimethyl sulfoxide</td>
<td>&lt;10</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Sodium dodecyl sulphate</td>
<td>&lt;10</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
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<tr>
<td>Protein 230 Sample Buffer</td>
<td>≤5</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Lithium dodecyl sulphate</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
<tr>
<td>Trometamol</td>
<td>≤3</td>
<td>Yes.</td>
<td>No.</td>
<td>No.</td>
<td>Yes.</td>
<td>No.</td>
</tr>
</tbody>
</table>
Section 15. Regulatory information

State regulations

Massachusetts : The following components are listed: GLYCERINE MIST
New York : None of the components are listed.
New Jersey : The following components are listed: GLYCERIN; 1,2,3-PROPANETRIOL; DIMETHYL SULFOXIDE; METHANE, SULFINYL-
Pennsylvania : The following components are listed: 1,2,3-PROPANETRIOL

International regulations

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

Montreal Protocol (Annexes A, B, C, E)
Not listed.

Stockholm Convention on Persistent Organic Pollutants
Not listed.

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

UNECE Aarhus Protocol on POPs and Heavy Metals
Not listed.

Inventory list

Australia : Not determined.
Canada : Not determined.
China : Not determined.
Europe : Not determined.
Malaysia : 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 : 09/22/2017
Date of previous issue : 01/29/2016.
Version : 5

Notice to reader

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