Section 1. Identification

Product identifier: P3311 pH triode combination electrode, Part Number 5190-3990
Part No. (Chemical Kit): 5190-3990
Part No.: * P3311 electrode P3311
Reference solution 5190-0545-1

Relevant identified uses of the substance or mixture and uses advised against
Analytical chemistry.
* P3311 electrode Electrodes. (1 x 7 ml)
Reference solution 1 x 30 ml

Supplier/Manufacturer: Agilent Technologies Australia Pty Ltd
679 Springvale Road
Mulgrave
Victoria 3170, Australia
1800 802 402

Emergency telephone number (with hours of operation): CHEMTREC®: (61)-290372994

Note *: This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article. This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product's directions for use it may present potential health and safety hazards.

Section 2. Hazard(s) identification

Classification of the substance or mixture

* P3311 electrode

H400 ACUTE AQUATIC HAZARD - Category 1
H410 LONG-TERM AQUATIC HAZARD - Category 1

Reference solution

H400 ACUTE AQUATIC HAZARD - Category 1
H410 LONG-TERM AQUATIC HAZARD - Category 1

GHS label elements

Hazard pictograms:

Signal word: * P3311 electrode Reference solution WARNING WARNING

Hazard statements:

* P3311 electrode

H410 - Very toxic to aquatic life with long lasting effects.
Reference solution

H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:

* P3311 electrode Reference solution P273 - Avoid release to the environment.
P273 - Avoid release to the environment.
Section 2. Hazard(s) identification

Response: P3311 electrode P391 - Collect spillage.
Reference solution P391 - Collect spillage.

Storage: P3311 electrode Not applicable.
Reference solution Not applicable.

Disposal: P3311 electrode P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Reference solution P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements: P3311 electrode Not applicable.
Reference solution Not applicable.

Other hazards which do not result in classification: P3311 electrode None known.
Reference solution None known.

Section 3. Composition and ingredient information

Substance/mixture: P3311 electrode Mixture (encapsulated in article)
Reference solution Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>(w/w)</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>≥10 - ≤30</td>
<td>56-81-5</td>
</tr>
<tr>
<td>Ethanediol</td>
<td>≤5</td>
<td>107-21-1</td>
</tr>
<tr>
<td>Silver chloride</td>
<td>≤3</td>
<td>7783-90-6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver chloride</td>
</tr>
<tr>
<td>CAS number</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: P3311 electrode
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 if irritation occurs.
Reference solution
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 if irritation occurs.

Inhalation: P3311 electrode
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.
## Section 4. First aid measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Skin contact</strong></td>
<td>P3311 electrode Wash contaminated skin with plenty of water.</td>
</tr>
<tr>
<td></td>
<td>Reference solution Wash contaminated skin with plenty of water.</td>
</tr>
<tr>
<td><strong>Ingestion</strong></td>
<td>P3311 electrode Wash out mouth with water.</td>
</tr>
<tr>
<td></td>
<td>Reference solution Wash out mouth with water.</td>
</tr>
</tbody>
</table>

### Most important symptoms/effects, acute and delayed

#### Potential acute health effects

<table>
<thead>
<tr>
<th>Category</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye contact</strong></td>
<td>P3311 electrode No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Reference solution No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Inhalation</strong></td>
<td>P3311 electrode No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Reference solution No known significant effects or critical hazards.</td>
</tr>
<tr>
<td><strong>Skin contact</strong></td>
<td>P3311 electrode No known significant effects or critical hazards.</td>
</tr>
<tr>
<td></td>
<td>Reference solution No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>
## Section 4. First aid measures

<table>
<thead>
<tr>
<th>Ingestion</th>
<th>Protection of first-aiders</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Over-exposure signs/symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>Ingestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Reference solution</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Specific treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
</tr>
<tr>
<td>Reference solution</td>
</tr>
</tbody>
</table>

### Protection of first-aiders

**Notes to physician**

- P3311 electrode: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Reference solution: Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

**Specific treatments**

- P3311 electrode: No specific treatment.
- Reference solution: No specific treatment.

**Protection of first-aiders**

- P3311 electrode: 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.
- Reference solution: 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.

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

**Specific treatments**

- P3311 electrode: No specific treatment.
- Reference solution: No specific treatment.

**Protection of first-aiders**

- P3311 electrode: 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.
- Reference solution: 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.

See toxicological information (Section 11)

## Section 5. Firefighting measures

### Extinguishing media

**Suitable extinguishing media**

- P3311 electrode: Use an extinguishing agent suitable for the surrounding fire.
- Reference solution: Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media**

- P3311 electrode: None known.
- Reference solution: None known.

**Specific hazards arising from the chemical**

- P3311 electrode: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
- Reference solution: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Section 5. Firefighting measures

### Hazardous thermal decomposition products

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
</table>
| P3311     | Decomposition products may include the following materials:  
|           | - carbon dioxide  
|           | - carbon monoxide  
|           | - phosphorus oxides  
|           | - halogenated compounds  
|           | - metal oxide/oxides |

Reference solution

- Decomposition products may include the following materials:  
- halogenated compounds  
- metal oxide/oxides

### Special protective actions for fire-fighters

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311</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>

Reference solution

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

### Special protective equipment for fire-fighters

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311</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>

Reference solution

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

### Hazchem code

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311</td>
<td>•3Z</td>
</tr>
</tbody>
</table>

### Section 6. Accidental release measures

#### Personal precautions, protective equipment and emergency procedures

### For non-emergency personnel

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311</td>
<td>No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spill material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.</td>
</tr>
</tbody>
</table>

Reference solution

- 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 spill material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

### For emergency responders

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311</td>
<td>If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in &quot;For non-emergency personnel&quot;.</td>
</tr>
</tbody>
</table>

Reference solution

- If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
### Section 6. Accidental release measures

**Environmental precautions**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.</td>
</tr>
</tbody>
</table>

**Reference solution**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.</td>
</tr>
</tbody>
</table>

**Methods for cleaning up**

**Methods for cleaning up**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
<tr>
<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>

**Reference solution**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
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</tr>
</tbody>
</table>

### Section 7. Handling and storage

**Precautions for safe handling**

**Protective measures**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
</tr>
</tbody>
</table>

**Reference solution**

<table>
<thead>
<tr>
<th>P3311 electrode</th>
</tr>
</thead>
<tbody>
<tr>
<td>Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.</td>
</tr>
</tbody>
</table>

**Advice on general occupational hygiene**

<table>
<thead>
<tr>
<th>P3311 electrode</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>
</tr>
</tbody>
</table>

**Reference solution**

<table>
<thead>
<tr>
<th>P3311 electrode</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>
</tr>
</tbody>
</table>
Section 7. Handling and storage

Conditions for safe storage, including any incompatibilities

- **P3311 electrode**: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Reference solution

- **P3311 electrode**: Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls and personal protection

**Control parameters**

**Ingredient name** | **Exposure limits**
--- | ---
**P3311 electrode**
Glycerol | Safe Work Australia (Australia, 1/2014). TWA: 10 mg/m³ 8 hours.
Ethanediol | Safe Work Australia (Australia, 1/2014). Absorbed through skin.
 | TWA: 10 mg/m³ 8 hours. Form: Particulate STEL: 104 mg/m³ 15 minutes. Form: Vapour
 | TWA: 52 mg/m³ 8 hours. Form: Vapour STEL: 40 ppm 15 minutes. Form: Vapour
Silver chloride | ACGIH TLV (United States). TWA: 0.1 mg/m³, (Silver.) Form: Dust and fumes
Reference solution
Silver chloride | ACGIH TLV (United States). TWA: 0.1 mg/m³, (Silver.) Form: Dust and fumes

**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**
Section 8. Exposure controls and personal protection

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

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

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

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

Section 9. Physical and chemical properties

Appearance

Physical state: * P3311 electrode Liquid.
Reference solution Liquid.

Colour: * P3311 electrode Not available.
Reference solution White.

Odour: * P3311 electrode Not available.
Reference solution Not available.

Odour threshold: * P3311 electrode Not available.
Reference solution Not available.

pH: * P3311 electrode 6
Reference solution 6

Melting point: * P3311 electrode -25°C (-13°F)
Reference solution 0°C (32°F)

Boiling point: * P3311 electrode 110°C (230°F)
Reference solution 100°C (212°F)

Flash point: * P3311 electrode Not available.
Reference solution Not available.

Evaporation rate: * P3311 electrode Not available.
Reference solution Not available.

Flammability (solid, gas): * P3311 electrode Not applicable.
Reference solution Not applicable.

Lower and upper explosive (flammable) limits: * P3311 electrode Not available.
Reference solution Not available.

Vapour pressure: * P3311 electrode Not available.
Reference solution Not available.

Vapour density: 

Date of issue/Date of revision: 26/07/2016
Date of previous issue: 25/07/2014
Version: 3
**Section 9. Physical and chemical properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>P3311 electrode</th>
<th>Reference solution</th>
<th>Relative density</th>
<th>1.1</th>
<th>Not available.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solubility</td>
<td>P3311 electrode</td>
<td>Reference solution</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>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>Not available.</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

**Section 10. Stability and reactivity**

<table>
<thead>
<tr>
<th>Property</th>
<th>P3311 electrode</th>
<th>Reference solution</th>
<th>Reactivity</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
<th>No specific test data related to reactivity available for this product or its ingredients.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical stability</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
<td>The product is stable.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
</tr>
<tr>
<td>Conditions to avoid</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>No specific data.</td>
<td>No specific data.</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Incompatible materials</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
<td>May react or be incompatible with oxidising materials.</td>
</tr>
<tr>
<td>Hazardous decomposition products</td>
<td>P3311 electrode</td>
<td>Reference solution</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</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>P3311 electrode</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>12600 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Glycerol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>4700 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Ethanediol</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Silver chloride</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Reference solution</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>&gt;5000 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

**Irritation/Corrosion**
Section 11. Toxicological information

### Sensitisation
Not available.

### Mutagenicity
Not available.

### Carcinogenicity
Not available.

### Reproductive toxicity
Not available.

### Teratogenicity
Not available.

#### Specific target organ toxicity (single exposure)
Not available.

#### Specific target organ toxicity (repeated exposure)
Not available.

### Aspiration hazard
Not available.

<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>P3311 electrode</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glycerol</td>
<td>Eyes - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 500 milligrams</td>
<td>-</td>
</tr>
<tr>
<td><strong>Ethanediol</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></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>1 hours 100 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>6 hours 1440 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Mild irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>555 milligrams</td>
<td>-</td>
</tr>
</tbody>
</table>

### Information on likely routes of exposure
- **P3311 electrode**: Routes of entry anticipated: Oral, Dermal, Inhalation.
- **Reference solution**: Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects
- **Eye contact**: No known significant effects or critical hazards.
- **Inhalation**: No known significant effects or critical hazards.
- **Skin contact**: No known significant effects or critical hazards.
- **Ingestion**: No known significant effects or critical hazards.

### Symptoms related to the physical, chemical and toxicological characteristics
- **Eye contact**: No specific data.
- **Inhalation**: No specific data.
- **Skin contact**: No specific data.
Section 11. Toxicological information

Ingestion

* P3311 electrode
  No specific data.
  Reference solution
  No specific data.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Short term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Long term exposure

Potential immediate effects: Not available.
Potential delayed effects: Not available.

Potential chronic health effects

Not available.

General

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  No known significant effects or critical hazards.

Carcinogenicity

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  No known significant effects or critical hazards.

Mutagenicity

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  No known significant effects or critical hazards.

Teratogenicity

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  No known significant effects or critical hazards.

Developmental effects

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  No known significant effects or critical hazards.

Fertility effects

* P3311 electrode
  No known significant effects or critical hazards.
  Reference solution
  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>Oral, P3311 electrode</td>
<td>16666.7 mg/kg</td>
</tr>
</tbody>
</table>

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>Glycerol Ethanediol</td>
<td>Acute LC50 54000 mg/l Fresh water</td>
<td>Fish - Oncorhynchus mykiss</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 10000000 μg/l Fresh water</td>
<td>Crustaceans - Ceriodaphnia dubia</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 4100000 μg/l Fresh water</td>
<td>Daphnia magna - Daphnia magna</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 8050000 μg/l Fresh water</td>
<td>Neonate - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 5.3 μg/l Fresh water</td>
<td>Lepidocephalichthys guntea</td>
<td>96 hours</td>
</tr>
<tr>
<td>Silver chloride</td>
<td>Acute LC50 5.3 μg/l Fresh water</td>
<td>Fish - Lepidocephalichthys guntea</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

Persistence and degradability

Date of issue/Date of revision: 26/07/2016
Date of previous issue: 25/07/2014
Version: 3
Section 12. Ecological information

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Aquatic half-life</th>
<th>Photolysis</th>
<th>Biodegradability</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3311 electrode</td>
<td>-</td>
<td>-</td>
<td>Readily</td>
</tr>
</tbody>
</table>

Biaccumulative 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>P3311 electrode</td>
<td>-1.76</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Glycerol</td>
<td>-1.36</td>
<td>-</td>
<td>low</td>
</tr>
<tr>
<td>Ethanol</td>
<td>-</td>
<td>70</td>
<td>low</td>
</tr>
</tbody>
</table>

Mobility in soil

<table>
<thead>
<tr>
<th>Soil/water partition coefficient (K&lt;sub&gt;oc&lt;/sub&gt;)</th>
<th>: Not available.</th>
</tr>
</thead>
</table>

Other adverse effects

<table>
<thead>
<tr>
<th>: No known significant effects or critical hazards.</th>
</tr>
</thead>
</table>

Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimised wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any 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 spill material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

Regulatory information

ADG / IMDG / IATA

: Not regulated as Dangerous Goods according to the ADG Code.

Special precautions for user

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

Transport in bulk according to Annex II of Marpol and the IBC Code

: Not available.

Section 15. Regulatory information

Standard Uniform Schedule of Medicine and Poisons

Not regulated.

Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

Australia inventory (AICS)

: All components are listed or exempted.

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Section 15. Regulatory information

**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 Inform Consent (PIC)**
Not listed.

**UNECE Aarhus Protocol on POPs and Heavy Metals**
Not listed.

**International lists**

**National inventory**

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

Section 16. Any other relevant information

**History**

- **Date of issue/Date of revision**: 26/07/2016
- **Date of previous issue**: 25/07/2014.
- **Version**: 3

**Key to abbreviations**

- ADG = Australian Dangerous Goods
- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- NOHSC = National Occupational Health and Safety Commission
- SUSMP = Standard Uniform Schedule of Medicine and Poisons
- UN = United Nations

**Procedure used to derive the classification**
Section 16. Any other relevant information

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>P3311 electrode</strong></td>
<td></td>
</tr>
<tr>
<td>Aquatic Acute 1, H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1, H410</td>
<td>Calculation method</td>
</tr>
<tr>
<td><strong>Reference solution</strong></td>
<td></td>
</tr>
<tr>
<td>Aquatic Acute 1, H400</td>
<td>Calculation method</td>
</tr>
<tr>
<td>Aquatic Chronic 1, H410</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

References: Not available.

Note *: This product is considered an article. This Safety Data Sheet is written based on the encapsulated substance or mixture in this article. This article, when used under reasonable conditions and in accordance with the directions for use, should not present a health hazard. The substance or mixture is encapsulated in the article. Only if released due to use or processing of the article in a manner not in accordance with the product’s directions for use it may present potential health and safety hazards.

Notice to reader

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