SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product name: 8211 ORP electrode with refilling solution, Part Number 5190-3999
Part No. (Kit): 5190-3999
Part No.: ORP8211 electrode ORP8211
pH Reference solution 5190-0545

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

Identified uses

<table>
<thead>
<tr>
<th>Identified uses</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical chemistry.</td>
<td></td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>3 x 30 ml</td>
</tr>
</tbody>
</table>

1.3 Details of the supplier of the safety data sheet

Agilent Technologies Manufacturing GmbH & Co. KG
Hewlett-Packard-Str. 8
76337 Waldbronn
Germany
0800 603 1000

e-mail address of person responsible for this SDS: pdl-msds_author@agilent.com

1.4 Emergency telephone number

Emergency telephone number (with hours of operation): CHEMTREC®: +(44)-870-8200418

Note *: * This component is considered an article. Information provided is based on the encapsulated substance or mixture in this article.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

ORP8211 electrode

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

pH Reference solution

H410 LONG-TERM AQUATIC HAZARD - Category 1

Ingredients of unknown toxicity

<table>
<thead>
<tr>
<th>Ingredients of unknown toxicity</th>
<th>Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 1.5%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH Reference solution</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Ingredients of unknown ecotoxicity

<table>
<thead>
<tr>
<th>Ingredients of unknown ecotoxicity</th>
<th>Percentage of the mixture consisting of ingredient(s) of unknown hazards to the aquatic environment: 16.7%</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH Reference solution</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>

Classification according to Directive 1999/45/EC [DPD]

Date of issue/Date of revision: 25/08/2015
**ORP electrode with refilling solution, Part Number 5190-3999**

### SECTION 2: Hazards identification

#### Classification
- ORP electrode: N; R50
- pH Reference solution: N; R50

#### Environmental hazards
- ORP electrode: Very toxic to aquatic organisms.
- pH Reference solution: Very toxic to aquatic organisms.

See Section 16 for the full text of the R phrases or H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

### 2.2 Label elements

#### Hazard pictograms

**Signal word**
- ORP electrode: Warning
- pH Reference solution: Warning

**Hazard statements**
- ORP electrode: GHS09 - Very toxic to aquatic life with long lasting effects.
- pH Reference solution: GHS09 - Very toxic to aquatic life with long lasting effects.

#### Precautionary statements

**Prevention**
- ORP electrode: P273 - Avoid release to the environment.
- pH Reference solution: P273 - Avoid release to the environment.

**Response**
- ORP electrode: P391 - Collect spillage.
- pH Reference solution: P391 - Collect spillage.

**Storage**
- ORP electrode: Not applicable.
- pH Reference solution: Not applicable.

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

#### Hazardous ingredients
- No hazardous ingredient

#### Supplemental label elements
- ORP electrode: Not applicable.
- pH Reference solution: Not applicable.

#### Annex XVII - Restrictions
- Not applicable.

#### Special packaging requirements
- Tactile warning of danger
  - ORP electrode: Not applicable.
  - pH Reference solution: Not applicable.

### 2.3 Other hazards

#### Other hazards which do not result in classification
- ORP electrode: None known.
- pH Reference solution: None known.

---

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**SECTION 3: Composition/information on ingredients**

### 3.2 Mixtures

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Identifiers</th>
<th>%</th>
<th>Classification</th>
<th>Regulation (EC) No. 1272/2008 [CLP]</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORP electrode</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver chloride</td>
<td>EC: 232-033-3</td>
<td>≥1 - &lt;3</td>
<td>N; R50</td>
<td>Aquatic Acute 1, H400</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>CAS: 7783-90-6</td>
<td></td>
<td></td>
<td>Aquatic Chronic 1, H410</td>
<td></td>
</tr>
<tr>
<td>pH Reference solution</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silver chloride</td>
<td>EC: 232-033-3</td>
<td>≥0.3 - &lt;0.31</td>
<td>N; R50</td>
<td>Aquatic Acute 1, H400</td>
<td>[1]</td>
</tr>
<tr>
<td></td>
<td>CAS: 7783-90-6</td>
<td></td>
<td></td>
<td>Aquatic Chronic 1, H410</td>
<td></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.

**Type**

- [1] Substance classified with a health or environmental hazard
- [2] Substance with a workplace exposure limit
- [5] Substance of equivalent concern

### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

**Eye contact**

- ORP 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.

- pH 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**

- ORP 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.

- pH Reference solution
  - 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.

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**3/15**
### SECTION 4: First aid measures

<table>
<thead>
<tr>
<th>Skin contact</th>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ingestion</strong></td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Protection of first-aiders</th>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<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>
<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>
<td></td>
</tr>
</tbody>
</table>

### 4.2 Most important symptoms and effects, both acute and delayed

#### Potential acute health effects

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>ORP8211 electrode</th>
<th>No known significant effects or critical hazards.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>ORP8211 electrode</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>ORP8211 electrode</td>
<td>No known significant effects or critical hazards.</td>
</tr>
<tr>
<td>Ingestion</td>
<td>ORP8211 electrode</td>
<td>No known significant effects or critical hazards.</td>
</tr>
</tbody>
</table>

#### Over-exposure signs/symptoms

<table>
<thead>
<tr>
<th>Eye contact</th>
<th>ORP8211 electrode</th>
<th>No specific data.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingestion</td>
<td>ORP8211 electrode</td>
<td>No specific data.</td>
</tr>
<tr>
<td>Skin contact</td>
<td>ORP8211 electrode</td>
<td>No specific data.</td>
</tr>
</tbody>
</table>

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SECTION 4: First aid measures

### Ingestion

<table>
<thead>
<tr>
<th>Substance</th>
<th>Notes to physician</th>
<th>Specific treatments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORP electrode</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
<td>No specific treatment.</td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.</td>
<td>No specific treatment.</td>
</tr>
</tbody>
</table>

### 4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician**

- ORP electrode
- pH Reference solution

**Specific treatments**

- ORP electrode
- pH Reference solution

SECTION 5: Firefighting measures

### 5.1 Extinguishing media

**Suitable extinguishing media**

- ORP electrode
- pH Reference solution

**Unsuitable extinguishing media**

- ORP electrode
- pH Reference solution

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

**Hazardous combustion products**

- ORP electrode
- pH Reference solution

### 5.3 Advice for firefighters

**Special precautions for firefighters**

- ORP electrode
- pH Reference solution

**Special protective equipment for firefighters**

- ORP electrode
- pH Reference solution

---

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

* ORP8211 electrode

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

pH 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 spilt 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

* ORP8211 electrode

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".

pH 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".

6.2 Environmental precautions

* ORP8211 electrode

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.

pH Reference solution

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.

6.3 Methods and material for containment and cleaning up

Methods for cleaning up

* ORP8211 electrode

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.

pH Reference solution

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.

6.4 Reference to other sections

See Section 1 for emergency contact information.

See Section 8 for information on appropriate personal protective equipment.

See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - Europe

SECTION 7: Handling and storage

**Protective measures**

| ORP8211 electrode | 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. |
| ORP8211 electrode | 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. |

**Advice on general occupational hygiene**

| ORP8211 electrode | 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. |
| ORP8211 electrode | Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures. |

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

| ORP8211 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. |
| ORP8211 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. |

**Seveso Directive - Reporting thresholds (in tonnes)**

<table>
<thead>
<tr>
<th>Category</th>
<th>Notification and MAPP threshold</th>
<th>Safety report threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORP8211 electrode</td>
<td>E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1</td>
<td>100</td>
</tr>
<tr>
<td>ORP8211 electrode</td>
<td>C9i: Very toxic for the environment</td>
<td>100</td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1</td>
<td>100</td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>C9i: Very toxic for the environment</td>
<td>100</td>
</tr>
</tbody>
</table>

**7.3 Specific end use(s)**

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SECTION 7: Handling and storage

<table>
<thead>
<tr>
<th>Recommendations</th>
<th>ORP8211 electrode with refilling solution, Part Number 5190-3999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial sector specific solutions</td>
<td>ORP8211 electrode Not applicable. pH Reference solution Not applicable.</td>
</tr>
</tbody>
</table>

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

No exposure limit value known.

Recommended monitoring procedures

If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

No DNELs available.

PNECs

No PNECs available.

8.2 Exposure controls

Appropriate engineering controls

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Individual protection measures

Hygiene measures

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

Eye/face protection

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

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. 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.

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**SECTION 8: Exposure controls/personal protection**

**Respiratory protection**: Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

**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.

---

**SECTION 9: Physical and chemical properties**

9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>Liquid.</td>
<td>Liquid.</td>
</tr>
<tr>
<td>Colour</td>
<td>White.</td>
<td>White.</td>
</tr>
<tr>
<td>Odour</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>pH</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-25°C</td>
<td>0°C</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>110°C</td>
<td>100°C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Vapour density</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.1</td>
<td>1</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
<td>Easily soluble in the following materials: cold water and hot water.</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Viscosity</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>Not available.</td>
<td>Not available.</td>
</tr>
</tbody>
</table>

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Conforms to Regulation (EC) No. 1907/2006 (REACH), Annex II - Europe

211 ORP electrode with refilling solution, Part Number 5190-3999

SECTION 9: Physical and chemical properties

9.2 Other information
No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific test data related to reactivity available for this product or its ingredients.</td>
<td></td>
</tr>
</tbody>
</table>

10.2 Chemical stability

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>The product is stable.</td>
<td></td>
</tr>
</tbody>
</table>

10.3 Possibility of hazardous reactions

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under normal conditions of storage and use, hazardous reactions will not occur.</td>
<td></td>
</tr>
</tbody>
</table>

10.4 Conditions to avoid

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>No specific data.</td>
<td></td>
</tr>
</tbody>
</table>

10.5 Incompatible materials

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>May react or be incompatible with oxidising materials.</td>
<td></td>
</tr>
</tbody>
</table>

10.6 Hazardous decomposition products

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under normal conditions of storage and use, hazardous decomposition products should not be produced.</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**

- Not available.

**Acute toxicity estimates**

- Not available.

**Irritation/Corrosion**

- Conclusion/Summary: Not available.

**Sensitiser**

- Conclusion/Summary: Not available.

**Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity**

- Not available.

**Specific target organ toxicity (single exposure)**

- Not available.

**Specific target organ toxicity (repeated exposure)**

- Not available.

**Aspiration hazard**

- Not available.

**Information on the likely routes of exposure**

<table>
<thead>
<tr>
<th>ORP8211 electrode</th>
<th>pH Reference solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routes of entry anticipated: Oral, Dermal, Inhalation.</td>
<td></td>
</tr>
</tbody>
</table>

**Potential acute health effects**

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Inhalation:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Ingestion:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Skin contact:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Eye contact:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation:
- ORP8211 electrode: No specific data.
- pH Reference solution: No specific data.

Ingestion:
- ORP8211 electrode: No specific data.
- pH Reference solution: No specific data.

Skin contact:
- ORP8211 electrode: No specific data.
- pH Reference solution: No specific data.

Eye contact:
- ORP8211 electrode: No specific data.
- pH Reference solution: No specific data.

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

Short term exposure
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

Long term exposure
- Potential immediate effects: Not available.
- Potential delayed effects: Not available.

Potential chronic health effects

General:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Carcinogenicity:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Mutagenicity:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Teratogenicity:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Developmental effects:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Fertility effects:
- ORP8211 electrode: No known significant effects or critical hazards.
- pH Reference solution: No known significant effects or critical hazards.

Toxicokinetics

Absorption:
- ORP8211 electrode: Not available.
- pH Reference solution: Not available.

Distribution:
- ORP8211 electrode: Not available.
- pH Reference solution: Not available.

Metabolism:
- ORP8211 electrode: Not available.
- pH Reference solution: Not available.

Elimination:
- ORP8211 electrode: Not available.
- pH Reference solution: Not available.

Other information:
- Not available.
SECTION 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>ORP8211 electrode</td>
<td>Acute LC50 5.3 μg/l Fresh water</td>
<td>Fish - Lepidocephalichthys guntea</td>
<td>96 hours</td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>Acute LC50 5.3 μg/l Fresh water</td>
<td>Fish - Lepidocephalichthys guntea</td>
<td>96 hours</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

Conclusion/Summary: Not available.

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>ORP8211 electrode</td>
<td>-</td>
<td>70</td>
<td>low</td>
</tr>
<tr>
<td>pH Reference solution</td>
<td>-</td>
<td>70</td>
<td>low</td>
</tr>
</tbody>
</table>

12.4 Mobility in soil

Soil/water partition coefficient (<em>K<sub>OC</sub></em>): Not available.

Mobility: Not available.

12.5 Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

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

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Methods of disposal: 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.

Hazardous waste

Packaging

Methods of disposal: The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Special precautions: 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

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SECTION 14: Transport information

Regulatory information

ADR/RID / IMDG / IATA : Not regulated.

14.6 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.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorisation

Annex XIV

None of the components are listed.

Substances of very high concern

None of the components are listed.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

Not applicable.

Other EU regulations

Europe inventory : All components are listed or exempted.

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category

\text{ORP8211 electrode} 

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1
C9i: Very toxic for the environment

pH Reference solution 

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1
C9i: Very toxic for the environment

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 Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

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**SECTION 15: Regulatory information**

National inventory:
- **Australia**: All components are listed or exempted.
- **Canada**: All components are listed or exempted.
- **China**: All components are listed or exempted.
- **Japan**: All components are listed or exempted.
- **Malaysia**: Not determined.
- **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.
- **United States**: All components are listed or exempted.

15.2 Chemical Safety Assessment:

This product contains substances for which Chemical Safety Assessments might still be required.

**SECTION 16: Other information**

- **ORP electrode**
  - Aquatic Acute 1, H400
  - Aquatic Chronic 1, H410

- **pH Reference solution**
  - Aquatic Chronic 1, H410

Full text of abbreviated H statements:

- **ORP8211 electrode**
  - H400: Very toxic to aquatic life.
  - H410: Very toxic to aquatic life with long lasting effects.

- **pH Reference solution**
  - H400: Very toxic to aquatic life.
  - H410: Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS]:

- **ORP8211 electrode**
  - Aquatic Acute 1, H400: ACUTE AQUATIC HAZARD - Category 1
  - Aquatic Chronic 1, H410: LONG-TERM AQUATIC HAZARD - Category 1

- **pH Reference solution**
  - Aquatic Acute 1, H400: ACUTE AQUATIC HAZARD - Category 1
  - Aquatic Chronic 1, H410: LONG-TERM AQUATIC HAZARD - Category 1

Full text of abbreviated R phrases:

- **ORP8211 electrode**
  - pH Reference solution: R50- Very toxic to aquatic organisms.

Full text of classifications [DSD/DPD]:

- **ORP8211 electrode**
  - pH Reference solution: N - Dangerous for the environment

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**Date of previous issue**: 08/05/2012

**Version**: 1.11
Note *

* This component is considered an article. Information provided is based on the encapsulated substance or mixture in this article.

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