

# SAFETY DATA SHEET

P3211 pH combination electrode, Part Number 5190-3988

## Section 1. Identification

**Product identifier** : P3211 pH combination electrode, Part Number 5190-3988  
**Part no. (chemical kit)** : 5190-3988  
**Part no.** :  P3211 electrode P3211  
Reference solution 5190-0545-1

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

**Identified uses** :  Analytical chemistry.  
 P3211 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

P3211 electrode  
H319 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A  
H360 REPRODUCTIVE TOXICITY - Category 1  
H400 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1  
H410 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

**Reference solution**  
H320 SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B  
H360 REPRODUCTIVE TOXICITY - Category 1  
H400 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1  
H410 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1

### GHS label elements

**Hazard pictograms** :  P3211 electrode



Reference solution



## Section 2. Hazard(s) identification

<b>Signal word</b>	: *P3211 electrode Reference solution	DANGER DANGER
<b>Hazard statements</b>	: *P3211 electrode  Reference solution	H319 - Causes serious eye irritation. H360 - May damage fertility or the unborn child. H410 - Very toxic to aquatic life with long lasting effects. H320 - Causes eye irritation. H360 - May damage fertility or the unborn child. H410 - Very toxic to aquatic life with long lasting effects.
<b>Precautionary statements</b>		
<b>Prevention</b>	: *P3211 electrode  Reference solution	P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P273 - Avoid release to the environment. P201 - Obtain special instructions before use. P280 - Wear protective gloves, protective clothing and eye or face protection. P273 - Avoid release to the environment.
<b>Response</b>	: *P3211 electrode  Reference solution	P391 - Collect spillage. P308 + P313 - IF exposed or concerned: Get medical advice or attention. P391 - Collect spillage. P308 + P313 - IF exposed or concerned: Get medical advice or attention.
<b>Storage</b>	: *P3211 electrode Reference solution	Not applicable. Not applicable.
<b>Disposal</b>	: *P3211 electrode  Reference solution	P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations. P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
<b>Supplemental label elements</b>		
<b>Additional warning phrases</b>	: *P3211 electrode Reference solution	Not applicable. Not applicable.
<b>Other hazards which do not result in classification</b>	: *P3211 electrode Reference solution	None known. None known.

## Section 3. Composition and ingredient information

<b>Substance/mixture</b>	: *P3211 electrode Reference solution	Mixture (encapsulated in article) Mixture
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### CAS number/other identifiers

Ingredient name	% (w/w)	CAS number
*P3211 electrode		
Glycerol	≥10 - ≤30	56-81-5
Ethenediol	≤5	107-21-1
Silver chloride	≤3	7783-90-6
<b>Reference solution</b>		
Potassium chloride	≥10 - ≤30	7447-40-7

## Section 3. Composition and ingredient information

Silver chloride	≤1	7783-90-6
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There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

The total concentration of ingredients in this product, reported or not in this section, is 100%.

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

## Section 4. First aid measures

### Description of necessary first aid measures

<p><b>Eye contact</b></p> <p>: P3211 electrode</p> <p>Reference solution</p>	<p>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. 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.</p>
<p><b>Inhalation</b></p> <p>: P3211 electrode</p> <p>Reference solution</p>	<p>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 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. 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 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.</p>
<p><b>Skin contact</b></p> <p>: P3211 electrode</p> <p>Reference solution</p>	<p>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.</p> <p>Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.</p>
<p><b>Ingestion</b></p> <p>: P3211 electrode</p>	<p>Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious</p>

## Section 4. First aid measures

Reference solution

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.

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

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

#### Potential acute health effects

**Eye contact** : \*P3211 electrode  
Reference solution

**Inhalation** : \*P3211 electrode  
Reference solution

**Skin contact** : \*P3211 electrode  
Reference solution

**Ingestion** : \*P3211 electrode  
Reference solution

Causes serious eye irritation.  
Causes eye irritation.

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

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

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

#### Over-exposure signs/symptoms

**Eye contact** : \*P3211 electrode

Reference solution

**Inhalation** : \*P3211 electrode

Reference solution

**Skin contact** : \*P3211 electrode

Reference solution

Adverse symptoms may include the following:  
pain or irritation  
watering  
redness

Adverse symptoms may include the following:  
irritation  
watering  
redness

Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

Adverse symptoms may include the following:  
reduced foetal weight  
increase in foetal deaths  
skeletal malformations

## Section 4. First aid measures

<b>Ingestion</b>	: P3211 electrode	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	Reference solution	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
 <b><u>Indication of immediate medical attention and special treatment needed, if necessary</u></b>		
<b>Notes to physician</b>	: P3211 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.
<b>Specific treatments</b>	: P3211 electrode Reference solution	No specific treatment. No specific treatment.
<b>Protection of first-aiders</b>	: P3211 electrode	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.
	Reference solution	No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

## Section 5. Firefighting measures

### Extinguishing media

<b>Suitable extinguishing media</b>	: P3211 electrode Reference solution	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
<b>Unsuitable extinguishing media</b>	: P3211 electrode Reference solution	None known. None known.
<b>Specific hazards arising from the chemical</b>	: P3211 electrode 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. 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

<b>Hazardous thermal decomposition products</b>	: P3211 electrode	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
<b>Special protective actions for fire-fighters</b>	: P3211 electrode	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.
	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.
<b>Special protective equipment for fire-fighters</b>	: P3211 electrode	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
	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.
<b>Hazchem code</b>	: P3211 electrode	3Z
	Reference solution	•3Z

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

<b>For non-emergency personnel</b>	: P3211 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.
	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.
<b>For emergency responders</b>	: P3211 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".
	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** : P3211 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.

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.

### Methods and material for containment and cleaning up

**Methods for cleaning up** : P3211 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.

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.

## Section 7. Handling and storage

### Precautions for safe handling

**Protective measures** : P3211 electrode

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

Reference solution

Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. 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.

## Section 7. Handling and storage

### Advice on general occupational hygiene

: P3211 electrode

Reference solution

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.

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.

### Conditions for safe storage, including any incompatibilities

: P3211 electrode

Reference solution

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. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

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. Store locked up. 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. See Section 10 for incompatible materials before handling or use.

## Section 8. Exposure controls and personal protection

### Control parameters

### Occupational exposure limits

Ingredient name	Exposure limits
P3211 electrode Glycerol  Ethanediol     Silver chloride   <b>Reference solution</b> Silver chloride	<b>Safe Work Australia (Australia, 10/2022).</b> TWA: 10 mg/m <sup>3</sup> 8 hours. <b>Safe Work Australia (Australia, 10/2022).</b> <b>Absorbed through skin.</b> TWA: 10 mg/m <sup>3</sup> 8 hours. Form: Particulate STEL: 104 mg/m <sup>3</sup> 15 minutes. Form: Vapour TWA: 52 mg/m <sup>3</sup> 8 hours. Form: Vapour TWA: 20 ppm 8 hours. Form: Vapour STEL: 40 ppm 15 minutes. Form: Vapour <b>ACGIH TLV (United States).</b> TWA: 0.1 mg/m <sup>3</sup> , (Silver.) Form: Dust and fumes  <b>ACGIH TLV (United States).</b>



## Section 8. Exposure controls and personal protection

TWA: 0.1 mg/m<sup>3</sup>, (Silver.) Form: Dust and fumes

### Biological exposure indices

No exposure indices known.

- Appropriate engineering controls** : If user operations generate dust, fumes, gas, vapour or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.
- 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.
- 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 and safety characteristics

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

### Appearance

- Physical state** : \*P3211 electrode                      Liquid.  
Reference solution                      Liquid.
- Colour** : \*P3211 electrode                      Not available.  
Reference solution                      White.
- Odour** : \*P3211 electrode                      Not available.  
Reference solution                      Not available.

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

<b>Odour threshold</b>	: *P3211 electrode	Not available.
	Reference solution	Not available.
<b>pH</b>	: *P3211 electrode	6
	Reference solution	6
<b>Melting point/freezing point</b>	: *P3211 electrode	-25°C (-13°F)
	Reference solution	Not available.
<b>Boiling point, initial boiling point, and boiling range</b>	: *P3211 electrode	110°C (230°F)
	Reference solution	Not available.

<b>Flash point</b>	:	Closed cup			Open cup		
		°C	°F	Method	°C	°F	Method
	*P3211 electrode						
	Ethanediol	111	231.8	-	-	-	-
	Glycerol	-	-	-	177	350.6	-

<b>Evaporation rate</b>	: *P3211 electrode	Not available.
	Reference solution	Not available.
<b>Flammability</b>	: *P3211 electrode	Not applicable.
	Reference solution	Not applicable.
<b>Lower and upper explosion limit/flammability limit</b>	: *P3211 electrode	Not available.
	Reference solution	Not available.

<b>Vapour pressure</b>	:	Vapour Pressure at 20 °C			Vapour pressure at 50 °C		
		mm Hg	kPa	Method	mm Hg	kPa	Method
	*P3211 electrode						
	water	17.5	2.3	-	92.258	12.3	-
	Ethanediol	0.09226	0.012	-	-	-	-
	<b>Reference solution</b>						
	water	17.5	2.3	-	92.258	12.3	-

<b>Relative vapour density</b>	: *P3211 electrode	Not available.
	Reference solution	Not available.

<b>Relative density</b>	: *P3211 electrode	1.1
	Reference solution	1

<b>Solubility(ies)</b>	:	<b>Media</b>	<b>Result</b>
	*P3211 electrode		
	water		Soluble
	<b>Reference solution</b>		
	water		Soluble

<b>Partition coefficient: n-octanol/water</b>	: *P3211 electrode	Not applicable.
	Reference solution	Not applicable.

<b>Auto-ignition temperature</b>	:	<b>Ingredient name</b>	<b>°C</b>	<b>°F</b>	<b>Method</b>
	*P3211 electrode				
	Glycerol		370	698	-
	Ethanediol		398	748.4	-

<b>Decomposition temperature</b>	: *P3211 electrode	Not available.
	Reference solution	Not available.

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

**Viscosity** : \*P3211 electrode Reference solution Not available.  
Not available.

### Particle characteristics

**Median particle size** : \*P3211 electrode Reference solution Not applicable.  
Not applicable.

## Section 10. Stability and reactivity

**Reactivity** : \*P3211 electrode Reference solution No specific test data related to reactivity available for this product or its ingredients.  
No specific test data related to reactivity available for this product or its ingredients.

**Chemical stability** : \*P3211 electrode Reference solution The product is stable.  
The product is stable.

**Possibility of hazardous reactions** : \*P3211 electrode Reference solution Under normal conditions of storage and use, hazardous reactions will not occur.  
Under normal conditions of storage and use, hazardous reactions will not occur.

**Conditions to avoid** : \*P3211 electrode Reference solution No specific data.  
No specific data.

**Incompatible materials** : \*P3211 electrode Reference solution May react or be incompatible with oxidising materials.  
May react or be incompatible with oxidising materials.

**Hazardous decomposition products** : \*P3211 electrode Reference solution Under normal conditions of storage and use, hazardous decomposition products should not be produced.  
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## Section 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
<b>*P3211 electrode</b>				
Glycerol	LD50 Oral	Rat	12600 mg/kg	-
Ethanediol	LD50 Oral	Rat	4700 mg/kg	-
Silver chloride	LD50 Oral	Rat	>5000 mg/kg	-
<b>Reference solution</b>				
Potassium chloride	LD50 Oral	Rat	2600 mg/kg	-
Silver chloride	LD50 Oral	Rat	>5000 mg/kg	-

#### Irritation/Corrosion

## Section 11. Toxicological information

Product/ingredient name	Result	Species	Score	Exposure	Observation
*P3211 electrode Glycerol	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Skin - Mild irritant	Rabbit	-	24 hours 500 mg	-
Ethanediol	Eyes - Mild irritant	Rabbit	-	1 hours 100 mg	-
	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-
	Eyes - Moderate irritant	Rabbit	-	6 hours 1440 mg	-
	Skin - Mild irritant	Rabbit	-	555 mg	-
<b>Reference solution</b> Potassium chloride	Eyes - Mild irritant	Rabbit	-	24 hours 500 mg	-

### Sensitisation

Not available.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

### Teratogenicity

**Conclusion/Summary** : Not available.

### Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
* P3211 electrode Ethanediol	Category 3	-	Respiratory tract irritation

### Specific target organ toxicity (repeated exposure)

Not available.

### Aspiration hazard

Not available.

**Information on likely routes of exposure** : \*P3211 electrode  
Reference solution

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

Routes of entry anticipated: Oral, Dermal, Inhalation, Eyes.

### Potential acute health effects

**Eye contact** : \*P3211 electrode  
Reference solution

Causes serious eye irritation.

Causes eye irritation.

**Inhalation** : \*P3211 electrode  
Reference solution

No known significant effects or critical hazards.

No known significant effects or critical hazards.

**Skin contact** : \*P3211 electrode  
Reference solution

No known significant effects or critical hazards.

No known significant effects or critical hazards.

**Ingestion** : \*P3211 electrode  
Reference solution

No known significant effects or critical hazards.

No known significant effects or critical hazards.

## Section 11. Toxicological information

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

<b>Eye contact</b>	: *P3211 electrode	Adverse symptoms may include the following: pain or irritation watering redness
	Reference solution	Adverse symptoms may include the following: irritation watering redness
<b>Inhalation</b>	: *P3211 electrode	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	Reference solution	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
<b>Skin contact</b>	: *P3211 electrode	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	Reference solution	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
<b>Ingestion</b>	: *P3211 electrode	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations
	Reference solution	Adverse symptoms may include the following: reduced foetal weight increase in foetal deaths skeletal malformations

### 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

<b>General</b>	: *P3211 electrode Reference solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: *P3211 electrode Reference solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Mutagenicity</b>	: *P3211 electrode Reference solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
<b>Reproductive toxicity</b>	: *P3211 electrode Reference solution	May damage fertility or the unborn child. May damage fertility or the unborn child.

### Numerical measures of toxicity

#### Acute toxicity estimates

## Section 11. Toxicological information

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapours) (mg/l)	Inhalation (dusts and mists) (mg/l)
<b>*P3211 electrode</b> * P3211 electrode Glycerol Ethanediol	16666.7 12600 500	N/A N/A 9500	N/A N/A N/A	N/A N/A N/A	N/A N/A N/A
<b>Reference solution</b> Potassium chloride	2600	N/A	N/A	N/A	N/A

## Section 12. Ecological information

### Toxicity

Product/ingredient name	Result	Species	Exposure
<b>*P3211 electrode</b> Glycerol Ethanediol	Acute LC50 54000 mg/l Fresh water Acute LC50 6900000 µg/l Fresh water	Fish - <i>Oncorhynchus mykiss</i> Crustaceans - <i>Ceriodaphnia dubia</i> - Neonate	96 hours 48 hours
	Acute LC50 41000 mg/l Fresh water	Daphnia - <i>Daphnia magna</i> - Neonate	48 hours
Silver chloride	Acute LC50 8050000 µg/l Fresh water Acute EC50 0.00022 mg/l Fresh water Acute LC50 5.3 µg/l Fresh water	Fish - <i>Pimephales promelas</i> Daphnia - <i>Daphnia magna</i> Fish - <i>Lepidocephalichthys guntea</i>	96 hours 48 hours 96 hours
<b>Reference solution</b> Potassium chloride	Acute EC50 9.24 g/L Fresh water	Algae - <i>Desmodesmus subspicatus</i>	72 hours
	Acute EC50 1337000 µg/l Fresh water Acute LC50 9.68 mg/l Fresh water	Algae - <i>Navicula seminulum</i> Crustaceans - <i>Pseudosida ramosa</i> - Neonate	96 hours 48 hours
Silver chloride	Acute LC50 93000 µg/l Fresh water Acute LC50 509.65 mg/l Fresh water Acute EC50 0.00022 mg/l Fresh water Acute LC50 5.3 µg/l Fresh water	Daphnia - <i>Daphnia magna</i> Fish - <i>Danio rerio</i> Daphnia - <i>Daphnia magna</i> Fish - <i>Lepidocephalichthys guntea</i>	48 hours 96 hours 48 hours 96 hours

### Persistence and degradability

Product/ingredient name	Test	Result	Dose	Inoculum
<b>*P3211 electrode</b> Glycerol	301D Ready Biodegradability - Closed Bottle Test	93 % - 30 days	-	-
Ethanediol	OECD 301A Ready Biodegradability - DOC Die-Away Test	90 to 100 % - Readily - 10 days	-	-

## Section 12. Ecological information

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
<b>P3211 electrode</b> Ethanediol	-	-	Readily
<b>Reference solution</b> Potassium chloride	-	-	Readily

### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
<b>P3211 electrode</b> Glycerol	-1.76	-	Low
Ethanediol	-1.36	-	Low
Silver chloride	-	70	Low
<b>Reference solution</b> Potassium chloride	-0.46	-	Low
Silver chloride	-	70	Low

### Mobility in soil







**Soil/water partition coefficient (K<sub>oc</sub>)** : Not available.

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

## Section 13. Disposal considerations

**Disposal methods** : The generation of waste should be avoided or 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 spilt material and runoff and contact with soil, waterways, drains and sewers.

## Section 14. Transport information

	ADG	IMDG	IATA
<b>UN number</b>	UN3082	UN3082	UN3082
<b>UN proper shipping name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver chloride)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver chloride)	Environmentally hazardous substance, liquid, n.o.s. (Silver chloride)
<b>Transport hazard class(es)</b>	9  	9  	9  
<b>Packing group</b>	III	III	III
<b>Environmental hazards</b>	Yes.	Yes.	Yes.

## Section 14. Transport information

### Additional information

- ADG** : The product is not regulated as a dangerous good when transported by road or rail in either an IBC, or in other container types if ≤500 kg. This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.  
**Hazchem code** •3Z  
**Special provisions** 274, 331, 335, 375, AU01
- IMDG** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8.  
**Emergency schedules** F-A, S-F  
**Special provisions** 274, 335, 969
- IATA** : This product is not regulated as a dangerous good when transported in sizes of ≤5 L or ≤5 kg, provided the packagings meet the general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.  
**Quantity limitation** Passenger and Cargo Aircraft: 450 L. Packaging instructions: 964. Cargo Aircraft Only: 450 L. Packaging instructions: 964. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y964.  
**Special provisions** A97, A158, A197, A215
- Special precautions for user** : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

**Transport in bulk according to IMO instruments** : Not available.

## Section 15. Regulatory information

### Standard for the Uniform Scheduling of Medicines and Poisons

5

### Model Work Health and Safety Regulations - Scheduled Substances

No listed substance

### International regulations

#### Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

#### Montreal Protocol

Not listed.

#### Stockholm Convention on Persistent Organic Pollutants

Not listed.

#### Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

#### UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

### Inventory list

**Australia** : All components are listed or exempted.

**New Zealand** : All components are listed or exempted.

**United States** : All components are active or exempted.



## Section 16. Any other relevant information

### History

**Date of issue/Date of revision** : 12/04/2024

**Date of previous issue** : 09/07/2020

**Version** : 6

### Key to abbreviations

ADG = Australian Dangerous Goods  
 ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road  
 ATE = Acute Toxicity Estimate  
 BCF = Bioconcentration Factor  
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals  
 IATA = International Air Transport Association  
 IBC = Intermediate Bulk Container  
 IMDG = International Maritime Dangerous Goods  
 LogPow = logarithm of the octanol/water partition coefficient  
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)  
 N/A = Not available  
 SUSMP = Standard Uniform Schedule of Medicine and Poisons  
 UN = United Nations

### Procedure used to derive the classification

Classification	Justification
<b>*P3211 electrode</b> SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2A REPRODUCTIVE TOXICITY - Category 1 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1	Calculation method Calculation method Calculation method Calculation method
<b>Reference solution</b> SERIOUS EYE DAMAGE/EYE IRRITATION - Category 2B REPRODUCTIVE TOXICITY - Category 1 SHORT-TERM (ACUTE) AQUATIC HAZARD - Category 1 LONG-TERM (CHRONIC) AQUATIC HAZARD - Category 1	Calculation method Calculation method Calculation method Calculation method

 Indicates information that has changed from previously issued version.

### Notice to reader

**Disclaimer:** The information contained in this document is based on Agilent's state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.

### 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.