

SAFETY DATA SHEET



P3213 pH combination electrode, Part Number 5190-3992

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

1.1 Product identifier

Product name : P3213 pH combination electrode, Part Number 5190-3992
Part No. (Kit) : 5190-3992
Part No. : * pH combination electrode P3213
Reference solution 5190-0545-1

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

Identified uses	
Analytical chemistry. * pH combination electrode Reference solution	Electrodes. (1 x 7 ml) 1 x 30 ml

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 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: Hazards identification

2.1 Classification of the substance or mixture

Product definition : * pH combination electrode Mixture (encapsulated in article)
Reference solution Mixture

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

* pH combination 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

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

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

Date of issue/Date of revision : 26/07/2016

SECTION 2: Hazards identification

2.2 Label elements

Hazard pictograms :



Signal word : * pH combination electrode Warning

Reference solution Warning

Hazard statements : * pH combination electrode **GHS09 -**

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

GHS09 -

Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention : * pH combination electrode P273 - Avoid release to the environment.

Reference solution P273 - Avoid release to the environment.

Response : * pH combination electrode P391 - Collect spillage.

Reference solution P391 - Collect spillage.

Storage : * pH combination electrode Not applicable.

Reference solution Not applicable.

Disposal : * pH combination 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.

Hazardous ingredients : No hazardous ingredient

Supplemental label elements : * pH combination electrode Not applicable.

Reference solution Not applicable.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : * pH combination electrode Not applicable.

Reference solution Not applicable.

Special packaging requirements

Tactile warning of danger : * pH combination electrode Not applicable.

Reference solution Not applicable.

2.3 Other hazards

Other hazards which do not result in classification : * pH combination electrode None known.

Reference solution None known.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : * pH combination electrode Mixture (encapsulated in article)
Reference solution Mixture

SECTION 3: Composition/information on ingredients

Product/ingredient name	Identifiers	%	Classification	Type
* pH combination electrode				
Glycerol	EC: 200-289-5 CAS: 56-81-5	≥10 - ≤25	Not classified.	[2]
Ethanediol	EC: 203-473-3 CAS: 107-21-1 Index: 603-027-00-1	≤5	Acute Tox. 4, H302	[1] [2]
Silver chloride	EC: 232-033-3 CAS: 7783-90-6	≤3	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)	[1] [2]
Reference solution				
Silver chloride	EC: 232-033-3 CAS: 7783-90-6	≤1	Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100) See Section 16 for the full text of the H statements declared above.	[1] [2]

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

[3] Substance meets the criteria for PBT according to Regulation (EC) No. 1907/2006, Annex XIII

[4] Substance meets the criteria for vPvB according to Regulation (EC) No. 1907/2006, Annex XIII

[5] Substance of equivalent concern

SECTION 4: First aid measures**4.1 Description of first aid measures**

Eye contact	: * pH combination 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	: * pH combination 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.
	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.

SECTION 4: First aid measures

Skin contact	: * pH combination electrode	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
	Reference solution	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	: * pH combination electrode	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.
	Reference solution	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.
Protection of first-aiders	: * pH combination 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.

4.2 Most important symptoms and effects, both acute and delayed

Potential acute health effects

Eye contact	: * pH combination electrode	No known significant effects or critical hazards.
	Reference solution	No known significant effects or critical hazards.
Inhalation	: * pH combination electrode	No known significant effects or critical hazards.
	Reference solution	No known significant effects or critical hazards.
Skin contact	: * pH combination electrode	No known significant effects or critical hazards.
	Reference solution	No known significant effects or critical hazards.
Ingestion	: * pH combination electrode	No known significant effects or critical hazards.
	Reference solution	No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact	: * pH combination electrode	No specific data.
	Reference solution	No specific data.

SECTION 4: First aid measures

Inhalation	: * pH combination electrode Reference solution	No specific data. No specific data.
Skin contact	: * pH combination electrode Reference solution	No specific data. No specific data.
Ingestion	: * pH combination electrode Reference solution	No specific data. No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician	: * pH combination electrode Reference solution	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	: * pH combination electrode Reference solution	No specific treatment. No specific treatment.

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media	: * pH combination electrode Reference solution	Use an extinguishing agent suitable for the surrounding fire. Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	: * pH combination electrode Reference solution	None known. None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture	: * pH combination 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.
Hazardous combustion products	: * pH combination electrode Reference solution	Decomposition products may include the following materials: carbon dioxide carbon monoxide phosphorus oxides halogenated compounds metal oxide/oxides Decomposition products may include the following materials: halogenated compounds metal oxide/oxides

5.3 Advice for firefighters

Special precautions for fire-fighters	: * pH combination electrode 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. 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.
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SECTION 5: Firefighting measures

Special protective equipment for fire-fighters	: * pH combination electrode	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.
	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. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	: * pH combination 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 spilled 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 spilled 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	: * pH combination 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".

6.2 Environmental precautions

: * pH combination electrode	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.
Reference solution	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). 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	: * pH combination 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 6: Accidental release measures

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

Protective measures : * pH combination 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.

Reference solution
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 : * pH combination 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.

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.

7.2 Conditions for safe storage, including any incompatibilities : * pH combination 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
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.

Danger criteria

SECTION 7: Handling and storage

Category	Notification and MAPP threshold	Safety report threshold
* pH combination electrode E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1 Reference solution E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1	100	200

7.3 Specific end use(s)

Recommendations	: * pH combination electrode	Industrial applications, Professional applications.
	Reference solution	Industrial applications, Professional applications.
Industrial sector specific solutions	: * pH combination electrode	Not applicable.
	Reference solution	Not applicable.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
* pH combination electrode Glycerol Ethanediol Silver chloride Reference solution Silver chloride	EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 10 mg/m ³ 8 hours. Form: Mist EH40/2005 WELs (United Kingdom (UK), 12/2011). Absorbed through skin. TWA: 10 mg/m ³ 8 hours. Form: Particulate STEL: 104 mg/m ³ 15 minutes. Form: Vapour TWA: 52 mg/m ³ 8 hours. Form: Vapour STEL: 40 ppm 15 minutes. Form: Vapour TWA: 20 ppm 8 hours. Form: Vapour EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 0.01 mg/m ³ , (as Ag) 8 hours. EH40/2005 WELs (United Kingdom (UK), 12/2011). TWA: 0.01 mg/m ³ , (as Ag) 8 hours.

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/DMELs available.

PNECs

No PNECs available

SECTION 8: Exposure controls/personal protection

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.

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.

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

Appearance

Physical state	: * pH combination electrode Reference solution	Liquid. Liquid.
Colour	: * pH combination electrode Reference solution	Not available. White.
Odour	: * pH combination electrode Reference solution	Not available. Not available.
Odour threshold	: * pH combination electrode Reference solution	Not available. Not available.
pH	: * pH combination electrode Reference solution	6 6
Melting point/freezing point	: * pH combination electrode Reference solution	-25°C 0°C

SECTION 9: Physical and chemical properties

Initial boiling point and boiling range	: * pH combination electrode	110°C
	Reference solution	100°C
Flash point	: * pH combination electrode	Not available.
	Reference solution	Not available.
Evaporation rate	: * pH combination electrode	Not available.
	Reference solution	Not available.
Flammability (solid, gas)	: * pH combination electrode	Not applicable.
	Reference solution	Not applicable.
Upper/lower flammability or explosive limits	: * pH combination electrode	Not available.
	Reference solution	Not available.
Vapour pressure	: * pH combination electrode	Not available.
	Reference solution	Not available.
Vapour density	: * pH combination electrode	Not available.
	Reference solution	Not available.
Relative density	: * pH combination electrode	1.1
	Reference solution	1
Solubility(ies)	: * pH combination electrode	Soluble in the following materials: cold water and hot water.
	Reference solution	Easily soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water	: * pH combination electrode	Not available.
	Reference solution	Not available.
Auto-ignition temperature	: * pH combination electrode	Not available.
	Reference solution	Not available.
Decomposition temperature	: * pH combination electrode	Not available.
	Reference solution	Not available.
Viscosity	: * pH combination electrode	Not available.
	Reference solution	Not available.
Explosive properties	: * pH combination electrode	Not available.
	Reference solution	Not available.
Oxidising properties	: * pH combination electrode	Not available.
	Reference solution	Not available.

9.2 Other information

No additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity	: * pH combination electrode	No specific test data related to reactivity available for this product or its ingredients.
	Reference solution	No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability	: * pH combination electrode	The product is stable.
	Reference solution	The product is stable.

SECTION 10: Stability and reactivity

10.3 Possibility of hazardous reactions	: * pH combination 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.
10.4 Conditions to avoid	: * pH combination electrode Reference solution	No specific data. No specific data.
10.5 Incompatible materials	: * pH combination electrode Reference solution	May react or be incompatible with oxidising materials. May react or be incompatible with oxidising materials.
10.6 Hazardous decomposition products	: * pH combination 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**11.1 Information on toxicological effects**Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
* pH combination electrode				
Ethanediol	LD50 Oral	Rat	4700 mg/kg	-
Silver chloride	LD50 Oral	Rat	>5000 mg/kg	-
Reference solution				
Silver chloride	LD50 Oral	Rat	>5000 mg/kg	-

Acute toxicity estimates

Route	ATE value
* pH combination electrode Oral	16666.7 mg/kg

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
* pH combination electrode					
Ethanediol	Eyes - Mild irritant	Rabbit	-	24 hours 500 milligrams	-
	Eyes - Mild irritant	Rabbit	-	1 hours 100 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	6 hours 1440 milligrams	-
	Skin - Mild irritant	Rabbit	-	555 milligrams	-

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.

SECTION 11: Toxicological information

Information on likely routes of exposure : * pH combination electrode Routes of entry anticipated: Oral, Dermal, Inhalation.
Reference solution Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

Inhalation : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Ingestion : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Skin contact : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Eye contact : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Inhalation : * pH combination electrode No specific data.
Reference solution No specific data.

Ingestion : * pH combination electrode No specific data.
Reference solution No specific data.

Skin contact : * pH combination electrode No specific data.
Reference solution No specific data.

Eye contact : * pH combination 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

General : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Carcinogenicity : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Mutagenicity : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Teratogenicity : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

Developmental effects : * pH combination electrode No known significant effects or critical hazards.
Reference solution No known significant effects or critical hazards.

SECTION 11: Toxicological information

Fertility effects	:	* pH combination electrode Reference solution	No known significant effects or critical hazards. No known significant effects or critical hazards.
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SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result	Species	Exposure
* pH combination electrode Ethanediol	Acute LC50 10000000 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 41000000 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
Silver chloride	Acute LC50 8050000 µg/l Fresh water Acute LC50 5.3 µg/l Fresh water	Fish - Pimephales promelas Fish - Lepidocephalichthys guntea	96 hours 96 hours
Reference solution Silver chloride	Acute LC50 5.3 µg/l Fresh water	Fish - Lepidocephalichthys guntea	96 hours

12.2 Persistence and degradability

Not available.

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
* pH combination electrode Ethanediol	-	-	Readily

12.3 Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
* pH combination electrode Ethanediol	-1.36	-	low
Silver chloride	-	70	low
Reference solution Silver chloride	-	70	low

12.4 Mobility in soil

Soil/water partition coefficient (K_{oc}) : 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 : The classification of the product may meet the criteria for a 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.

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 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	: * pH combination electrode	Not applicable.
	Reference solution	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

SECTION 15: Regulatory information**Category***** pH combination electrode**

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

Reference solution

E1: Hazardous to the aquatic environment - Acute 1 or Chronic 1

National regulations**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**National inventory**

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: 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.

15.2 Chemical safety assessment : This product contains substances for which Chemical Safety Assessments might still be required.

SECTION 16: Other information

📄 Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ATE = Acute Toxicity Estimate
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
PNEC = Predicted No Effect Concentration
RRN = REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

SECTION 16: Other information

Classification	Justification
* pH combination electrode Aquatic Acute 1, H400 Aquatic Chronic 1, H410 Reference solution Aquatic Acute 1, H400 Aquatic Chronic 1, H410	Calculation method Calculation method Calculation method Calculation method

Full text of abbreviated H statements : *** pH combination electrode**
 H302 Harmful if swallowed.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

Reference solution
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.

Full text of classifications [CLP/GHS] : *** pH combination electrode**
 Acute Tox. 4, H302 ACUTE TOXICITY (oral) - Category 4
 Aquatic Acute 1, H400 ACUTE AQUATIC HAZARD - Category 1
 Aquatic Chronic 1, H410 LONG-TERM AQUATIC HAZARD - Category 1

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

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Version : 1

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.

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