



# MATERIAL SAFETY DATA SHEET

FOR INDUSTRIAL USE ONLY

## 1. Chemical Product and Company Identification

Description: KCl/AgCl EpH Gel  
Product Code: none  
Product Type: Aqueous salt solution  
Application: pH Electrodes

### Manufacturer/Supplier Information

MSDS prepared by:  
Innovative Sensors, Inc.  
4745 E. Bryson Street  
Anaheim, California 92807

For additional health, safety or regulatory information, call (714) 779-8781

## 2. Composition, Information on Ingredients

No exposure limits have been established for the filling solution as a whole. It is presumed to present the same health hazards as do the following components in the liquid mixture. The actual mixture, including exact weight percent information is considered a trade secret.

### 2.1 Chemical Content

<i>Chemical</i>	<i>CAS No.</i>	<i>% w/v</i>
Potassium chloride	7447-40-7	Less than 30%
Glycerol	56-81-5	Less than 35% (v/v)
Water	7732-18-5	Balance

The chemicals listed below have been associated with one or more immediate and/or delayed health hazards. Risk of damage and effects is dependent upon duration and level of exposure. *Read and understand this MSDS before using or handling.*

Silver chloride	7783-90-6	Less than 0.1%
Acrylamide	79-06-1	Less than 0.5%
N,N'-Methylenebisacrylamide	110-26-9	Less than 0.5%

## 3. Hazards Identification

### 3.1 General

Appearance: Gelatinous, opaque, grey, odorless liquid. No toxicity hazards known to ISI.

### 3.2 Immediate Potential Health Effects

Applicable: All under §2.1  
Ingestion: No hazards known to ISI.  
Inhalation: Not expected under normal conditions of use. If allowed to become airborne due to high temperature vaporization or misting, may cause irritation of nose, throat and lungs.  
Skin: May cause irritation on prolonged or repeated contact.  
Eyes: May cause irritation on prolonged or repeated contact.

### 3.3 Delayed Health Hazards

Silver chloride - *Human toxicity*: Does not cause serious toxic manifestations, but prolonged absorption of silver compounds can lead to grayish blue discoloration of skin. May cause irritation to skin and mucous membrane.

Acrylamide - *Human toxicity*: Poison by ingestion, skin contact and intraperitoneal routes. May cause skin and eye irritation. Human mutagenic data.

N,N'-Methylenebisacrylamide - *Human toxicity*: None published.

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## 4. First Aid Measures

Ingestion: If accidentally swallowed, dilute by drinking large quantities of water. Contact poison control center or hospital emergency room for any other additional treatment directions.  
Inhalation: Move to area of fresh air.  
Skin: In case of irritation, flush with large quantities of water. Contact physician for additional treatment directions.  
Eyes: Immediately flush eyes with large quantities of water. Contact physician if irritation persists.

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## 5. Fire Fighting Procedures

Not applicable. Compound cannot be ignited, will not burn.

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## 6. Accidental Release Procedures

Soak up and remove to chemical disposal area that drains to sewage/water treatment facility. Prevent entry to natural bodies of water.

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## 7. Handling and Storage

### 7.1 Handling

Handle in accordance with good industrial hygiene and safety practices. Avoid unnecessary exposure, remove material from eyes, skin and clothing. Wash hands thoroughly after handling. Avoid prolonged contact with skin and eyes.

## 7.2 Storage

Keep container closed. Store in a cool, dry place away from direct sunlight.  
Recommended temperature: Below 77°F (25°C).

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## 8. Exposure Controls & Personnel Protection

### 8.1 Exposure Controls

If solution is accidentally over-heated or misted to induce vaporization, sufficient ventilation in volume and air flow patterns should be provided to reduce air contaminant levels of hazardous components.

### 8.2 Personnel Protection

Respirators are not needed when using this material under normal, ambient conditions. Impervious gloves should be worn as required to prevent skin contact. Eye goggles should be worn as required to prevent eye contact.

### 8.3 Exposure Guidelines

*Potassium chloride* ~ NIOSH: none, OSHA PEL: Not established, ACGIH TLV: Not established  
*Glycerol* ~ NIOSH: MA 8050000, ACGIH TLV: 10 mg/m<sup>3</sup> TWA, OSHA PEL: 5 mg/m<sup>3</sup> TWA, respirable particulates, 10 mg/m<sup>3</sup> TWA total dust  
*Silver chloride* ~ NIOSH: VW 3563000, OSHA PEL/ACGIH TLV: not established  
*Acrylamide* ~ NIOSH: AS 3325000, OSHA PEL: 300 ug/m<sup>3</sup> TWA (skin)  
*N,N'-Methylenebisacrylamide* ~ NIOSH: none, OSHA PEL: Not established, ACGIH TLV: Not established

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## 9. Physical and Chemical Properties

Appearance:	Gelatinous, opaque, grey, odorless liquid.
Specific gravity:	1.16
Freezing point:	0°C
Solubility in water:	Miscible
Vapor pressure, mmHg at 50°C:	Not established
Evaporation rate (butyl acetate = 1):	Not established
Boiling point, 760 mmHg:	Not established

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## 10. Stability and Reactivity

### 10.1 Stability

Stable under normal, ambient conditions.

### 10.2 Reactivity

In common with most inorganic salt solutions, this product should be treated as a corrosive compound under prolonged contact with untreated metallic surfaces.

### 10.3 Decomposition Products:

Total evaporation of compound and ignition of solid residues may produce hazardous fumes and decomposition products containing unknown potassium complexes and chlorine gas.

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### 11. Toxicological Information

Ingestion: None established.  
Inhalation: None established.  
Skin absorption: None established.  
Skin: None established.  
Eyes: None established

No known human toxicological data established for the solution as a whole.

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### 12. Ecological Information

No data for ecotoxicity has been established or found. Effects are expected to be minimal.

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### 13. Disposal Considerations

Dispose of according to local, state/provincial and federal requirements.

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### 14. Transportation Information

#### 14.1 U.S. Department of Transportation (DOT)

Not regulated.

#### 14.2 International Transportation of Dangerous Goods (IDG)

Not determined.

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### 15. Regulatory Information (Selected)

#### 15.1 OSHA Hazard Communication Standard 29CFR1910.1200

This material presents possible health hazards as defined by these standards.

#### 15.2 SARA Title III:313 and 40CFR372

Product does not contain any toxic chemical subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986, and Subpart C - Supplier Notification Requirement of 40CFR372.

### 15.3 TSCA Section 8(b) Inventory

ISI relies on the MSDS and certifications of compliance from our suppliers for chemical substances not manufactured by ISI.

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### 16. Other

#### 16.1 User's Responsibility

The OSHA Hazard Communication standard 29CFR1910.1200 requires that the information contained on these sheets be made available to your workers. Instruct your workers to handle this product properly.

#### 16.2 Disclaimer

This Material Safety Data Sheet conforms to the OSHA Hazard Communication standard 29CFR1910.1200. The above information pertains to this product as currently formulated and is based on the information available at this time. The information contained should be used for health and safety training and not for specification purposes. Modifications to this product may substantially alter the composition and hazards of this product. Since conditions of use are outside ISI's control, ISI makes no warranties, express or implied, and assumes no liability in connection with any use of this information.

#### 16.3 Revision

Date of latest revision:	07/31/97
Responsibility for MSDS:	L. M. Morita

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