


**Analytical Sensors & Instruments Ltd.**

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**MATERIAL SAFETY DATA SHEET**
**Section I. PRODUCT IDENTIFICATION**

<b>Product Name:</b> Ammonia Electrode Fill Solution	<b>Catalog No.</b> RFNH31-xx	<b>Effective Date</b> 02 May, 2008
<b>Hazardous Shipment Labeling:</b> DOT: None		<b>IATA:</b> None
<b>Prepared by:</b> George C. Barone III, Ph.D.	<b>Title:</b> Senior Research Chemist	
<b>Approved by:</b> George C. Barone III, Ph.D.	<b>Title:</b> Director Regulatory Compliance	

**Section II. HAZARDOUS INGREDIENTS/Identity Information**

Hazardous Components* Specific Chemical Identity; Common Name(s)	CAS No.	%	OSHA PEL	ACGIH TLV	LD <sub>50</sub> mg/Kg
Ammonium Chloride (NH <sub>4</sub> Cl)	12125-02-9	<2	None Listed	10 mg/m <sup>3</sup> (TWA); 20 mg/m <sup>3</sup> (STEL) Fume	1650 (ORL-RAT)
Non-hazardous Component**	NA	<1	None Listed	None Listed	NA
Deionized Water (H <sub>2</sub> O)**	7732-18-5	>89	None Listed	None Listed	190,000 (IPR-MUS)

**Section III. PHYSICAL/CHEMICAL DATA AND CHARACTERISTICS**

<b>Boiling Point at 760 mmHg</b>	NA	<b>Freezing Point</b>	NA
<b>Specific Gravity (H<sub>2</sub>O = 1)</b>	NA	<b>Vapor Pressure at 25°C</b>	NA
<b>pH at 25°C</b>	5.0 to 8.0	<b>Solubility in water, % by wt</b>	Miscible
<b>Volatiles, % by wt</b>	NA	<b>Evaporation Rate (B A = 1)</b>	NA
<b>Vapor Density (AIR = 1):</b> NA			
<b>Appearance and Odor:</b> Clear, colorless, and odorless liquid			

**Section IV. FIRE AND EXPLOSION HAZARD DATA**

<b>Flash Point (Method Used):</b> NA	<b>Auto-ignition Temperature:</b> NA	<b>Flammable Limits</b> In air, % by volume:	<b>Lower</b> NA	<b>Upper</b> NA
<b>Extinguishing Media:</b> Dry chemical, water, foam, or CO <sub>2</sub> Use media appropriate to surrounding fire conditions				
<b>Special Fire Fighting Procedures:</b> NONE, this solution is non-flammable. As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear. This material may dissociate into ammonia and hydrogen chloride at fire temperatures.				
<b>Unusual Fire and Explosion Hazards:</b> NONE. This product will not burn or explode.				

\*Chemicals that are not classified as hazardous by U.S. OSHA guidelines (29 CFR Parts 1915.2 or 1916.2) will not necessarily be listed herein even though one or more may be in this product.

\*\* Non-hazardous component

NA = Not available/Not applicable



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## Section V. REACTIVITY DATA

<b>Stability:</b> Unstable      Stable X <b>Conditions to Avoid:</b> Extreme Temperatures
<b>Incompatibility (Materials to Avoid):</b> Water incompatibles, Bromine Trifluoride, Magnesium, sodium metals, or strong mineral acids and bases
<b>Hazardous Decomposition or Byproducts:</b> This material may dissociate into ammonia and hydrogen chloride at fire temperatures.
<b>Hazardous Polymerization:</b> May Occur      Will Not Occur X
<b>Conditions to Avoid:</b> Extreme Temperatures and incompatibles

## Section VI. HEALTH HAZARD DATA

<b>Route(s) of Entry:</b> <b>Inhalation?</b> YES <b>Skin?</b> YES <b>Ingestion?</b> YES
<b>Health Hazards (Acute and Chronic):</b> Causes irritation on skin including redness, itching, and pain. Cause eye irritation, pain, and redness. Causes respiratory tract irritation including coughing and shortness of breath. Causes gastrointestinal irritation including nausea, vomiting, and diarrhea.
<b>Carcinogenicity:</b> <b>NTP?</b> <b>IARC Monographs?</b> <b>OSHA Regulated?</b> Not found on these lists
<b>Signs and Symptoms of Exposure:</b> Causes irritations to eyes, skin, mucous membranes, respiratory system, or digestive tract. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
<b>Medical Conditions Generally Aggravated by Exposure:</b> Causes eye irritation and may be harmful or cause irritation if swallowed, inhaled, or allowed to come in contact with the skin.
<b>Emergency and First Aid Procedures:</b> <b>Eye Contact:</b> Immediately flush eyes with copious amounts of water, separate eyelid from eye. Call physician if irritation develops. <b>Skin Contact:</b> Wash effected area with soap and copious amounts of water. Call physician if irritation develops. Clean contaminated clothing before reuse. <b>Ingestion:</b> Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical attention. <b>Inhalation:</b> Remove to fresh air, if not breathing give artificial respiration, if breathing is difficult give oxygen. Call physician.

## Section VII. PRECAUTIONS FOR SAFE HANDLING AND USE

<b>Steps to Be Taken in Case Material is Released or Spilled:</b> Clean up then dispose of properly according to local laws. Observe all Federal, State and Local laws when disposing of this product.
<b>Waste Disposal Method:</b> Observe all Federal, State and Local laws when disposing of this product.
<b>Precautions to Be taken in Handling and Storing:</b> Avoid contact with eyes. Wash hands thoroughly after use. NFPA Rating: Scale (0-4): Health – 1, Fire – 0, Reactivity – 0, Specific – None.
<b>Other Precautions:</b> Ammonium chloride is on the TSCA list and on the SARA 311/312 is listed as Acute: yes, Chronic: no, Fire: no, Pressure: no, Reactivity: no.

## Section VIII. CONTROL MEASURES

<b>Respiratory Protection (Specify Type)</b> Wear appropriate respirator if ventilation is inadequate		
<b>Ventilation</b>	<b>Local Exhaust:</b> NONE	<b>Special:</b> NONE
<b>Ventilation</b>	<b>Mechanical (General):</b> NONE	<b>Other:</b> NONE
<b>Protective Gloves:</b> Disposable latex gloves or similar	<b>Eye Protection:</b> Safety Glasses with top and side shields	
<b>Other Protective Clothing or Equipment:</b> Eye wash station should be available. Wear protective garments if sensitive skin.		
<b>Work/Hygienic Practices:</b> No eating or drinking in work area. Wash hands after working with this product.		

Liability is expressly disclaimed for any loss or injury arising out of the use of this information or the use of this product or any materials designated. Safe use of the materials is the responsibility of the user.

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