



Analytical Sensors & Instruments Ltd.

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MATERIAL SAFETY DATA SHEET

Section I. PRODUCT IDENTIFICATION

Product Name: Solution, Sodium ISE Ionic Strength Adjustor Solution, 2 M NH ₄ Cl with NH ₄ OH (Ammonium Chloride with Ammonium Hydroxide)	Catalog No. AJ0NA1-xx of AJ0016-xx	Effective Date 05 May, 2008
Hazardous Shipment Labeling: DOT: None		IATA: None
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Approved by: George C. Barone III, Ph.D.	Title: Director Regulatory Compliance	

Section II. HAZARDOUS INGREDIENTS/Identity Information

Hazardous Components* Specific Chemical Identity; Common Name(s)	CAS No.	%	OSHA PEL	ACGIH TLV	LD ₅₀ mg/Kg
Ammonium Chloride (NH ₄ Cl)	12125-02-9	<20	None Listed	10 mg/m ³ (TWA); 20 mg/m ³ (STEL) Fume	1650 (ORL-RAT)
Ammonium Hydroxide (NH ₄ OH) or Ammonia (NH ₃)	1336-21-6	<10	50 ppm (NH ₃)	25 ppm (NH ₃) (TWA); 35 ppm (STEL)	350 (NH ₃) (ORL-RAT)
Deionized Water (H ₂ O)**	7732-18-5	>70	None Listed	None Listed	190,000 (IPR-MUS)

WARNING: POISON! DANGER! CORROSIVE. MAYBE FATAL IF SWALLOWED OR INHALED. MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT.

Section III. PHYSICAL/CHEMICAL DATA AND CHARACTERISTICS

Boiling Point at 760 mmHg	NA	Freezing Point	NA
Specific Gravity (H₂O = 1)	NA	Vapor Pressure at 25°C	NA
pH at 25°C	NA	Solubility in water, % by wt	Miscible
Volatiles, % by wt	NA	Evaporation Rate (B A = 1)	NA
Vapor Density (AIR = 1): NA			
Appearance and Odor: Clear and colorless liquid with a strong odor of ammonia			

Section IV. FIRE AND EXPLOSION HAZARD DATA

Flash Point (Method Used): NA	Auto-ignition Temperature: 651°C (1204°F) For NH ₄ OH	Flammable Limits	Lower	Upper
		In air, % by volume:	16	25
		NH ₄ OH	For	
Extinguishing Media: Dry chemical, water, foam, or CO ₂ Use media appropriate to surrounding fire conditions				
Special Fire Fighting Procedures: Flammable vapors may accumulate in confined spaces. 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.				
Unusual Fire and Explosion Hazards: Flammable vapors may accumulate in confined spaces. Wear full protective clothing and NIOSH-approved self-contained breathing apparatus.				

*Chemicals that are not classified as hazardous by U.S. OSHA guidelines (29 CRF 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

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

Section VI. HEALTH HAZARD DATA

Route(s) of Entry: Inhalation? YES Skin? YES Ingestion? YES
Health Hazards (Acute and Chronic): Inhalation of vapors and mists cause irritation to the respiratory tract. High concentrations cause burns, pulmonary edema, and death. Ingestion causes corrosion to the esophagus and stomach with perforation and peritonitis. Skin contact causes irritation and burns to exposed area. Eye contact causes irritation from vapors and severe pain, eye damage, and permanent blindness from splashes.
Carcinogenicity: NTP? IARC Monographs? OSHA Regulated? Not found on these lists
Signs and Symptoms of Exposure: Causes irritations or burns 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.
Medical Conditions Generally Aggravated by Exposure: Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material. .
Emergency and First Aid Procedures: Eye Contact: Immediately flush eyes with copious amounts of water for at least 15 minutes, separate eyelids from eye occasionally. Call physician immediately. Immediate action is critical to minimizing the possibility of blindness. Skin Contact: Immediately flush skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes. Call physician immediately. Clean contaminated clothing before reuse. Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. Get immediate medical attention. Inhalation: Remove to fresh air, if not breathing give artificial respiration, if breathing is difficult give oxygen. Call physician immediately.

Section VII. PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to Be Taken in Case Material is Released or Spilled: Clean up then dispose of properly according to local laws. Observe all Federal, State and Local laws when disposing of this product.
Waste Disposal Method: Observe all Federal, State and Local laws when disposing of this product.
Precautions to Be taken in Handling and Storing: Avoid contact with eyes. Wash hands thoroughly after use. NFPA Rating: Scale (0-4): Health – 3, Fire – 0, Reactivity – 0, Specific – Contact Rating – 4 Extreme (Corrosive).
Other Precautions: 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. Ammonium hydroxide is on the TSCA list and on the SARA 311/312 is listed as Acute: yes, Chronic: yes, Fire: no, Pressure: no, Reactivity: no.

Section VIII. CONTROL MEASURES

Respiratory Protection (Specify Type) Wear appropriate respirator if ventilation is inadequate		
Ventilation	Local Exhaust: NONE	Special: NONE
Ventilation	Mechanical (General): NONE	Other: NONE
Protective Gloves: Disposable latex gloves or similar	Eye Protection: Safety Glasses with top and side shields	
Other Protective Clothing or Equipment: Eye wash station should be available. Wear protective garments.		
Work/Hygienic Practices: 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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