


**Analytical Sensors & Instruments Ltd.**

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

|  |  |                                    |
|--|--|------------------------------------|
| <b>Product Name:</b> Solution, Nitrate ISE, Reference Filling Solution, (0.04 M (NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ) (Ammonium Sulfate) | <b>Catalog No.</b> RF0N31-xx or RF0011-xx    | <b>Effective Date</b> 06 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*<br>Specific Chemical Identity; Common Name(s) | CAS No.   | %   | OSHA PEL    | ACGIH TLV   | LD <sub>50</sub><br>mg/Kg |
|---|-----------|-----|-------------|-------------|---------------------------|
| Ammonium Sulfate ((NH <sub>4</sub> ) <sub>2</sub> SO <sub>4</sub> ) | 7783-20-2 | <1  | None Listed | None Listed | 2,840 (ORL-RAT)           |
| Non-hazardous Components**  | NA        | <1  | None Listed | None Listed | NA                        |
| Deionized Water (H <sub>2</sub> O)**                                | 7732-18-5 | >98 | 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> Lower Upper<br>In air, % by volume: NA 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> This product is not combustible or a fire hazard. Flammable ammonia gas may be released in a fire. In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode. |                                      |   |
| <b>Unusual Fire and Explosion Hazards:</b> May explode if mixed with oxidizers such as potassium nitrate, potassium nitrite, and potassium chlorate.  |                                      |   |

**Section V. REACTIVITY DATA**

|   |  |
|---|--|
| <b>Stability:</b> Unstable Stable X   | <b>Conditions to Avoid:</b> Stable under ordinary conditions of use and storage. Maintain at temperatures below 513°C (955°F). |
| <b>Incompatibility (Materials to Avoid):</b> Water incompatibles, sodium hypochlorite, potassium plus ammonium nitrate, potassium chlorate, potassium nitrite, and sodium-potassium powder plus ammonium nitrate, and other strong oxidizers. |  |
| <b>Hazardous Decomposition or Byproducts:</b> May emit ammonia, oxides of nitrogen or sulfur.   |  |
| <b>Hazardous Polymerization:</b> May Occur Will Not Occur X <b>Conditions to Avoid:</b> Incompatibles or extreme heat   |  |

\*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 VI. HEALTH HAZARD DATA

|   |
|---|
| <b>Route(s) of Entry:</b> Inhalation? YES    Skin? YES    Ingestion? YES  |
| <b>Health Hazards (Acute and Chronic):</b> Causes irritation in contact areas including redness, itching, and pain. Causes eye irritation, redness, and pain. Inhalation causes irritation to respiratory tract including coughing and shortness of breath. Ingestion causes irritation to the gastrointestinal tract including nausea, vomiting, and diarrhea.   |
| <b>Carcinogenicity:</b> NTP?    IARC Monographs?    OSHA Regulated?    Not found on these lists   |
| <b>Signs and Symptoms of Exposure:</b> May cause irritations to eyes, skin, mucous membranes 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> May cause eye irritation, 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. <b>Ingestion:</b> Wash out mouth if person is conscious. Give 1 to 2 glasses of water. Call physician if you feel unwell. <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

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| <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.<br>NFPA Rating: Scale (0-4): Health – 1, Fire – 0, Reactivity – 1, Specific – NONE.  |
| <b>Other Precautions:</b> Ammonium sulfate 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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