







# Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>1</td></tr><tr><td>Fire Hazard</td><td>0</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	1	Fire Hazard	0	Reactivity	0	<div></div> <div>See Section 15.</div>
Health Hazard	1							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification		Page Number: 1
<b>Common Name/ Trade Name</b>	<b>Ammonia Electrode Filling Solution, APHA</b>	<b>Catalog Number(s).</b> A-475
<b>Manufacturer</b>	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	<b>CAS#</b> Mixture.
<b>Commercial Name(s)</b>	Not available.	<b>RTECS</b> Not applicable.
<b>Synonym</b>	Not available.	<b>TSCA</b> TSCA 8(b) inventory: Water; Sodium nitrate; Ammonium chloride; Silver nitrate
<b>Chemical Name</b>	Not applicable.	<b>CI#</b> Not applicable.
<b>Chemical Family</b>	Chloride salt. (Salt.)	<b>IN CASE OF EMERGENCY</b> <b>CHEMTREC (24hr) 800-424-9300</b>  CALL (310) 516-8000
<b>Chemical Formula</b>	Not applicable.	
<b>Supplier</b>	SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248	

Section 2. Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m <sup>3</sup> )	STEL (mg/m <sup>3</sup> )	CEIL (mg/m <sup>3</sup> )	% by Weight
1) Water	7732-18-5				91
2) Sodium nitrate	7631-99-4				8.5
3) Ammonium chloride	12125-02-9	10	20		0.54
4) Silver nitrate	7761-88-8	0.01			0.0051
<b>Toxicological Data on Ingredients</b>	<b>Sodium nitrate:</b> ORAL (LD50): Acute: 1267 mg/kg [Rat]. 2680 mg/kg [Rabbit]. <b>Ammonium chloride:</b> ORAL (LD50): Acute: 1650 mg/kg [Rat]. 1300 mg/kg [Mouse]. <b>Silver nitrate:</b> ORAL (LD50): Acute: 1173 mg/kg [Rat]. 50 mg/kg [Mouse]. 473 mg/kg [Guinea pig].				

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**Section 3. Hazards Identification**

<b>Potential Acute Health Effects</b>	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.
<b>Potential Chronic Health Effects</b>	<b>CARCINOGENIC EFFECTS:</b> Not available. <b>MUTAGENIC EFFECTS:</b> Mutagenic for bacteria and/or yeast. [Sodium nitrate]. <b>TERATOGENIC EFFECTS:</b> Not available. <b>DEVELOPMENTAL TOXICITY:</b> Not available. The substance may be toxic to blood. Repeated or prolonged exposure to the substance can produce target organs damage.

**Section 4. First Aid Measures**

<b>Eye Contact</b>	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention if irritation occurs.
<b>Skin Contact</b>	Wash with soap and water. Cover the irritated skin with an emollient. Get medical attention if irritation develops. Cold water may be used.
<b>Serious Skin Contact</b>	Not available.
<b>Inhalation</b>	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Serious Inhalation</b>	Not available.
<b>Ingestion</b>	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.
<b>Serious Ingestion</b>	Not available.

**Section 5. Fire and Explosion Data**

<b>Flammability of the Product</b>	Non-flammable.
<b>Auto-Ignition Temperature</b>	Not applicable.
<b>Flash Points</b>	Not applicable.
<b>Flammable Limits</b>	Not applicable.
<b>Products of Combustion</b>	Not available.
<b>Fire Hazards in Presence of Various Substances</b>	Not applicable.
<b>Explosion Hazards in Presence of Various Substances</b>	Non-explosive in presence of open flames and sparks, of shocks.
<b>Fire Fighting Media and Instructions</b>	Not applicable.
<b>Special Remarks on Fire Hazards</b>	Not available.
<b>Special Remarks on Explosion Hazards</b>	It will react explosively with hydrocarbons. Interaction of nitrates when heated with amidosulfates(sulfamates) may become explosively violent owing to liberation of dinitrogen oxide and steam. Mixtures of sodium nitrate with powdered aluminum or its oxide were reported to be explosive. Mixtures of sodium nitrate and barium thiocyanate may explode. Mixture with sodium nitrate and powdered antimony explode. Mixture of sodium nitrate and sodium thiosulfate or sodium phosphinate explode.  (Sodium nitrate)

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**Section 6. Accidental Release Measures**

<b>Small Spill</b>	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.
<b>Large Spill</b>	Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

**Section 7. Handling and Storage**

<b>Precautions</b>	Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as combustible materials, organic materials.
<b>Storage</b>	Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

**Section 8. Exposure Controls/Personal Protection**

<b>Engineering Controls</b>	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.
<b>Personal Protection</b>	Safety glasses. Lab coat. Gloves (impervious). Respiratory protection is not necessary for normal handling. Adequate general (room) ventilation or local exhaust (fume hood) is sufficient. Use a vapor respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentrations of mist or vapor, inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent.
<b>Personal Protection in Case of a Large Spill</b>	Splash goggles. Full suit. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
<b>Exposure Limits</b>	<b>Ammonium chloride</b> TWA: 10 STEL: 20 (mg/m <sup>3</sup> ) from ACGIH (TLV) [United States] Inhalation TWA: 10 STEL: 20 (mg/m <sup>3</sup> ) [United Kingdom (UK)] Inhalation TWA: 10 STEL: 20 (mg/m <sup>3</sup> ) from NIOSH [United States] Inhalation TWA: 10 STEL: 20 (mg/m <sup>3</sup> ) from OSHA (PEL) [United States]  Consult local authorities for acceptable exposure limits.

**Section 9. Physical and Chemical Properties**

<b>Physical state and appearance</b>	Liquid. (Hazy (Turbid) liquid.)	<b>Odor</b>	Not available.
<b>Molecular Weight</b>	Not applicable.	<b>Taste</b>	Not available.
<b>pH (1% soln/water)</b>	Not available	<b>Color</b>	Colorless.
<b>Boiling Point</b>	The lowest known value is 100°C (212°F) (Water).		
<b>Melting Point</b>	Not available.		
<b>Critical Temperature</b>	Not available.		
<b>Specific Gravity</b>	Weighted average: 1.05 (Water = 1)		
<b>Vapor Pressure</b>	The highest known value is 2.3 kPa (@ 20°C) (Water).		
<b>Vapor Density</b>	The highest known value is 0.62 (Air = 1) (Water).		
<b>Volatility</b>	Not available.		
<b>Odor Threshold</b>	Not available.		
<b>Water/Oil Dist. Coeff.</b>	Not available.		

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<b>Ionicity (in Water)</b>	Not available.
<b>Dispersion Properties</b>	See solubility in water, methanol.
<b>Solubility</b>	Easily soluble in cold water, hot water. Partially soluble in methanol. Very slightly soluble in diethyl ether, acetone.

**Section 10. Stability and Reactivity Data**

<b>Stability</b>	The product is stable.
<b>Instability Temperature</b>	Not available.
<b>Conditions of Instability</b>	Incompatible materials
<b>Incompatibility with various substances</b>	Reactive with combustible materials, organic materials. Slightly reactive to reactive with reducing agents, acids.
<b>Corrosivity</b>	Not available
<b>Special Remarks on Reactivity</b>	Fibrous organic material is oxidized in contact with sodium nitrate above 160 deg. C and will ignite below 220 C. Wood and similar cellulosic materials are rendered highly combustible by nitrate imgregration. Reacts with acids to emit toxic fumes of nitrogen dioxide. Also incompatible with boron phosphide, barium rhodanide, cyanides, sodium thiosulfate, hypophosphites such as sodium hypophosphite, sulfur plus charcoal, antimony, chlorides, aluminum and stannous chloride, esters, powdered metals such as zinc or aluminum or aluminum oxide, isothiocyanates, thiocyanates, phosphorus, organic materials, combustible materials, acids, pyrosulfites, sulfides, amides, bisulfites, hydrazine, ammonium sulfate, amides, amines, phospham. Sodium nitrate + amines may for nitroasmines which have been proven to be carcinogenic in aminal tests. (Sodium nitrate)
<b>Special Remarks on Corrosivity</b>	Not available.
<b>Polymerization</b>	Will not occur.

**Section 11. Toxicological Information**

<b>Routes of Entry</b>	Skin contact. Eye contact.
<b>Toxicity to Animals</b>	Acute oral toxicity (LD50): 1267 mg/kg [Rat]. (Sodium nitrate).
<b>Chronic Effects on Humans</b>	<b>MUTAGENIC EFFECTS:</b> Mutagenic for bacteria and/or yeast. [Sodium nitrate]. Contains material which may cause damage to the following organs: blood.
<b>Other Toxic Effects on Humans</b>	Slightly hazardous in case of skin contact (irritant), of ingestion, of inhalation.
<b>Special Remarks on Toxicity to Animals</b>	Lowest Published Lethal Dose: LDL [Human Infant] - Route: Oral; Dose: 2000 mg/kg (Ammonium chloride)
<b>Special Remarks on Chronic Effects on Humans</b>	May affect genetic material (mutagenic). May cause adverse reproductive effects based on animal test data. May cause cancer based on animal test data. (Sodium nitrate)
<b>Special Remarks on other Toxic Effects on Humans</b>	Acute Potential Health Effects: Skin: May cause skin irritation. Eyes: May cause eye irritation. Inhalation: Inhalation of mist or vapor may cause respiratory tract irritation. Ingestion: May cause digestive/gastrointestinal tract irritation with nausea, vomiting, diarrhea. This product contains Sodium Nitrate which may cause metabolic acidosis. Sodium nitrate may also be converted to the nitrite in vivo (in the stomach). The primary toxic effects of nitrites include orthostatic hypotension (due to perpheral vasodilation) and methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin). Other symptoms may include muscular weakness, dizziness, lightheadness, fatigue, throbbing headache, mental impairment, incoordination, seizures convulsions, bradycardia or tachydardia (slow or fast heart beat), dysrhythmias, dyspnea. Furthermore, methemoglobinemia due to

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inadequate oxygenation of the blood can lead to progressive cyanosis, and coma. Cyanosis is first visible as a bluish discoloration of the mucous membranes and unpigmented areas of the body.

Chronic Potential Health Effects:

Ingestion: The product contains Sodium Nitrate. Under some circumstances methemoglobinemia occurs individuals when the nitrate is converted by bacteria in the stomach to the nitrite. Nausea, vomiting, dizziness, rapid or slow heart beat, irregular breathing, convulsions, coma and death can occur should this conversion take place. Repeated or prolonged ingestion may also affect the liver and cause anorexia (weight loss).


## Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.
Toxicity of the Products of Biodegradation	Not available.
Special Remarks on the Products of Biodegradation	Not available.

## Section 13. Disposal Considerations

Waste Disposal	Waste must be disposed of in accordance with federal, state and local environmental control regulations.
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## Section 14. Transport Information

DOT Classification	Not a DOT controlled material (United States).
Identification	Not applicable.
Special Provisions for Transport	Not applicable.
DOT (Pictograms)	

## Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	<p>Connecticut hazardous material survey.: Sodium nitrate; Silver nitrate          Illinois toxic substances disclosure to employee act: Ammonium chloride          Illinois chemical safety act: Ammonium chloride; Silver nitrate          New York release reporting list: Ammonium chloride          New York acutely hazardous substances: Silver nitrate          Rhode Island RTK hazardous substances: Sodium nitrate; Ammonium chloride; Silver nitrate          Pennsylvania RTK: Sodium nitrate; Ammonium chloride; Silver nitrate          Minnesota: Ammonium chloride          Massachusetts RTK: Sodium nitrate; Ammonium chloride; Silver nitrate          Massachusetts spill list: Ammonium chloride; Silver nitrate          New Jersey: Sodium nitrate; Ammonium chloride; Silver nitrate          New Jersey spill list: Ammonium chloride; Silver nitrate          Louisiana spill reporting: Ammonium chloride; Silver nitrate          California Director's List of Hazardous Substances: Ammonium chloride; Silver nitrate          TSCA 8(b) inventory: Water; Sodium nitrate; Ammonium chloride; Silver nitrate          CERCLA: Hazardous substances.: Ammonium chloride: 5000 lbs. (2268 kg); Silver nitrate: 1 lbs. (0.4536 kg);</p>
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**California  
Proposition 65  
Warnings**

California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found.

California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found.

**Other Regulations**

Not available

**Other Classifications****WHMIS (Canada)** Not controlled under WHMIS (Canada).**DSCL (EEC)**

Not available

Not available

**HMIS (U.S.A.)**

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	B

**National Fire Protection  
Association (U.S.A.)**

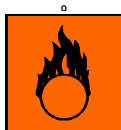
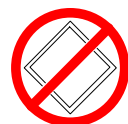
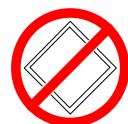
Health



Flammability

Reactivity

Specific hazard

**WHMIS (Canada)  
(Pictograms)****DSCL (Europe)  
(Pictograms)****TDG (Canada)  
(Pictograms)****ADR (Europe)  
(Pictograms)****Protective Equipment**

Gloves (impervious).



Lab coat.



Not applicable.

Safety glasses.

**Section 16. Other Information****MSDS Code** A0291**References** Not available.

**Other Special Considerations** Uses: Manufacture of enamels for pottery, Nitric acid, Sodium Nitrite; in matches; catalyst in manufacture of Sulfuric acid; pickling meats; fertilizer for cotton, tobacco, and vegetable crops; oxidizing component of explosives and blasting agents; oxidizer and fluxing agent in the manufacture of glass and enamels; component of charcoal briquettes, heat-transfer salt; curing agent and preservative in meats; for recovery of tin from scrap (Sodium nitrate)

Validated by Sonia Owen on 9/18/2007.

Verified by Sonia Owen.

Printed 10/26/2007.

CALL (310) 516-8000

**Notice to Reader**

*All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this MSDS. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this MSDS is based on technical data judged to be reliable, Spectrum Quality Products, Inc. assumes no responsibility for the completeness or accuracy of the information contained herein.*