





Material Safety Data Sheet

NFPA	HMIS	Personal Protective Equipment						
	<table><tr><td>Health Hazard</td><td>3</td></tr><tr><td>Fire Hazard</td><td>0</td></tr><tr><td>Reactivity</td><td>0</td></tr></table>	Health Hazard	3	Fire Hazard	0	Reactivity	0	 See Section 15.
Health Hazard	3							
Fire Hazard	0							
Reactivity	0							

Section 1. Chemical Product and Company Identification			Page Number: 1		
Common Name/ Trade Name		ICP Mixed Calibration Standard Solution V		Catalog Number(s).	PM420
Manufacturer		SPECTRUM LABORATORY PRODUCTS INC. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		CAS#	Mixture.
				RTECS	Not applicable.
				TSCA	TSCA 8(b) inventory: Water; Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium
Commercial Name(s)	Not available.		CI#		Not applicable.
Synonym	Not available.		<u>IN CASE OF EMERGENCY</u> <u>CHEMTREC (24hr) 800-424-9300</u> CALL (310) 516-8000		
Chemical Name	Not applicable.				
Chemical Family	(Acid.)				
Chemical Formula	Not applicable.				
Supplier	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/m³)	STEL (mg/m³)	CEIL (mg/m³)	% by Weight		
1) Water	7732-18-5	2	4		>91		
2) Nitric acid	7697-37-2				4-6		
3) Ammonium fluoborate	13826-83-0				<1		
4) Magnesium	7439-95-4	0.5			0.1		
5) Antimony trioxide	1309-64-4				<0.1		
6) Silver metal	7440-22-4				<0.1		
7) Thallium	7440-28-0	0.1			<0.1		
Toxicological Data on Ingredients		Nitric acid, fuming: VAPOR (LC50): Acute: 244 ppm 0.5 hours [Rat]. 344 ppm 0.5 hours [Rat]. Ammonium fluoborate LD50: Not available. LC50: Not available.					

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Section 3. Hazards Identification

Potential Acute Health Effects	Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive), of eye contact (corrosive), in case of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.
Potential Chronic Health Effects	<p>CARCINOGENIC EFFECTS: Not available.</p> <p>MUTAGENIC EFFECTS: Not available.</p> <p>TERATOGENIC EFFECTS: Not available.</p> <p>DEVELOPMENTAL TOXICITY: Not available.</p> <p>The substance may be toxic to lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.</p>

Section 4. First Aid Measures

Eye Contact	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 immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Serious Inhalation	Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not available.
Flash Points	Not available.
Flammable Limits	Not applicable.
Products of Combustion	Not available.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Slightly explosive in presence of reducing materials, of metals, of alkalis. Non-explosive in presence of open flames and sparks, of shocks.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

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Special Remarks on Fire Hazards

Flammable in presence of cellulose or other combustible materials.
 Phosphine, hydrogen sulfide, selenide all ignite when fuming nitric acid is dripped into gas.
 Phosphine ignites in concentrated nitric acid.
 Nickel tetrakisphosphide ignites with fuming nitric acid.
 Contact with metals may evolve flammable hydrogen gas.
 A jet of ammonia will ignite nitric acid vapor.
 Cellulose may be converted to the highly flammable nitrate ester on contact with the vapor of nitric acid as well as the liquid itself.

(Nitric acid, fuming)

Special Remarks on Explosion Hazards

Reacts explosively with metallic powders, carbides, cyanides, sulfides, alkalies and turpentine.
 Can react explosively with many reducing agents.
 Arsine, phosphine, tetraborane all oxidized explosively in presence of nitric acid.
 Cesium and rubidium acetylides explode in contact with nitric acid.
 Explosive reaction with Nitric Acid + Nitrobenzene + water.
 Detonation with Nitric Acid + 4-Methylcyclohexane.
 The addition of warm fuming nitric acid to phosphine causes explosion.
 Addition of water to nitration mixture diluted with an equal volume of water can cause a low order explosion.
 Cyclopentadiene reacts explosively with fuming nitric acid.
 Mixtures of fuming nitric acid and acetonitrile are high explosives.
 (Nitric acid, fuming)

Section 6. Accidental Release Measures**Small Spill**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: **Neutralize the residue with a dilute solution of sodium carbonate.**

Large Spill

Corrosive liquid. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal. **Neutralize the residue with a dilute solution of sodium carbonate.** 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**Precautions**

Keep container dry. Keep away from heat. Keep away from sources of ignition. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as metals, alkalis.

Storage

Keep container tightly closed. Keep container in a cool, well-ventilated area.

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

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits**Nitric acid, fuming**

TWA: 2 STEL: 4 (ppm) from ACGIH (TLV) [United States] [1999]

TWA: 2 STEL: 4 (ppm) [Australia]

TWA: 2 STEL: 4 from NIOSH

TWA: 5 STEL: 10 (mg/m³) from NIOSH

TWA: 2 STEL: 4 (ppm) from OSHA (PEL) [United States]

TWA: 5 STEL: 10 (mg/m³) from OSHA (PEL) [United States]

Ammonium fluoborate

TWA: 2.5 (mg(F)/m³) from OSHA (PEL) [United States]

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Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical state and appearance	Liquid.	Odor	Not available.
Molecular Weight	Not applicable.	Taste	Not available.
pH (1% soln/water)	Acidic.	Color	Clear Colorless.
Boiling Point	The lowest known value is 83°C (181.4°F) (Nitric acid, fuming). Weighted average: 99.14°C (210.5°F)		
Melting Point	May start to solidify at -41.6°C (-42.9°F) based on data for: Nitric acid, fuming.		
Critical Temperature	Not available.		
Specific Gravity	Weighted average: 1.02 (Water = 1)		
Vapor Pressure	The highest known value is 6.4 kPa (@ 20°C) (Nitric acid, fuming). Weighted average: 2.51 kPa (@ 20°C)		
Vapor Density	The highest known value is 2.3 (Air = 1) (Nitric acid, fuming). Weighted average: 0.7 (Air = 1)		
Volatility	Not available.		
Odor Threshold	The highest known value is 0.29 ppm (Nitric acid, fuming)		
Water/Oil Dist. Coeff.	The product is much more soluble in water.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water, diethyl ether.		
Solubility	Easily soluble in cold water, hot water. Soluble in diethyl ether. Insoluble in methanol, n-octanol, acetone.		

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials
Incompatibility with various substances	Reactive with metals, alkalis. Slightly reactive to reactive with reducing agents, combustible materials, organic materials, acids.
Corrosivity	Extremely corrosive in presence of copper. Non-corrosive in presence of glass, of aluminum, of stainless steel(304), of stainless steel(316).
Special Remarks on Reactivity	A strong oxidizer. Reacts violently with alcohol, organic material, turpene, charcoal. Violent reaction with Nitric acid + Acetone and Sulfuric acid. Incompatible with combustible materials, metallic powders, hydrogen sulfide, carbides, aldehydes, cyanides, chromic acid, hydrogen sulfide, metals, metal powders, organic solvents, acetic acid, alcohols. Nitric Acid will react with water or steam to produce heat and toxic, corrosive and flammable vapors. (Nitric acid, fuming)
Special Remarks on Corrosivity	No corrosive effect on bronze. Severe corrosive effect on Brass.
Polymerization	Will not occur.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Eye contact. Ingestion.
Toxicity to Animals	LD50: Not available. LC50: Not available.
Chronic Effects on Humans	Contains material which may cause damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, eyes, teeth.
Other Toxic Effects on Humans	Very hazardous in case of skin contact (irritant), of ingestion. Hazardous in case of skin contact (corrosive), of eye contact (corrosive), of inhalation.
Special Remarks on Toxicity to Animals	LDL - Lowest Published Lethal Dose [Human] - Route: Oral; Dose: 430 mg/kg (Nitric acid)
Special Remarks on Chronic Effects on Humans	May cause adverse reproductive effects (effects on newborn and fetotoxicity) based on animal data. (Nitric acid, fuming)
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Severely irritates skin. Causes skin burns and may cause deep and penetrating ulcers of the skin with a characteristic yellow to brownish discoloration. Eyes: Severely irritates eyes. Causes eye burns. May cause irreversible eye injury. Ingestion: Harmful if swallowed. Causes serious digestive/gastrointestinal tract (mouth, throat, esophagus, stomach) irritation or burns with nausea, vomiting, severe abdominal pain. May cause perforation of the digestive tract. Inhalation: Inhalation of mist or vapor causes irritation of the mucous membranes and respiratory tract (nose, throat, lungs) with burning pain or possible burns in the nose and throat, coughing, sneezing, wheezing, shortness of breath and may lead to pulmonary edema or pneumonitis. Other symptoms may include nausea, and vomiting. Chronic Potential Health Effects: Repeated inhalation may produce changes in pulmonary function and/or chronic bronchitis, pulmonary edema or pneumonitis. It may also affect behavior (headache, dizziness, drowsiness, muscle contraction or spasticity, weakness, loss of coordination, mental confusion), and urinary system (kidney failure, decreased urinary output after several hours of uncorrected circulatory collapse). Repeated exposure may cause discoloration and/or erosion of teeth (dental enamel). Eye irritation and respiratory tract signs and symptoms resembling those of frequent upper respiratory viral infections have been associated with chronic nitric acid exposure.

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	Class 8: Corrosive material
Identification	UNNA: 2031 : Nitric Acid, Solution PG: II
Special Provisions for Transport	Not available.
DOT (Pictograms)	

**Section 15. Other Regulatory Information and Pictograms**

Federal and State Regulations	<p>California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute: Antimony trioxide</p> <p>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: Antimony trioxide</p> <p>Connecticut hazardous material survey.: Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>Illinois toxic substances disclosure to employee act: Nitric acid; Ammonium fluoborate; Silver metal; Thallium</p> <p>Illinois chemical safety act: Nitric acid; Ammonium fluoborate; Antimony trioxide; Silver metal; Thallium</p> <p>New York release reporting list: Nitric acid; Ammonium fluoborate; Antimony trioxide; Silver metal; Thallium</p> <p>Rhode Island RTK hazardous substances: Nitric acid; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>Pennsylvania RTK: Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>Florida: Nitric acid</p> <p>Minnesota: Nitric acid; Antimony trioxide; Silver metal</p> <p>Michigan critical material: Silver metal</p> <p>Massachusetts RTK: Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>Massachusetts spill list: Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>New Jersey: Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>New Jersey spill list: Nitric acid; Ammonium fluoborate; Antimony trioxide; Silver metal; Thallium</p> <p>Louisiana RTK reporting list: Nitric acid</p> <p>Louisiana spill reporting: Nitric acid; Ammonium fluoborate; Antimony trioxide; Silver metal; Thallium</p> <p>California Director's List of Hazardous Substances: Nitric acid; Ammonium Fluoborate; Antimony trioxide; Silver metal; Thallium</p> <p>TSCA 8(b) inventory: Water; Nitric acid; Ammonium fluoborate; Magnesium; Antimony trioxide; Silver metal; Thallium</p> <p>TSCA 8(d) H and S data reporting: Antimony trioxide: Effective date: 10/04/82; Sunset date: 10/04/92; Thallium: Effective date: 6/1/87; Sunset date: 6/1/97</p> <p>SARA 302/304/311/312 extremely hazardous substances: Nitric acid</p> <p>SARA 313 toxic chemical notification and release reporting: Nitric acid 5%</p> <p>CERCLA: Hazardous substances.: Nitric acid: 1000 lbs. (453.6 kg); Ammonium fluoborate: 5000 lbs. (2268 kg); Antimony trioxide: 1000 lbs. (453.6 kg); Silver metal: 1000 lbs. (453.6 kg); Thallium: 1000 lbs. (453.6 kg);</p>
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California Proposition 65 Warnings	<p>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: Antimony trioxide</p> <p>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.</p>
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Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).
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Other Classifications	WHMIS (Canada) CLASS E: Corrosive liquid.	
	DSCL (EEC) R34- Causes burns.	<p>S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.</p> <p>S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.</p> <p>S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).</p>

HMIS (U.S.A.)

Health Hazard	3
Fire Hazard	0
Reactivity	0
Personal Protection	

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

Health



Flammability

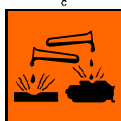
Reactivity

Specific hazard

WHMIS (Canada)
(Pictograms)



DSCL (Europe)
(Pictograms)



TDG (Canada)
(Pictograms)



ADR (Europe)
(Pictograms)



Protective Equipment



Gloves.



Full suit.



Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.



Face shield.

Section 16. Other Information**MSDS Code** PM420**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 10/2/2007.

Verified by Sonia Owen.

Printed 10/2/2007.

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.