



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		Indium ICP Standard		Catalog Number(s).	PM195
				CAS#	Mixture.
Manufacturer		SPECTRUM CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248		RTECS	Not applicable.
				TSCA	TSCA 8(b) inventory: Indium; Nitric acid, 70%; Water
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 CHEMICAL MFG. CORP. 14422 S. SAN PEDRO STREET GARDENA, CA 90248			

Section 2. Composition and Information on Ingredients					
		Exposure Limits			
Name	CAS #	TWA (mg/m ³)	STEL (mg/m ³)	CEIL (mg/m ³)	% by Weight
1) Indium	7440-74-6	0.1			0.1
2) Water	7732-18-5				96.4
3) Nitric acid, fuming	7697-37-2	5		4	3.5
Toxicological Data on Ingredients	Nitric acid, fuming: VAPOR (LC50): Acute: 67 ppm 4 hour(s) [Rat].				

Section 3. Hazards Identification	
Potential Acute Health Effects	Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant), of ingestion, 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.

Continued on Next Page

Potential Chronic Health Effects	<p>Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant), of ingestion, of inhalation.</p> <p>Non-sensitizer for skin.</p> <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 is toxic to blood, kidneys, liver, heart, upper respiratory tract, skin, eyes, lungs, mucous membranes.</p> <p>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 an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Repeated or prolonged inhalation of vapors may lead to chronic respiratory irritation.</p>
---	---

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. Do not use an eye ointment. Seek medical attention.
Skin Contact	If the chemical got onto the clothed portion of the body, remove the contaminated clothes as quickly as possible, protecting your own hands and body. Place the victim under a deluge shower. If the chemical got on the victim's exposed skin, such as the hands : Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. Be particularly careful to clean folds, crevices, creases and groin. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Serious Skin Contact	Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.
Inhalation	Allow the victim to rest in a well ventilated area. Seek immediate medical attention.
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. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek immediate medical attention.
Serious Ingestion	Not available.

Section 5. Fire and Explosion Data

Flammability of the Product	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
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	<p>Risks of explosion of the product in presence of mechanical impact: Not available.</p> <p>Risks of explosion of the product in presence of static discharge: Not available.</p> <p>Slightly explosive to explosive in presence of reducing materials, of combustible materials, of organic materials.</p>
Fire Fighting Media and Instructions	Not applicable.
Special Remarks on Fire Hazards	Not available.

Continued on Next Page

Special Remarks on Explosion Hazards Not available.

Section 6. Accidental Release Measures

Small Spill	Absorb with an inert material and put the spilled material in an appropriate waste disposal. 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. Prevent entry into sewers, basements or confined areas; dike if needed. 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 locked up. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapour/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 alkalis. May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package.
Storage	May corrode metallic surfaces. Store in a metallic or coated fiberboard drum using a strong polyethylene inner package. Corrosive materials should be stored in a separate safety storage cabinet or room.

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	Indium TWA: 0.1 (mg/m ³) from OSHA (PEL) TWA: 0.1 (mg/m ³) from ACGIH Nitric acid, fuming TWA: 2 CEIL: 4 (ppm) TWA: 5 CEIL: 10 (mg/m ³) 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 82.6°C (180.7°F) (Nitric acid, fuming). Weighted average: 99.39°C (210.9°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: 1.01 (Water = 1)		
Vapor Pressure	The highest known value is 45 mm of Hg (@ 20°C) (Nitric acid, fuming). Weighted average: 18.5 mm of Hg (@ 20°C)		

Continued on Next Page

Vapor Density	The highest known value is 0.62 (Air = 1) (Water).
Volatility	Not available.
Odor Threshold	The highest known value is 0.29 ppm (Nitric acid, fuming)
Water/Oil Dist. Coeff.	Not available.
Ionicity (in Water)	Not available.
Dispersion Properties	Is not dispersed in cold water, hot water.
Solubility	Insoluble in cold water, hot water.

Section 10. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Highly reactive with alkalis. Slightly reactive to reactive with reducing agents, combustible materials, organic materials, metals, acids.
Corrosivity	Highly corrosive in presence of aluminum, of zinc, of copper. Corrosive in presence of steel. Slightly corrosive to corrosive in presence of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.
Special Remarks on Reactivity	Not available.
Special Remarks on Corrosivity	Not available.
Polymerization	No.

Section 11. Toxicological Information

Routes of Entry	Dermal contact. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute toxicity of the vapor (LC50): 1914 ppm 4 hour(s) (Rat) (Calculated value for the mixture).
Chronic Effects on Humans	The substance is toxic to blood, kidneys, liver, heart, upper respiratory tract, skin, eyes, lungs, mucous membranes.
Other Toxic Effects on Humans	Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, of inhalation.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on other Toxic Effects on Humans	Not available.


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	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

Section 13. Disposal Considerations

Waste Disposal

Section 14. Transport Information

DOT Classification	CLASS 8: Corrosive liquid.
Identification	: Nitric acid, solution (Nitric acid, fuming) : UN2031 PG: II
Special Provisions for Transport	Marine Pollutant
DOT (Pictograms)	

Section 15. Other Regulatory Information and Pictograms

Federal and State Regulations	Rhode Island RTK hazardous substances: Indium Pennsylvania RTK: Indium; Nitric acid, 70% Florida: Indium Minnesota: Indium Massachusetts RTK: Indium; Nitric acid, 70% New Jersey: Indium TSCA 8(b) inventory: Indium; Nitric acid, 70%; Water SARA 302/304/311/312 extremely hazardous substances: Nitric acid, 70% SARA 313 toxic chemical notification and release reporting: Nitric acid, 70% CERCLA: Hazardous substances.: Nitric acid, 70%;	
California Proposition 65 Warnings		
Other Regulations	OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).	
Other Classifications	WHMIS (Canada)	CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.
	DSCCL (EEC)	R23- Toxic by inhalation. R35- Causes severe burns.

Continued on Next Page

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** PINDI**References** Not available.**Other Special Considerations** Not available.

Validated by Sonia Owen on 8/11/2006.

Verified by Sonia Owen.

Printed 9/12/2006.

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.