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Revision Number 4

Section 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**Product identifier****Product Name** IV-STOCK-57**Other means of identification**

Product Description 10 µg/mL: Mo, Sb, Sn, Ti

Recommended use of the chemical and restrictions on use**Recommended Use** Laboratory chemicals**Restriction on Use** No information available**Details of the supplier of the safety data sheet**

Company	Inorganic Ventures 300 Technology Drive Christiansburg, VA 24073 Phone: 1(800) 669-6799 Email: info@inorganicventures.com	E-mail Address	info@inorganicventures.com
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Emergency telephone number**Emergency Telephone** Chemtrec 1-800-424-9300 (US)
+34.678750066**Section 2: HAZARDS IDENTIFICATION****Classification**

Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Carcinogenicity	Category 1A

Label Elements**Danger****Hazard statements**Causes severe skin burns and eye damage
May cause cancer

**Precautionary Statements - Prevention**

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Wash face, hands and any exposed skin thoroughly after handling

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor
Specific treatment (see .? on this label)

Eyes

Immediately call a POISON CENTER or doctor
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Skin

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower]
Wash contaminated clothing before reuse

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing
Immediately call a POISON CENTER or doctor

Ingestion

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other Information

Unknown acute toxicity 5 % of the mixture consists of ingredient(s) of unknown toxicity
5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
5 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS**Substance**

Not applicable.

Mixture

Chemical name	CAS No.	Weight-%	Hazardous Material Information Review Act registry number (HMIRA registry #)	Date HMIRA filed and date exemption granted (if applicable)
Nitric acid	7697-37-2	5	-	

Section 4: FIRST AID MEASURESDescription of first aid measures

General advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance. IF exposed or concerned: Get medical advice/attention.
Inhalation	Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
Skin contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.
Ingestion	Do NOT induce vomiting. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.
Self-protection of the first aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid contact with skin, eyes or clothing. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms	Burning sensation.
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Indication of any immediate medical attention and special treatment needed

Note to physicians	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.
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Section 5: FIRE FIGHTING MEASURES

Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical	The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.
Explosion Data	
Sensitivity to mechanical impact	None.
Sensitivity to static discharge	None.
Special protective equipment for fire-fighters	Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

Section 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Attention! Corrosive material. Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

Other information Refer to protective measures listed in Sections 7 and 8.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Section 7: HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits

Chemical name	Alberta	British Columbia	Ontario TWAEV	Quebec
Nitric acid 7697-37-2	TWA: 2 ppm TWA: 5.2 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³	TWA: 2 ppm STEL: 4 ppm	TWA: 2 ppm STEL: 4 ppm	TWA: 2 ppm TWA: 5.2 mg/m ³ STEL: 4 ppm STEL: 10 mg/m ³

Appropriate engineering controls

Engineering controls Showers
 Eyewash stations
 Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/face protection Face protection shield.

Hand protection Wear suitable gloves. Impervious gloves.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron.

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

General hygiene considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES**Information on basic physical and chemical properties**

Physical state Liquid
Appearance clear / colorless
Odor No information available
Odor Threshold No information available

<u>Property</u>	<u>Values</u>
Melting point / freezing point	No data available
Flash point	No data available
Flammability (solid, gas)	No data available
Upper flammability or explosive limits	No data available
Lower flammability or explosive limits	No data available
Vapor pressure	No data available
Relative Density	No information available

pH	No data available
Initial boiling point and boiling range	100 °C / 212 °F
Evaporation rate	No data available
Flammability Limit in Air	

Partition coefficient: n-octanol/water No data available

Hyphen No data available
Dynamic viscosity No data available

Vapor density	No data available
Water solubility	Miscible
Solubility in other solvents	
Autoignition temperature	No data available
Viscosity, kinematic	No data available
None known	

Other information

Explosive properties No information available.
Oxidizing properties No information available.
Softening Point No information available
Molecular Weight No information available
VOC content No information available

Liquid Density	No information available
Bulk density	No information available

Section 10: STABILITY AND REACTIVITY

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Hazardous Polymerization	None under normal processing.
Conditions to Avoid	Exposure to air or moisture over prolonged periods.
Incompatible materials	acids. bases. Oxidizing agent.
Hazardous decomposition products	Nitrogen oxides (NOx). Hydrogen fluoride.

Section 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.
Eye contact	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.
Skin contact	Specific test data for the substance or mixture is not available. May cause irritation.
Ingestion	Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms	redness. Burning. May cause blindness. Coughing and/ or wheezing.
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Acute toxicity

Numerical measures of toxicity

No information available

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (oral)	99,999.00 mg/kg
ATEmix (dermal)	99,999.00 mg/kg
ATEmix (inhalation-gas)	99,999.0000 mg/l

ATEmix (inhalation-dust/mist) 10.0200 mg/l
 ATEmix (inhalation-vapor) 64.428 mg/l

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 5 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
 5 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
 5 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Nitric acid 7697-37-2	-	-	= 2500 ppm (Rat) 1 h

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation May cause skin irritation.

Serious eye damage/eye irritation Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

Respiratory or skin sensitization No information available.

Germ cell mutagenicity No information available.

Carcinogenicity Classification based on data available for ingredients.

The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical name	ACGIH	IARC	NTP	OSHA
Nitric acid 7697-37-2	-	Group 1 Group 2A	-	X

Legend

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2A - Probably Carcinogenic to Humans

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Reproductive toxicity No information available.

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target organ effects Skin, Eyes, Respiratory system.

Aspiration hazard No information available.

Section 12: ECOLOGICAL INFORMATION**Ecotoxicity**

Persistence and Degradability No information available.

Bioaccumulation No information available.

Component Information

Chemical name	Partition coefficient
Nitric acid 7697-37-2	-2.3

Section 13: DISPOSAL CONSIDERATIONS**Waste treatment methods**

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

Section 14: TRANSPORT INFORMATION**IMDG**

14.1. UN-No UN3264
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
 14.3. Transport hazard class(es) 8
 14.4. Packing Group III
 Description Not applicable
 14.5. Marine Pollutant None
 14.6. Special Provisions None
 No information available Transport No information available
 in bulk according
 to Annex II of MARPOL 73/78 and
 the IBC Code

RID

14.1. UN-No UN3264
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
 14.3. Transport hazard class(es) 8
 14.4. Packing Group III
 Description Not applicable
 14.5. Environmental hazard None
 14.6. Special Provisions None

ADR

14.1. UN-No UN3264
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
 14.3. Transport hazard class(es) 8
 14.4. Packing Group III
 Description Not applicable
 14.5. Environmental hazard None
 14.6. Special Provisions None

ICAO

14.1. UN-No UN3264
 14.2. Proper Shipping Name Corrosive liquid, acidic, inorganic, n.o.s
 14.3. Hazard Class 8
 14.4. Packing Group III
 Description Not applicable

14.5. Environmental hazard None
 14.6. Special Provisions None

IATA-DGR

14.1. UN-No UN3264
 14.2. Proper shipping name Corrosive liquid, acidic, inorganic, n.o.s
 14.3. Transport hazard class(es) 8
 14.4. Packing Group III
 Description Not applicable
 14.5. Environmental hazard None
 14.6. Special Provisions None

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

International Regulations

The Montreal Protocol on Substances that Deplete the Ozone Layer Not applicable

The Stockholm Convention on Persistent Organic Pollutants Not applicable

The Rotterdam Convention Not applicable

International Inventories

TSCA Complies
 DSL/NDL Complies
 EINECS/ELINCS Complies
 ENCS Complies
 IECSC Complies
 KECL Complies
 PICCS Complies
 AIC Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

ENCS - Japan Existing and New Chemical Substances

IECSC - China Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

AICS - Australian Inventory of Chemical Substances

Section 16: OTHER INFORMATION

National Fire Protection Association	Health hazards 3	Flammability 0	Instability 0	Physical and chemical properties - Personal protection X
HMIS	Health hazards 3 *	Flammability 0	Physical hazards 0	

Key or legend to abbreviations and acronyms used in the safety data sheet**LEG8 Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

LEGTWA	TWA (time-weighted average)	LEGST	STEL (Short Term Exposure Limit)
LEGC	Maximum limit value	LEGSKN	Skin designation

Key literature references and sources for data used to compile the SDS

Agency for Toxic Substances and Disease Registry (ATSDR)
U.S. Environmental Protection Agency ChemView Database
European Food Safety Authority (EFSA)
Environmental Protection Agency
Acute Exposure Guideline Level(s) (AEGL(s))
U.S. Environmental Protection Agency Federal Insecticide, Fungicide, and Rodenticide Act
U.S. Environmental Protection Agency High Production Volume Chemicals
Food Research Journal
Hazardous Substance Database
International Uniform Chemical Information Database (IUCLID)
Japan GHS Classification
Australia National Industrial Chemicals Notification and Assessment Scheme (NICNAS)
NIOSH (National Institute for Occupational Safety and Health)
National Library of Medicine's ChemID Plus (NLM CIP)
National Library of Medicine's PubMed database (NLM PUBMED)
U.S. National Toxicology Program (NTP)
New Zealand's Chemical Classification and Information Database (CCID)
Organization for Economic Co-operation and Development Environment, Health, and Safety Publications
Organization for Economic Co-operation and Development High Production Volume Chemicals Program
Organization for Economic Co-operation and Development Screening Information Data Set
RTECS (Registry of Toxic Effects of Chemical Substances)
World Health Organization

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Revision Note No information available.

Disclaimer

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End of SDS