

## Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS)

### SECTION 1: Identification

#### 1.1. Product Identifier

**Trade Name or Designation:** Contract Required Detection Limits (CRDL) Standard 1R, CLP

**Product Number:** RCRDL1R

**Other Identifying Product Numbers:** RCRDL1R-100

#### 1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

#### 1.3. Details of the Supplier of the Safety Data Sheet

**Company:** Ricca Chemical Company

**Address:** 448 West Fork Drive

Arlington, TX 76012 USA

**Telephone:** 888-467-4222

#### 1.4. Emergency Telephone Number (24 hours)

CHEMTREC (USA)	800-424-9300
CHEMTREC (International)	1+ 703-527-3887

### SECTION 2: Hazard(s) Identification

#### 2.1. Classification of the Substance or Mixture

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statements:	Precautionary Statements:
Skin Corrosion / Irritation	Category 1	H314	P260, P264, P280, P301+P330+P331, P303+P361+P353, P363, P304+P340, P310, P321, P305+P351+P338, P405, P501
Eye Damage / Irritation	Category 1	H318	P280, P305+P351+P338, P310
Corrosive to Metals	Category 1	H290	P234, P390, P406

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### 2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.

Precautionary Statements:

Precautionary Number	Precautionary Statement
P234	Keep only in original container.
P260	Do not breathe fumes, mist, vapors, or spray.
P264	Wash arms, hands and face thoroughly after handling.
P280	Wear protective gloves and eye protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or physician.
P321	Specific treatment (Wash areas of contact with water.).
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

### 2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

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## SECTION 3: Composition / Information on Ingredients

### 3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H <sub>2</sub> O	18.01 g/mol	7732-18-5	94.89
Nitric Acid	HNO <sub>3</sub>	63.01 g/mol	7697-37-2	4.98
Arsenic Trioxide	As <sub>2</sub> O <sub>3</sub>	197.84 g/mol	1327-53-3	< 0.1
Chromium Nitrate Nonahydrate	Cr(NO <sub>3</sub> ) <sub>3</sub> ·9H <sub>2</sub> O	238.01 g/mol	7789-02-8	< 0.1
Antimony Trioxide	Sb <sub>2</sub> O <sub>3</sub>	291.51 g/mol	1309-64-4	< 0.1
Selenium	Se	78.95 g/mol	7782-49-2	< 0.1
Thallium	Tl	204.38 g/mol	7440-28-0	< 0.1
Lead	Pb	207.2 g/mol	7439-92-1	< 0.1
Vanadium	V	50.94 g/mol	7440-62-2	< 0.1
Cobalt	Co	58.93 g/mol	7440-48-4	< 0.1
Nickel	Ni	58.69 g/mol	7440-02-0	< 0.1
Copper	Cu	63.54 g/mol	7440-50-8	< 0.1
Zinc	Zn	65.40 g/mol	7440-66-6	< 0.1
Manganese	Mn	54.93 g/mol	7439-96-5	< 0.1
Silver	Ag	107.86 g/mol	7440-22-4	< 0.1
Hydrofluoric Acid	HF	20.00 g/mol	7664-39-3	< 0.1
Cadmium	Cd	112.41 g/mol	7440-43-9	< 0.1
Beryllium	Be	9.01 g/mol	7440-41-7	< 0.1

## SECTION 4: First-Aid Measures

### 4.1. General First Aid Information

**Eye Contact:** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Inhalation:** IF INHALED: Remove person to fresh air and keep comfortable for breathing.

**Skin Contact:** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

**Ingestion:** IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

### 4.2. Most Important Symptoms and Effects, Acute and Delayed

Causes severe skin burns and eye damage. Causes serious eye damage.

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### 4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water.).

## SECTION 5: Fire-Fighting Measures

### 5.1. Extinguishing Media

Not considered to be a fire or explosion hazard.

### 5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.

### 5.3. Special Protective Equipment for Firefighters

Wear protective clothing and NIOSH-approved breathing equipment appropriate for the surrounding fire.

## SECTION 6: Accidental Release Measures

### 6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

### 6.2. Cleanup and Containment Methods and Materials

Absorb with suitable material and dispose of in accordance with local regulations.

## SECTION 7: Handling and Storage

### 7.1. Precautions for Safe Handling and Storage Conditions

Store in corrosive resistant container with a resistant inner liner.

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## SECTION 8: Exposure Controls / Personal Protection

### 8.1 Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

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Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Antimony trioxide [1309-64-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Antimony Trioxide (1309-64-4)	TWA	USA	0.5 mg/m <sup>3</sup> TWA (as Sb)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	0.5 mg/m <sup>3</sup> TWA (as Sb)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as Sb)" As Antimony compounds [RR-00585-6]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	TWA	USA	"10 µg/m <sup>3</sup> TWA (as As)" As Arsenic, inorganic compounds [RR-00065-7]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	TLV-TWA	USA	"0.01 mg/m <sup>3</sup> TWA (as As)" As Arsenic inorganic compounds [RR-00065-7]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Arsenic Trioxide (1327-53-3)	PEL	USA	"10 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1018; except Arsine, as As); 5 µg/m <sup>3</sup> Action Level (as As)" As Inorganic arsenic compounds [RR-00065-7]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Arsenic Trioxide (1327-53-3)	TLV-TWA	USA	0.01 mg/m <sup>3</sup> TWA (as As)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Arsenic Trioxide (1327-53-3)	TWA	USA	10 µg/m <sup>3</sup> TWA (as As)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	PEL	USA	10 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1018; except Arsine, as As); 5 µg/m <sup>3</sup> Action Level (as As)	U.S. - OSHA - Specifically Regulated Chemicals with PELs

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Arsenic Trioxide (1327-53-3)	TWA	USA	"0.5 mg/m <sup>3</sup> TWA (as As)" As Arsenic, organic compounds [RR-00035-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	TWA	USA	"10 µg/m <sup>3</sup> TWA (as As)" As Arsenic, inorganic compounds [RR-00065-7]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	PEL	USA	"10 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1018; except Arsine, as As); 5 µg/m <sup>3</sup> Action Level (as As)" As Inorganic arsenic compounds [RR-00065-7]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Arsenic Trioxide (1327-53-3)	TLV-TWA	USA	"0.01 mg/m <sup>3</sup> TWA (as As)" As Arsenic inorganic compounds [RR-00065-7]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Arsenic Trioxide (1327-53-3)	TWA	USA	"10 µg/m <sup>3</sup> TWA (as As)" As Arsenic, inorganic compounds [RR-00065-7]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	PEL	USA	"10 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1018; except Arsine, as As); 5 µg/m <sup>3</sup> Action Level (as As)" As Inorganic arsenic compounds [RR-00065-7]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Arsenic Trioxide (1327-53-3)	TLV-TWA	USA	"0.01 mg/m <sup>3</sup> TWA (as As)" As Arsenic inorganic compounds [RR-00065-7]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Arsenic Trioxide (1327-53-3)	TWA	USA	"10 µg/m <sup>3</sup> TWA (as As)" As Arsenic, inorganic compounds [RR-00065-7]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Arsenic Trioxide (1327-53-3)	PEL	USA	"10 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1018; except Arsine, as As); 5 µg/m <sup>3</sup> Action Level (as As)" As Inorganic arsenic compounds [RR-00065-7]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Arsenic Trioxide (1327-53-3)	TLV-TWA	USA	"0.01 mg/m <sup>3</sup> TWA (as As)" As Arsenic inorganic compounds [RR-00065-7]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

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Lead (7439-92-1)	PEL	USA	"30 µg/m³ Action Level (See 29 CFR 1910.1025); 50 µg/m³ TWA" As Lead [7439-92-1]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Lead (7439-92-1)	TLV-TWA	USA	"0.05 mg/m³ TWA" As Lead [7439-92-1]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Lead (7439-92-1)	TWA	USA	"50 µg/m³ TWA" As Lead [7439-92-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Lead (7439-92-1)	TLV-TWA	USA	0.05 mg/m³ TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Lead (7439-92-1)	TWA	USA	50 µg/m³ TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Lead (7439-92-1)	PEL	USA	30 µg/m³ Action Level (See 29 CFR 1910.1025); 50 µg/m³ TWA	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Lead (7439-92-1)	PEL	USA	"30 µg/m³ Action Level (See 29 CFR 1910.1025, as Pb); 50 µg/m³ TWA (as Pb)" As Lead, inorganic compounds [RR-00538-9]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Lead (7439-92-1)	TLV-TWA	USA	"0.05 mg/m³ TWA (as Pb)" As Lead inorganic compounds [RR-00538-9]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Lead (7439-92-1)	TWA	USA	"50 µg/m³ TWA (as Pb)" As Lead, inorganic compounds [RR-00538-9]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Manganese (7439-96-5)	TLV-TWA	USA	"0.02 mg/m³ TWA (respirable particulate matter); 0.1 mg/m³ TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m³ Ceiling (fume)" As Manganese [7439-96-5]	U.S. - OSHA - Final PELs - Ceiling Limits
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m³ Ceiling (fume)" As Manganese [7439-96-5]	U.S. - OSHA - Final PELs - Ceiling Limits





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Manganese (7439-96-5)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]	U.S. - OSHA - Final PELs - Ceiling Limits
Manganese (7439-96-5)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	PEL-Ceiling	USA	5 mg/m <sup>3</sup> Ceiling (fume)	U.S. - OSHA - Final PELs - Ceiling Limits
Manganese (7439-96-5)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]	U.S. - OSHA - Final PELs - Ceiling Limits
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]	U.S. - OSHA - Final PELs - Ceiling Limits
Manganese (7439-96-5)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Manganese (7439-96-5)	PEL-Ceiling	USA	"5 mg/m <sup>3</sup> Ceiling (as Mn)" As Manganese compounds [RR-00602-0]	U.S. - OSHA - Final PELs - Ceiling Limits

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Manganese (7439-96-5)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (respirable particulate matter, as Mn); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter, as Mn)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

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Nickel (7440-02-0)	TLV-TWA	USA	1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	1 mg/m <sup>3</sup> TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nickel (7440-02-0)	TLV-TWA	USA	"1.5 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Nickel, elemental [7440-02-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nickel (7440-02-0)	TWA	USA	"1 mg/m <sup>3</sup> TWA" As Nickel [7440-02-0]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TWA	USA	0.01 mg/m <sup>3</sup> TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	0.1 mg/m <sup>3</sup> TWA (dust and fume)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silver (7440-22-4)	TWA	USA	"0.01 mg/m <sup>3</sup> TWA" As Silver [7440-22-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Silver (7440-22-4)	TLV-TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Silver [7440-22-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Thallium (7440-28-0)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Thallium [7440-28-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

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Thallium (7440-28-0)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Thallium [7440-28-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Thallium (7440-28-0)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Thallium (7440-28-0)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Thallium [7440-28-0]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Thallium (7440-28-0)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter, as Tl)" As Thallium compounds [RR-00575-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Beryllium (7440-41-7)	TWA	USA	0.2 µg/m <sup>3</sup> TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Beryllium (7440-41-7)	TLV-TWA	USA	0.00005 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Beryllium (7440-41-7)	PEL-STEL	USA	2 µg/m <sup>3</sup> STEL (see 29 CFR 1910.1024)	U.S. - OSHA - Final PELs - Short Term Exposure Limits
Beryllium (7440-41-7)	PEL-Ceiling	USA	2 µg/m <sup>3</sup> Ceiling	U.S. - OSHA - Final PELs - Ceiling Limits
Beryllium (7440-41-7)	PEL	USA	0.2 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1024); 0.1 µg/m <sup>3</sup> Action Level; 2.0 µg/m <sup>3</sup> STEL (15 min)	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Beryllium (7440-41-7)	PEL-Ceiling	USA	"2 µg/m <sup>3</sup> Ceiling (as Be)" As Beryllium compounds [RR-00557-2]	U.S. - OSHA - Final PELs - Ceiling Limits
Beryllium (7440-41-7)	TWA	USA	"0.2 µg/m <sup>3</sup> TWA (as Be)" As Beryllium compounds [RR-00557-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Beryllium (7440-41-7)	TLV-TWA	USA	"0.00005 mg/m <sup>3</sup> TWA (inhalable particulate matter, as Be)" As Beryllium compounds [RR-00557-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Beryllium (7440-41-7)	PEL-Ceiling	USA	"2 µg/m <sup>3</sup> Ceiling" As Beryllium [7440-41-7]	U.S. - OSHA - Final PELs - Ceiling Limits
Beryllium (7440-41-7)	PEL	USA	"0.2 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1024); 0.1 µg/m <sup>3</sup> Action Level; 2.0 µg/m <sup>3</sup> STEL (15 min)" As Beryllium [7440-41-7]	U.S. - OSHA - Specifically Regulated Chemicals with PELs

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Beryllium (7440-41-7)	TLV-TWA	USA	"0.00005 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Beryllium [7440-41-7]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Beryllium (7440-41-7)	PEL-STEL	USA	"2 µg/m <sup>3</sup> STEL (see 29 CFR 1910.1024)" As Beryllium [7440-41-7]	U.S. - OSHA - Final PELs - Short Term Exposure Limits
Beryllium (7440-41-7)	TWA	USA	"0.2 µg/m <sup>3</sup> TWA" As Beryllium [7440-41-7]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Cadmium (7440-43-9)	PEL-Ceiling	USA	0.3 mg/m <sup>3</sup> Ceiling (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect, fume); 0.6 mg/m <sup>3</sup> Ceiling (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect, dust)	U.S. - OSHA - Final PELs - Ceiling Limits
Cadmium (7440-43-9)	TWA	USA	5 µg/m <sup>3</sup> TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Cadmium (7440-43-9)	TLV-TWA	USA	0.01 mg/m <sup>3</sup> TWA; 0.002 mg/m <sup>3</sup> TWA (respirable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cadmium (7440-43-9)	PEL	USA	5 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1027); 2.5 µg/m <sup>3</sup> Action Level	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Cadmium (7440-43-9)	TLV-TWA	USA	"0.01 mg/m <sup>3</sup> TWA (as Cd); 0.002 mg/m <sup>3</sup> TWA (respirable particulate matter, as Cd)" As Cadmium compounds [RR-00559-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cadmium (7440-43-9)	PEL	USA	"5 µg/m <sup>3</sup> TWA (See 29 CFR 1910.1027, as Cd); 2.5 µg/m <sup>3</sup> Action Level (as Cd)" As Cadmium compounds [RR-00559-4]	U.S. - OSHA - Specifically Regulated Chemicals with PELs
Cobalt (7440-48-4)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Cobalt metal [7440-48-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

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Cobalt (7440-48-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Cobalt [7440-48-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cobalt (7440-48-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Cobalt [7440-48-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cobalt (7440-48-4)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Cobalt metal [7440-48-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Cobalt (7440-48-4)	TLV-TWA	USA	"0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Cobalt [7440-48-4]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cobalt (7440-48-4)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (dust and fume)" As Cobalt metal [7440-48-4]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Cobalt (7440-48-4)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Cobalt (7440-48-4)	TWA	USA	0.1 mg/m <sup>3</sup> TWA (dust and fume)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Cobalt (7440-48-4)	TLV-TWA	USA	0.02 mg/m <sup>3</sup> TWA (inhalable particulate matter, as Co)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (fume)" As Copper [7440-50-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)" As Copper [7440-50-8]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Copper (7440-50-8)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)" As Copper [7440-50-8]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Copper (7440-50-8)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (fume)" As Copper [7440-50-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)" As Copper [7440-50-8]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Copper (7440-50-8)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (fume)" As Copper [7440-50-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (fume)" As Copper [7440-50-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)" As Copper [7440-50-8]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

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Copper (7440-50-8)	TWA	USA	"0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)" As Copper [7440-50-8]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Copper (7440-50-8)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (fume)" As Copper [7440-50-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TWA	USA	0.1 mg/m <sup>3</sup> TWA (fume); 1 mg/m <sup>3</sup> TWA (dust and mist)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Copper (7440-50-8)	TLV-TWA	USA	0.2 mg/m <sup>3</sup> TWA (fume)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TLV-TWA	USA	"1 mg/m <sup>3</sup> TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Copper (7440-50-8)	TLV-TWA	USA	"1 mg/m <sup>3</sup> TWA (dust and mist, as Cu)" As Copper compounds [RR-00595-8]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Vanadium (7440-62-2)	PEL-Ceiling	USA	"0.5 mg/m <sup>3</sup> Ceiling (respirable dust, as V <sub>2</sub> O <sub>5</sub> ); 0.1 mg/m <sup>3</sup> Ceiling (fume, as V <sub>2</sub> O <sub>5</sub> )" As Vanadium [7440-62-2]	U.S. - OSHA - Final PELs - Ceiling Limits
Vanadium (7440-62-2)	PEL-Ceiling	USA	"0.5 mg/m <sup>3</sup> Ceiling (respirable dust, as V <sub>2</sub> O <sub>5</sub> ); 0.1 mg/m <sup>3</sup> Ceiling (fume, as V <sub>2</sub> O <sub>5</sub> )" As Vanadium [7440-62-2]	U.S. - OSHA - Final PELs - Ceiling Limits
Vanadium (7440-62-2)	PEL-Ceiling	USA	0.5 mg/m <sup>3</sup> Ceiling (respirable dust, as V <sub>2</sub> O <sub>5</sub> ); 0.1 mg/m <sup>3</sup> Ceiling (fume, as V <sub>2</sub> O <sub>5</sub> )	U.S. - OSHA - Final PELs - Ceiling Limits
Hydrofluoric Acid (7664-39-3)	TWA	USA	"3 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]; "2.5 mg/m <sup>3</sup> TWA (as F)" As Fluorides [RR-02792-9]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	"2 ppm Ceiling (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Ceilings (TLV-C)



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Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	"0.5 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]; "2.5 mg/m <sup>3</sup> TWA (as F)" As Fluorides [RR-02792-9]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	"0.5 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TWA	USA	"3 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	"2 ppm Ceiling (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	0.5 ppm TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	2 ppm Ceiling (as F)	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrofluoric Acid (7664-39-3)	TWA	USA	3 ppm TWA (as F)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TWA	USA	2.5 mg/m <sup>3</sup> TWA (as F)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	2.5 mg/m <sup>3</sup> TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	"2 ppm Ceiling (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	"0.5 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TWA	USA	"3 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	"2 ppm Ceiling (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	"0.5 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)



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Hydrofluoric Acid (7664-39-3)	TWA	USA	"3 ppm TWA (as F)" As Hydrogen fluoride [7664-39-3]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-STEL	USA	4 ppm STEL	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-TWA	USA	2 ppm TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TWA	USA	2 ppm TWA; 5 mg/m <sup>3</sup> TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

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Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-TWA	USA	"2 ppm TWA" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TLV-STEL	USA	"4 ppm STEL" As Nitric acid [7697-37-2]	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TWA	USA	"2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	0.2 mg/m <sup>3</sup> TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA" As Selenium [7782-49-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

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Selenium (7782-49-2)	TLV-TWA	USA	"0.2 mg/m <sup>3</sup> TWA (as Se)" As Selenium compounds [RR-00612-2]	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Selenium (7782-49-2)	TWA	USA	"0.2 mg/m <sup>3</sup> TWA (as Se)" As Selenium compounds [RR-00612-2]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Chromium Nitrate Nonahydrate (7789-1 TWA		USA	"0.5 mg/m <sup>3</sup> TWA (as Cr)" As Chromium(III) compounds [RR-03889-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Chromium Nitrate Nonahydrate (7789-1 TWA		USA	"0.5 mg/m <sup>3</sup> TWA (as Cr)" As Chromium(III) compounds [RR-03889-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Chromium Nitrate Nonahydrate (7789-1 TWA		USA	0.5 mg/m <sup>3</sup> TWA (as Cr)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Chromium Nitrate Nonahydrate (7789-1 TWA		USA	"0.5 mg/m <sup>3</sup> TWA (as Cr)" As Chromium(III) compounds [RR-03889-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Chromium Nitrate Nonahydrate (7789-1 TWA		USA	"0.5 mg/m <sup>3</sup> TWA (as Cr)" As Chromium(III) compounds [RR-03889-1]	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)

### 8.2. Exposure Controls

**Engineering Controls:** No specific controls are needed. Normal room ventilation is adequate.

**Respiratory Protection:** No specific controls are needed. Normal room ventilation is adequate.

**Skin Protection:** Wear protective gloves and eye protection.

**Eye Protection:** Wear protective gloves and eye protection.

### 8.3. Personal Protective Equipment

Wear protective gloves and eye protection.

# Safety Data Sheet

## SECTION 9: Physical and Chemical Properties

### 9.1. Basic Physical and Chemical Properties

**Appearance:** Colorless liquid

**Physical State:** Liquid

**Odor:** Data not available.

**Odor Threshold:** Data not available.

**pH:** Data not available.

**Melting/Freezing Point:** Approximately 0°C

**Initial Boiling Point/Range:** Approximately 100°C - Approximately 100°C

**Flash Point:** Data not available.

**Evaporation Rate:** Data not available.

**Flammability:** Data not available.

**Flammability/Explosive Limits:** Data not available.

**Vapor Pressure:** Data not available.

**Vapor Density:** Data not available.

**Relative Density:** 1.0

**Solubility:** Miscible

**Partition Coefficient:** Data not available.

**Auto-Ignition Temperature:** Data not available.

**Decomposition Temperature:** Data not available.

**Viscosity:** Data not available.

**Explosive Properties:** Data not available.

**Oxidizing Properties:** Data not available.

## SECTION 10: Stability and Reactivity

### 10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

### 10.2. Possibility of Hazardous Reactions

Data not available.

### 10.3. Conditions to Avoid and Incompatible Materials

Keep only in original container.

### 10.4. Hazardous Decomposition Products

May emit irritating fumes when heated to decomposition.

# Safety Data Sheet

## SECTION 11: Toxicological Information

### 11.1. Information on Toxicological Effects

**Acute Toxicity - Oral Exposure:**

Not applicable.

**Acute Toxicity - Dermal Exposure:**

Not applicable.

**Acute Toxicity - Inhalation Exposure:**

Not applicable.

**Acute Toxicity - Other Information:**

Data not available.

**Skin Corrosion and Irritation:**

Causes severe skin burns and eye damage. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water.). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

**Serious Eye Damage and Irritation:**

Causes serious eye damage. Wear protective gloves and eye protection. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

**Respiratory Sensitization:**

Not applicable.

**Skin Sensitization:**

Not applicable.

**Germ Cell Mutagenicity:**

Not applicable.

**Carcinogenicity:**

Not applicable.

**Reproductive Toxicity:**

Not applicable.

**Specific Target Organ Toxicity from Single Exposure:**

Not applicable.

**Specific Target Organ Toxicity from Repeated Exposure:**

Not applicable.

**Aspiration Hazard:**

Not applicable.

# Safety Data Sheet

**Additional Toxicology Information:**

Data not available.

## SECTION 12: Ecological Information

**12.1. Ecotoxicity**

Not applicable.

**12.2. Persistence and Degradability**

Data not available.

**12.3. Bioaccumulative Potential**

Data not available.

**12.4. Mobility in Soil**

Data not available.

**12.5. Other Adverse Ecological Effects**

Data not available.

## SECTION 13: Disposal Considerations

**13.1. Waste Treatment Methods**

Data not available.

## SECTION 14: Transportation Information

**14.1. Transportation by Land-Department of Transportation (DOT, United States of America)**

**Sizes:** 100 mL

**UN Number:** UN3264

**Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, n.o.s. (Nitric Acid)

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**





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### 14.2. Transportation by Air - International Air Transport Association (IATA)

**Sizes:** 100 mL

**UN Number:** UN3264

**Proper Shipping Name:** Corrosive Liquid, Acidic, Inorganic, n.o.s. (Nitric Acid)

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**



### 14.3 Transportation of Dangerous Goods (TDG, Canada)

**Sizes:** 100 mL

**UN Number:** UN3264

**Proper Shipping Name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**



# Safety Data Sheet

## SECTION 15: Regulatory Information

### 15.1. Occupational Safety and Health Administration (OSHA) Hazards

Arsenic Trioxide (CAS # 1327-53-3): "10 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1018, except Arsine, as As); 5 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1018, except Arsine, as As)" As Inorganic arsenic compounds [RR-00065-7]

Arsenic Trioxide (CAS # 1327-53-3): 10 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1018, except Arsine, as As); 5 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1018, except Arsine, as As)

Lead (CAS # 7439-92-1): "30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025, as Pb); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025, as Pb)" As Lead, inorganic compounds [RR-00538-9]

Lead (CAS # 7439-92-1): 30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025)

Beryllium (CAS # 7440-41-7): "0.2 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1024); 0.1 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1024); 2.0 µg/m<sup>3</sup> STEL (See 29 CFR 1910.1024, 15 min)" As Beryllium [7440-41-7]

Beryllium (CAS # 7440-41-7): 0.2 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1024); 0.1 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1024); 2.0 µg/m<sup>3</sup> STEL (See 29 CFR 1910.1024, 15 min)

Cadmium (CAS # 7440-43-9): "5 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1027, as Cd); 2.5 µg/m<sup>3</sup> Action Level (as Cd)" As Cadmium compounds [RR-00559-4]

Cadmium (CAS # 7440-43-9): 5 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1027); 2.5 µg/m<sup>3</sup> Action Level

### 15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Arsenic Trioxide (CAS # 1327-53-3): "1 lb EPCRA RQ" As Arsenous oxide [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): "100 lb lower TPQ; 10000 lb upper TPQ" As Arsenous oxide [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): 1 lb EPCRA RQ

Arsenic Trioxide (CAS # 1327-53-3): 100 lb lower TPQ; 10000 lb upper TPQ

Hydrofluoric Acid (CAS # 7664-39-3): "100 lb EPCRA RQ" As Hydrogen fluoride [7664-39-3]

Hydrofluoric Acid (CAS # 7664-39-3): "100 lb TPQ" As Hydrogen fluoride [7664-39-3]

Hydrofluoric Acid (CAS # 7664-39-3): 100 lb EPCRA RQ

Hydrofluoric Acid (CAS # 7664-39-3): 100 lb TPQ

Nitric Acid (CAS # 7697-37-2): "1000 lb EPCRA RQ" As Nitric acid [7697-37-2]

Nitric Acid (CAS # 7697-37-2): "1000 lb TPQ" As Nitric acid [7697-37-2]

Nitric Acid (CAS # 7697-37-2): 1000 lb EPCRA RQ

Nitric Acid (CAS # 7697-37-2): 1000 lb TPQ



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### 15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Antimony Trioxide (CAS # 1309-64-4): "1000 lb final RQ; 454 kg final RQ" As Antimony trioxide [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): 1000 lb final RQ; 454 kg final RQ

Arsenic Trioxide (CAS # 1327-53-3): "1 lb final RQ; 0.454 kg final RQ" As Arsenic oxide (As<sub>2</sub>O<sub>3</sub>) [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): 1 lb final RQ; 0.454 kg final RQ

Lead (CAS # 7439-92-1): "10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): 10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

Nickel (CAS # 7440-02-0): "100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)" As Nickel [7440-02-0]

Nickel (CAS # 7440-02-0): 100 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 45.4 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm)

Silver (CAS # 7440-22-4): "1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is >100 µm); 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter

### 15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Antimony Trioxide (CAS # 1309-64-4): "1.0 % de minimis concentration (includes any unique chemical substance that contains Antimony as part of the chemical's infrastructure, listed under Chemical Category N010)" As Antimony compounds [RR-00585-6]

Antimony Trioxide (CAS # 1309-64-4): 1.0 % de minimis concentration (includes any unique chemical substance that contains Antimony as part of the chemical's infrastructure, listed under Chemical Category N010)

Arsenic Trioxide (CAS # 1327-53-3): "0.1 % de minimis concentration (includes any unique chemical substance that contains Arsenic as part of that chemical's infrastructure, listed under Chemical Category N020)" As Arsenic, inorganic compounds [RR-00065-7]

Arsenic Trioxide (CAS # 1327-53-3): "1.0 % de minimis concentration (includes any unique chemical substance that contains Arsenic as part of that chemical's infrastructure, listed under Chemical Category N020)" As Arsenic organic compounds [RR-00035-1]

Arsenic Trioxide (CAS # 1327-53-3): 0.1 % de minimis concentration (includes any unique chemical substance that contains Arsenic as part of that chemical's infrastructure, listed under Chemical Category N020)

Lead (CAS # 7439-92-1): "100 lb RT (this lower threshold does not apply to lead when it is contained in stainless steel, brass or bronze alloy)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "100 lb RT" As Lead compounds [RR-00630-4]

Lead (CAS # 7439-92-1): "not eligible for the de minimis exemption" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "not eligible for the de minimis exemption, listed under Chemical Category N420" As Inorganic lead compounds [RR-00538-1]  
"not eligible for the de minimis exemption" As Lead compounds [RR-00630-4]

Lead (CAS # 7439-92-1): 100 lb RT (this lower threshold does not apply to lead when it is contained in stainless steel, brass or bronze alloy)

Lead (CAS # 7439-92-1): not eligible for the de minimis exemption

Manganese (CAS # 7439-96-5): "1.0 % de minimis concentration (includes



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### 15.5. Massachusetts Right-to-Know Substance List

Antimony Trioxide (CAS # 1309-64-4): "Present" As Antimony trioxide [1309-64-4]  
Antimony Trioxide (CAS # 1309-64-4): Present  
Arsenic Trioxide (CAS # 1327-53-3): "Extraordinarily hazardous" As Arsenic trioxide [1327-53-3]  
Arsenic Trioxide (CAS # 1327-53-3): Extraordinarily hazardous  
Lead (CAS # 7439-92-1): "Teratogen" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): Teratogen  
Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): Present  
Nickel (CAS # 7440-02-0): "Carcinogen; Extraordinarily hazardous" As Nickel [7440-02-0]  
Nickel (CAS # 7440-02-0): Carcinogen; Extraordinarily hazardous  
Silver (CAS # 7440-22-4): "Present" As Silver [7440-22-4]  
Silver (CAS # 7440-22-4): Present  
Thallium (CAS # 7440-28-0): "Present" As Thallium [7440-28-0]  
Thallium (CAS # 7440-28-0): Present  
Beryllium (CAS # 7440-41-7): "Carcinogen; Extraordinarily hazardous" As Beryllium [7440-41-7]  
Beryllium (CAS # 7440-41-7): Carcinogen; Extraordinarily hazardous  
Cadmium (CAS # 7440-43-9): Carcinogen; Extraordinarily hazardous  
Cobalt (CAS # 7440-48-4): "Present" As Cobalt [7440-48-4]  
Cobalt (CAS # 7440-48-4): Present  
Copper (CAS # 7440-50-8): "Present" As Copper [7440-50-8]  
Copper (CAS # 7440-50-8): Present  
Vanadium (CAS # 7440-62-2): "Present (dust and fume)" As Vanadium [7440-62-2]  
Vanadium (CAS # 7440-62-2): Present (dust and fume)  
Zinc (CAS # 7440-66-6): "Present" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): Present  
Hydrofluoric Acid (CAS # 7664-39-3): "Extraordinarily hazardous" As Hydrofluoric acid [7664-39-3]  
Hydrofluoric Acid (CAS # 7664-39-3): Extraordinarily hazardous  
Nitric Acid (CAS # 7697-37-2): "Extraordinarily hazardous" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): Extraordinarily hazardous  
Selenium (CAS # 7782-49-2): "Present" As Selenium [7782-49-2]  
Selenium (CAS # 7782-49-2): Present

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### 15.6. Pennsylvania Right-to-Know Hazardous Substances

Antimony Trioxide (CAS # 1309-64-4): "Environmental hazard" As Antimony compounds [RR-00585-6]  
Antimony Trioxide (CAS # 1309-64-4): "Environmental hazard" As Antimony oxide (Sb<sub>2</sub>O<sub>3</sub>) [1309-64-4]  
Antimony Trioxide (CAS # 1309-64-4): "Present" As Antimony compounds [RR-00585-6]  
Antimony Trioxide (CAS # 1309-64-4): "Present" As Antimony oxide (Sb<sub>2</sub>O<sub>3</sub>) [1309-64-4]  
Antimony Trioxide (CAS # 1309-64-4): Environmental hazard  
Antimony Trioxide (CAS # 1309-64-4): Present  
Arsenic Trioxide (CAS # 1327-53-3): "Environmental hazard" As Arsenic compounds [RR-00625-7]  
Arsenic Trioxide (CAS # 1327-53-3): "Environmental hazard; Special hazardous substance" As Arsenic oxide (As<sub>2</sub>O<sub>3</sub>) [1327-53-3]  
Arsenic Trioxide (CAS # 1327-53-3): "Present" As Arsenic compounds [RR-00625-7]  
Arsenic Trioxide (CAS # 1327-53-3): "Present" As Arsenic oxide (As<sub>2</sub>O<sub>3</sub>) [1327-53-3]  
Arsenic Trioxide (CAS # 1327-53-3): Environmental hazard  
Arsenic Trioxide (CAS # 1327-53-3): Environmental hazard; Special hazardous substance  
Arsenic Trioxide (CAS # 1327-53-3): Present  
Lead (CAS # 7439-92-1): "Environmental hazard" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): "Environmental hazard" As Lead compounds [RR-00630-4]  
Lead (CAS # 7439-92-1): "Present" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): "Present" As Lead compounds [RR-00630-4]  
Lead (CAS # 7439-92-1): Environmental hazard  
Lead (CAS # 7439-92-1): Present  
Manganese (CAS # 7439-96-5): "Environmental hazard" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): "Environmental hazard" As Manganese compounds [RR-00602-0]  
Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): "Present" As Manganese compounds [RR-00602-0]  
Manganese (CAS # 7439-96-5): Environmental hazard  
Manganese (CAS # 7439-96-5): Present  
Nickel (CAS # 7440-02-0): "Environmental hazard" As Nickel compounds [RR-00800-4]  
Nickel (CAS # 7440-02-0): "Environmental hazard; Special hazardous substance" As Nickel [7440-02-0]  
Nickel (CAS # 7440-02-0): "Present" As Nickel [7440-02-0]

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### 15.7. New Jersey Worker and Community Right-to-Know Components

Antimony Trioxide (CAS # 1309-64-4): "carcinogen" As Antimony trioxide [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): "sn 0149" As Antimony trioxide [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): "SN 2223 500 lb TPQ (Category Code N010. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Antimony compounds [RR-00585-6]

Antimony Trioxide (CAS # 1309-64-4): "sn 2223" As Antimony compounds [RR-00585-6]

Antimony Trioxide (CAS # 1309-64-4): carcinogen

Antimony Trioxide (CAS # 1309-64-4): sn 0149

Antimony Trioxide (CAS # 1309-64-4): sn 2223

Antimony Trioxide (CAS # 1309-64-4): SN 2223 500 lb TPQ (Category Code N010. Includes any unique chemical substance that contains the named metal as part of that chemical structure)

Arsenic Trioxide (CAS # 1327-53-3): "carcinogen" As Arsenic trioxide [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): "SN 0161 100 lb TPQ" As Arsenous oxide [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): "sn 0161" As Arsenic trioxide [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): "SN 2138 500 lb TPQ (Category Code N020. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Arsenic compounds [RR-00625-7]

Arsenic Trioxide (CAS # 1327-53-3): "sn 2138" As Arsenic compounds [RR-00625-7]

Arsenic Trioxide (CAS # 1327-53-3): carcinogen

Arsenic Trioxide (CAS # 1327-53-3): sn 0161

Arsenic Trioxide (CAS # 1327-53-3): SN 0161 100 lb TPQ

Arsenic Trioxide (CAS # 1327-53-3): sn 2138

Arsenic Trioxide (CAS # 1327-53-3): SN 2138 500 lb TPQ (Category Code N020. Includes any unique chemical substance that contains the named metal as part of that chemical structure)

Lead (CAS # 7439-92-1): "carcinogen" As Lead compounds [RR-00630-4]

Lead (CAS # 7439-92-1): "carcinogen; teratogen" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "SN 1096 500 lb TPQ" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "sn 1096" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "SN 2266 500 lb TPQ (Ca



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### 15.8. California Proposition 65

Antimony Trioxide (CAS # 1309-64-4): "0.13 µg/day NSRL (inhalation)" As Antimony(III) oxide [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): "carcinogen, 10/1/1990" As Antimony(III) oxide [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): 0.13 µg/day NSRL (inhalation)

Antimony Trioxide (CAS # 1309-64-4): carcinogen, 10/1/1990

Arsenic Trioxide (CAS # 1327-53-3): "0.06 µg/day NSRL (inhalation, listed under Arsenic); 10 µg/day NSRL (except inhalation, listed under Arsenic)" /

Arsenic, inorganic compounds [RR-00065-7]

Arsenic Trioxide (CAS # 1327-53-3): "carcinogen, 2/27/1987" As Arsenic, inorganic compounds [RR-00065-7]

Arsenic Trioxide (CAS # 1327-53-3): "developmental toxicity, 5/1/1997" As Arsenic inorganic oxides [RR-03689-5]

Arsenic Trioxide (CAS # 1327-53-3): 0.06 µg/day NSRL (inhalation, listed under Arsenic); 10 µg/day NSRL (except inhalation, listed under Arsenic)

Arsenic Trioxide (CAS # 1327-53-3): carcinogen, 2/27/1987

Arsenic Trioxide (CAS # 1327-53-3): developmental toxicity, 5/1/1997

Lead (CAS # 7439-92-1): "15 µg/day NSRL (oral)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "carcinogen, 10/1/1992" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "carcinogen, 10/1/1992" As Lead compounds [RR-00630-4]

Lead (CAS # 7439-92-1): "developmental toxicity, 2/27/1987" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "female reproductive toxicity 2/27/87" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "male reproductive toxicity, 2/27/87" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): 15 µg/day NSRL (oral)

Lead (CAS # 7439-92-1): carcinogen, 10/1/1992

Lead (CAS # 7439-92-1): developmental toxicity, 2/27/1987

Lead (CAS # 7439-92-1): female reproductive toxicity 2/27/87

Lead (CAS # 7439-92-1): male reproductive toxicity, 2/27/87

Nickel (CAS # 7440-02-0): "carcinogen, 10/1/1989 (metallic)" As Nickel [7440-02-0]

Nickel (CAS # 7440-02-0): "carcinogen, 5/7/2004" As Nickel compounds [RR-00800-4]

Nickel (CAS # 7440-02-0): carcinogen, 10/1/1989 (metallic)

Beryllium (CAS # 7440-41-7): "0.1 µg



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### 15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Antimony Trioxide (CAS # 1309-64-4): "Present" As Antimony trioxide [1309-64-4] (DSL)

Antimony Trioxide (CAS # 1309-64-4): Present (DSL)

Arsenic Trioxide (CAS # 1327-53-3): "Present" As Arsenic trioxide [1327-53-3] (DSL)

Arsenic Trioxide (CAS # 1327-53-3): Present (DSL)

Lead (CAS # 7439-92-1): "Present" As Lead [7439-92-1] (DSL)

Lead (CAS # 7439-92-1): Present (DSL)

Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5] (DSL)

Manganese (CAS # 7439-96-5): Present (DSL)

Nickel (CAS # 7440-02-0): "Present" As Nickel [7440-02-0] (DSL)

Nickel (CAS # 7440-02-0): Present (DSL)

Silver (CAS # 7440-22-4): "Present" As Silver [7440-22-4] (DSL)

Silver (CAS # 7440-22-4): Present (DSL)

Thallium (CAS # 7440-28-0): "Present" As Thallium [7440-28-0] (DSL)

Thallium (CAS # 7440-28-0): Present (DSL)

Beryllium (CAS # 7440-41-7): "Present" As Beryllium [7440-41-7] (DSL)

Beryllium (CAS # 7440-41-7): Present (DSL)

Cadmium (CAS # 7440-43-9): Present (DSL)

Cobalt (CAS # 7440-48-4): "Present" As Cobalt [7440-48-4] (DSL)

Cobalt (CAS # 7440-48-4): Present (DSL)

Copper (CAS # 7440-50-8): "Present" As Copper [7440-50-8] (DSL)

Copper (CAS # 7440-50-8): Present (DSL)

Vanadium (CAS # 7440-62-2): "Present" As Vanadium [7440-62-2] (DSL)

Vanadium (CAS # 7440-62-2): Present (DSL)

Zinc (CAS # 7440-66-6): "Present" As Zinc [7440-66-6] (DSL)

Zinc (CAS # 7440-66-6): Present (DSL)

Hydrofluoric Acid (CAS # 7664-39-3): "Present" As Hydrogen fluoride [7664-39-3] (DSL)

Hydrofluoric Acid (CAS # 7664-39-3): Present (DSL)

Nitric Acid (CAS # 7697-37-2): "Present" As Nitric acid [7697-37-2] (DSL)

Nitric Acid (CAS # 7697-37-2): Present (DSL)

Water (CAS # 7732-18-5): "Present" As Water [7732-18-5] (DSL)

Water (CAS # 7732-18-5): Present (DSL)

Selenium (CAS # 7782-49-2): "Present" As Selenium [7782-49-2] (DSL)

Selenium (CAS # 7782-49-2): Present (DSL)

Chromium Nitrate Nonahydrate (CAS # 7789-02-8): "Present" As Chromium nitrate [13548-38-4] (DSL)

Chromium Nitrate Nonahydrate (CAS # 7789-02-8): Present (DSL)

### 15.10. United States of America Toxic Substances Control Act (TSCA) List

All components of this solution are listed as active on the TSCA Inventory or are mixtures (hydrates) of active items listed on the TSCA Inventory.



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Antimony Trioxide (CAS # 1309-64-4): "Present (ACTIVE)" As Antimony oxide (Sb<sub>2</sub>O<sub>3</sub>) [1309-64-4]

Antimony Trioxide (CAS # 1309-64-4): Present (ACTIVE)

Arsenic Trioxide (CAS # 1327-53-3): "Present (ACTIVE)" As Arsenic oxide (As<sub>2</sub>O<sub>3</sub>) [1327-53-3]

Arsenic Trioxide (CAS # 1327-53-3): Present (ACTIVE)

Lead (CAS # 7439-92-1): "Present (ACTIVE)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): Present (ACTIVE)

Manganese (CAS # 7439-96-5): "Present (ACTIVE)" As Manganese [7439-96-5]

Manganese (CAS # 7439-96-5): Present (ACTIVE)

Nickel (CAS # 7440-02-0): "Present (ACTIVE)" As Nickel [7440-02-0]

Nickel (CAS # 7440-02-0): Present (ACTIVE)

Silver (CAS # 7440-22-4): "Present (ACTIVE)" As Silver [7440-22-4]

Silver (CAS # 7440-22-4): Present (ACTIVE)

Thallium (CAS # 7440-28-0): "Present (ACTIVE)" As Thallium [7440-28-0]

Thallium (CAS # 7440-28-0): Present (ACTIVE)

Beryllium (CAS # 7440-41-7): "Present (ACTIVE)" As Beryllium [7440-41-7]

Beryllium (CAS # 7440-41-7): Present (ACTIVE)

Cadmium (CAS # 7440-43-9): Present (ACTIVE)

Cobalt (CAS # 7440-48-4): "Present (ACTIVE)" As Cobalt [7440-48-4]

Cobalt (CAS # 7440-48-4): Present (ACTIVE)

Copper (CAS # 7440-50-8): "Present (ACTIVE)" As Copper [7440-50-8]

Copper (CAS # 7440-50-8): Present (ACTIVE)

Vanadium (CAS # 7440-62-2): "Present (ACTIVE)" As Vanadium [7440-62-2]

Vanadium (CAS # 7440-62-2): Present (ACTIVE)

Zinc (CAS # 7440-66-6): "Present (ACTIVE)" As Zinc [7440-66-6]

Zinc (CAS # 7440-66-6): Present (ACTIVE)

Hydrofluoric Acid (CAS # 7664-39-3): "Present (ACTIVE)" As Hydrofluoric acid [7664-39-3]

Hydrofluoric Acid (CAS # 7664-39-3): Present (ACTIVE)

Nitric Acid (CAS # 7697-37-2): "Present (ACTIVE)" As Nitric acid [7697-37-2]

Nitric Acid (CAS # 7697-37-2): Present (ACTIVE)

Water (CAS # 7732-18-5): "Present (ACTIVE)" As Water [7732-18-5]

Water (CAS # 7732-18-5): Present (ACTIVE)

Selenium (CAS # 7782-49-2): "Present (ACTIVE)" As Selenium [7782-49-2]

Selenium (CAS # 7782-49-2): Present (ACTIVE)

Chromium Nitrate Nonahydrate (CAS # 7789-02-8): "Prese



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### 15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Antimony Trioxide (CAS # 1309-64-4): "215-175-0" As Diantimony trioxide [1309-64-4]  
Antimony Trioxide (CAS # 1309-64-4): 215-175-0  
Antimony Trioxide (CAS # 1309-64-4): 215-474-6  
Arsenic Trioxide (CAS # 1327-53-3): "215-481-4" As Diarsenic trioxide [1327-53-3]  
Arsenic Trioxide (CAS # 1327-53-3): 215-481-4  
Lead (CAS # 7439-92-1): "231-100-4" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): 231-100-4  
Manganese (CAS # 7439-96-5): "231-105-1" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): 231-105-1  
Nickel (CAS # 7440-02-0): "231-111-4" As Nickel [7440-02-0]  
Nickel (CAS # 7440-02-0): 231-111-4  
Silver (CAS # 7440-22-4): "231-131-3" As Silver [7440-22-4]  
Silver (CAS # 7440-22-4): 231-131-3  
Thallium (CAS # 7440-28-0): "231-138-1" As Thallium [7440-28-0]  
Thallium (CAS # 7440-28-0): 231-138-1  
Beryllium (CAS # 7440-41-7): "231-150-7" As Beryllium [7440-41-7]  
Beryllium (CAS # 7440-41-7): 231-150-7  
Cadmium (CAS # 7440-43-9): 231-152-8  
Cobalt (CAS # 7440-48-4): "231-158-0" As Cobalt [7440-48-4]  
Cobalt (CAS # 7440-48-4): 231-158-0  
Copper (CAS # 7440-50-8): "231-159-6" As Copper [7440-50-8]  
Copper (CAS # 7440-50-8): 231-159-6  
Vanadium (CAS # 7440-62-2): "231-171-1" As Vanadium [7440-62-2]  
Vanadium (CAS # 7440-62-2): 231-171-1  
Zinc (CAS # 7440-66-6): "231-175-3" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): 231-175-3  
Hydrofluoric Acid (CAS # 7664-39-3): "231-634-8" As Hydrogen fluoride [7664-39-3]  
Hydrofluoric Acid (CAS # 7664-39-3): 231-634-8  
Nitric Acid (CAS # 7697-37-2): "231-714-2" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): 231-714-2  
Water (CAS # 7732-18-5): "231-791-2" As Water [7732-18-5]  
Water (CAS # 7732-18-5): 231-791-2  
Selenium (CAS # 7782-49-2): "231-957-4" As Selenium [7782-49-2]  
Selenium (CAS # 7782-49-2): 231-957-4  
Chromium Nitrate Nonahydrate (CAS # 7789-02-8): "236-921-1" As Chromium trinitrate [13548-38-4]  
Chromium Nitrate Nonahydrate (CAS # 7789-02-8): 236-921-1



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### SECTION 16: Other Information

#### 16.1. Full Text of Hazard Statements and Precautionary Statements

May be corrosive to metals. Causes severe skin burns and eye damage.

Keep only in original container. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection.

IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water.). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Store locked up. Store in corrosive resistant container with a resistant inner liner.

Dispose of contents in accordance with local, state, federal and international regulations.

#### 16.2. Miscellaneous Hazard Classes

**Canadian Carcinogenicity Hazard Class:** Not Applicable.

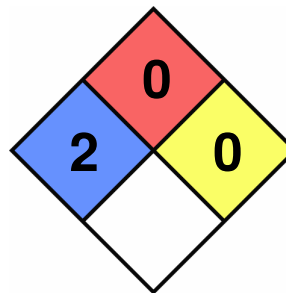
**Physical Hazards Not Otherwise Classified (PHNOC):** Not Applicable.

**Health Hazards Not Otherwise Classified (HHNOC):** Not Applicable.

**Biohazardous Infectious Materials Hazard Class:** Not Applicable.

#### 16.3. National Fire Protection Association (NFPA) Rating

<b>Health:</b>	2
<b>Flammability:</b>	0
<b>Reactivity:</b>	0
<b>Special Hazard:</b>	



#### 16.4. Document Revision

**Last Revision Date:** 2025-02-02

## DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.