



Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation Primary Metals Standard, for GFAA/ICP/ICP-MS

Product Number RPRIMET

Other Identifying Product Numbers RPRIMET-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 412 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

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SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture

Hazard Class	Category	Hazard Statements	Precautionary Statements
Skin Corrosion / Irritation	Category 2	H315	P264,P280,P302+P352,P321, P332+P313,P362+P364
Serious Eye Damage / Eye Irritation	Category 2	H319	P264,P280,P305+P351+P338, P337+P313

2.2. GHS Label Elements

Pictograms:



Signal Word: **Warning**

Hazard Statements:

NOTE: Hazard statements may be combined on labels to improve clarity and readability.

Hazard Number	Hazard Statement
H315	Causes skin irritation
H319	Causes serious eye irritation

Precautionary Statements:

NOTE: Precautionary statements may be combined or consolidated on labels to improve clarity and readability.



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Prevention

Precautionary Number	Precautionary Statement
P264	Wash hands, arms, and face thoroughly after handling.
P280	Wear protective gloves and eye protection.

Response

Precautionary Number	Precautionary Statement
P302+P352	IF ON SKIN: Wash with plenty of water.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332+P313	If skin irritation occurs: Get medical advice or attention.
P337+P313	If eye irritation persists: Get medical advice or attention.
P362+P364	Take off contaminated clothing and wash it before reuse.

2.3. Hazards not Otherwise Classified

No other hazards identified.

2.4. Ingredients of Unknown Acute Toxicity

2 percent of this mixture consists of ingredient(s) of unknown acute oral and dermal toxicity.

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SECTION 3: Composition / Information on Ingredients

3.1. Components of Mixture

Chemical Name (IUPAC)	Common Name and Synonyms	CAS Number	Weight%
water	Water	7732-18-5	97.95
nitric acid	Nitric Acid	7697-37-2	1.93
calcium carbonate	Calcium Carbonate; Carbonic acid, calcium salt	471-34-1	< 0.1
disodium carbonate	Sodium Carbonate; Carbonic acid, disodium salt; Soda ash	497-19-8	< 0.1
silicon	Silicon	7440-21-3	< 0.1
(2R,3R)-2,3-dihydroxybutanedioic acid	Tartaric Acid; (+)-Tartaric acid; L-Tartaric acid	87-69-4	< 0.1
antimony	Antimony	7440-36-0	< 0.1
arsenic	Arsenic	7440-38-2	< 0.1
chromium(3+) trinitrate nonahydrate	Chromium Nitrate Nonahydrate; Chromium(III) nitrate nonahydrate	7789-02-8	< 0.1
fluorane	Hydrofluoric Acid	7664-39-3	< 0.1
barium nitrate	Barium Nitrate	10022-31-8	< 0.1
thallium	Thallium	7440-28-0	< 0.1
selenium	Selenium	7782-49-2	< 0.1
beryllium	Beryllium	7440-41-7	< 0.1
cadmium	Cadmium	7440-43-9	< 0.1
copper	Copper	7440-50-8	< 0.1
chlorane	Hydrochloric Acid; Muriatic acid	7647-01-0	< 0.1
lead	Lead	7439-92-1	< 0.1
nickel	Nickel	7440-02-0	< 0.1

SECTION 4: First-Aid Measures

4.1. Description of Necessary Measures

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. May cause irritation, redness, pain, and tearing.

Ingestion: Dilute with water or milk. Call a physician if necessary.

Inhalation: Not expected to require first aid. If necessary, remove to fresh air.

Skin Contact: IF ON SKIN: Wash with plenty of water. May cause irritation, redness and pain. Contact will discolor skin yellow-brown depending on exposure which will wear off after a period of time.

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4.2. Most Important Symptoms and Effects, Acute and Delayed

Causes skin irritation CAUTION! Mildly corrosive liquid. Contains minute amounts of known and suspected carcinogens. Avoid contact with skin, eyes, and clothing. If swallowed, dilute with water and call a physician. Wash areas of contact with plenty of water. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause irritation, redness and pain. Contact will discolor skin yellow-brown depending on exposure which will wear off after a period of time.

4.3. Immediate Medical Attention or Special Treatment Needed

Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Flush with plenty of water for at least 15 minutes. Call a physician if irritation develops. Dilute with water or milk. Call a physician if necessary.

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

5.2. Specific Hazards Arising from the Substance or Mixture in a Fire

Not combustible, but substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Can react with metals to release flammable hydrogen gas. May react explosively with combustible organic or readily oxidizable materials such as: alcohols, turpentine, charcoal, organic refuse, metal powder, hydrogen sulfide, etc.

5.3. Special Protective Equipment and Precautions for Firefighters

Use protective clothing and 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 inert material (vermiculite, dry sand, etc) and place in a chemical waste container for proper disposal. Do not flush to sewer. Dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage. Do not mix with bases.

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SECTION 8: Exposure Controls / Personal Protection

8.1. Exposure Limits

U.S. OSHA - Permissible Exposure Limits (PEL) - Time Weighted Averages (TWA)

Chemical Name	CAS Number	Exposure Limit
Barium Nitrate	10022-31-8	"0.5 mg/m3 TWA (regulated under CAS 7440-39-3, as Ba)" As Barium, soluble compounds [RR-00049-7]
Calcium Carbonate	471-34-1	"15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)" As Calcium carbonate [1317-65-3]
Lead	7439-92-1	50 µg/m3 TWA
Nickel	7440-02-0	1 mg/m3 TWA
Silicon	7440-21-3	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Antimony	7440-36-0	0.5 mg/m3 TWA
Beryllium	7440-41-7	0.2 µg/m3 TWA
Cadmium	7440-43-9	5 µg/m3 TWA
Copper	7440-50-8	0.1 mg/m3 TWA (fume); 1 mg/m3 TWA (dust and mist)
Hydrofluoric Acid	7664-39-3	3 ppm TWA (as F)
Nitric Acid	7697-37-2	2 ppm TWA; 5 mg/m3 TWA
Chromium Nitrate Nonahydrate	7789-02-8	"0.5 mg/m3 TWA (as Cr)" As Chromium(III) compounds [RR-03889-1]

U.S. OSHA - Permissible Exposure Limits (PEL) - Ceiling Limits

Chemical Name	CAS Number	Exposure Limit
Beryllium	7440-41-7	2 µg/m3 Ceiling
Cadmium	7440-43-9	0.3 mg/m3 Ceiling (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect, fume); 0.6 mg/m3 Ceiling (applies to any operations or sectors for which the Cadmium standard is stayed or otherwise not in effect, dust)
Hydrochloric Acid	7647-01-0	5 ppm Ceiling; 7 mg/m3 Ceiling

U.S. OSHA - Permissible Exposure Limits (PEL) - Short Term Exposure Limits (STEL)

Chemical Name	CAS Number	Exposure Limit
Beryllium	7440-41-7	2 µg/m3 STEL (see 29 CFR 1910.1024)

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U.S. OSHA - Specifically Regulated Chemicals

Chemical Name	CAS Number	Exposure Limit
Lead	7439-92-1	30 µg/m ³ Action Level (See 29 CFR 1910.1025); 50 µg/m ³ TWA
Beryllium	7440-41-7	0.2 µg/m ³ TWA (See 29 CFR 1910.1024); 0.1 µg/m ³ Action Level; 2.0 µg/m ³ STEL (15 min)
Cadmium	7440-43-9	5 µg/m ³ TWA (See 29 CFR 1910.1027); 2.5 µg/m ³ Action Level

ACGIH - Threshold Limit Values - Ceilings (TLV-C)

Chemical Name	CAS Number	Exposure Limit
Hydrochloric Acid	7647-01-0	2 ppm Ceiling
Hydrofluoric Acid	7664-39-3	2 ppm Ceiling (as F)

ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)

Chemical Name	CAS Number	Exposure Limit
Nitric Acid	7697-37-2	4 ppm STEL

ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

Chemical Name	CAS Number	Exposure Limit
Barium Nitrate	10022-31-8	"0.5 mg/m ³ TWA (as Ba)" As Barium soluble compounds [RR-00049-7]
Lead	7439-92-1	0.05 mg/m ³ TWA
Nickel	7440-02-0	1.5 mg/m ³ TWA (inhalable particulate matter)
Thallium	7440-28-0	0.02 mg/m ³ TWA (inhalable particulate matter)
Antimony	7440-36-0	0.5 mg/m ³ TWA
Arsenic	7440-38-2	0.01 mg/m ³ TWA
Beryllium	7440-41-7	0.00005 mg/m ³ TWA (inhalable particulate matter)
Cadmium	7440-43-9	0.01 mg/m ³ TWA; 0.002 mg/m ³ TWA (respirable particulate matter)
Copper	7440-50-8	0.2 mg/m ³ TWA (fume)
Hydrofluoric Acid	7664-39-3	0.5 ppm TWA (as F)
Nitric Acid	7697-37-2	2 ppm TWA
Selenium	7782-49-2	0.2 mg/m ³ TWA

8.2. Engineering Controls

No specific controls are needed. Normal room ventilation is adequate.

8.3. Individual Protective Measures and Personal Protective Equipment

Respiratory Protection: Normal room ventilation is adequate.

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Skin Protection: Chemical resistant gloves.

Eye Protection: Safety glasses or goggles.

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Physical State: liquid

Color: Colorless

Odor: Data not available.

Odor Threshold: Data not available.

Melting/Freezing Point: Data not available.

Boiling Point/Range: Approximately 100°C

Flammability: Data not available.

Flammability/Explosive Limits: Data not available.

Flash Point: Not flammable

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

pH: acidic

Kinematic Viscosity: Data not available.

Solubility: miscible

Vapor Pressure: Data not available.

Evaporation Rate: Data not available.

Relative Density: 1.02

Relative Vapor Density: Data not available.

Particle Characteristics: Data not available.

Partition Coefficient n-octanol/water, log 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

Strong bases, metallic powders, Carbides, Hydrogen Sulfide, Turpentine and combustible organics.

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10.4. Hazardous Decomposition Products

Will not occur.

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not acutely toxic.

Chemical Name	CAS Number	Toxicity
Barium Nitrate	10022-31-8	Oral LD50 Rat 300 mg/kg (Source: ECHA)
Calcium Carbonate	471-34-1	Oral LD50 Rat 6450 mg/kg (Source: NLM_CIP)
Sodium Carbonate	497-19-8	Oral LD50 Rat 4090 mg/kg (Source: NLM_HSDB)
Nickel	7440-02-0	Oral LD50 Rat >9000 mg/kg (powder suspended in mineral oil, Source: EU_RAR)
Silicon	7440-21-3	Oral LD50 Rat 3160 mg/kg (Source: NLM_CIP)
Thallium	7440-28-0	Oral LD50 Acute Toxicity Estimate 5 mg/kg (Source: ECHA)
Arsenic	7440-38-2	Oral LD50 Acute Toxicity Estimate 100 mg/kg (Source: ECHA)
Beryllium	7440-41-7	Oral LD50 Acute Toxicity Estimate 100 mg/kg (Source: ECHA)
Cadmium	7440-43-9	Oral LD50 Rat 2300 mg/kg (Source: Canada_WHMIS)
Copper	7440-50-8	Oral LD50 Mouse 413 mg/kg (Source: Canada_WHMIS)
Hydrochloric Acid	7647-01-0	Oral LD50 Rat 700 mg/kg (Source: Canada_WHMIS)
Hydrofluoric Acid	7664-39-3	Oral LD50 Acute Toxicity Estimate 5 mg/kg (Source: Canada_WHMIS)
Selenium	7782-49-2	Oral LD50 Acute Toxicity Estimate 100 mg/kg (Source: ECHA)
Chromium Nitrate Nonahydrate	7789-02-8	Oral LD50 Rat 3250 mg/kg (Source: NLM_CIP)

Acute Toxicity - Dermal Exposure:

No information found.

Chemical Name	CAS Number	Toxicity
Calcium Carbonate	471-34-1	Dermal LD50 Rat >2000 mg/kg (Source: ECHA_API)
Sodium Carbonate	497-19-8	Dermal LD50 Rabbit >2000 mg/kg (no deaths occurred, Source: ECHA)
Hydrochloric Acid	7647-01-0	Dermal LD50 Rabbit >5010 mg/kg (Source: JAPAN_GHS)
Tartaric Acid	87-69-4	Dermal LD50 Rat >2000 mg/kg (Source: ECHA_API)

Acute Toxicity - Inhalation Exposure:

Not acutely toxic.

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Chemical Name	CAS Number	Toxicity
Barium Nitrate	10022-31-8	Inhalation LC50 Acute Toxicity Estimate 1.5 mg/L 4 h (Source: ECHA)
Calcium Carbonate	471-34-1	Inhalation LC50 Rat >3 mg/L 4 h (no deaths occurred, aerosol, Source: ECHA_API)
Sodium Carbonate	497-19-8	Inhalation LC50 Rat 2300 mg/m3 2 h (aerosol, Source: ECHA_API)
Nickel	7440-02-0	Inhalation LC50 Rat >10.2 mg/L 1 h (no deaths occurred, dust, Source: EU_RAR)
Thallium	7440-28-0	Inhalation LC50 Acute Toxicity Estimate 0.05 mg/L 4 h (Source: ECHA)
Arsenic	7440-38-2	Inhalation LC50 Acute Toxicity Estimate 0.5 mg/L 4 h (Source: ECHA)
Beryllium	7440-41-7	Inhalation LC50 Acute Toxicity Estimate 0.05 mg/L 4 h (Source: ECHA)
Cadmium	7440-43-9	Inhalation LC50 Rat 25 mg/m3 30 min (Source: NLM_CIP)
Copper	7440-50-8	Inhalation LC50 Rat >5.11 mg/L 4 h (no deaths occurred, dust, Source: ECHA)
Hydrochloric Acid	7647-01-0	Inhalation LC50 Acute Toxicity Estimate 0.5 mg/L 4 h (Source: ECHA)
Hydrofluoric Acid	7664-39-3	Inhalation LC50 Rat 0.79 mg/L 1 h (vapor, Source: JAPAN_GHS)
Nitric Acid	7697-37-2	Inhalation LC50 Rat 3.22 mg/L 4 h (Source: WHMIS)
Selenium	7782-49-2	Inhalation LC50 Acute Toxicity Estimate 0.5 mg/L 4 h (Source: ECHA)

11.2 Carcinogenicity:

International Agency for Research on Cancer (IARC)

Chemical Name	CAS Number	Classification
Lead	7439-92-1	Group 2B (Possibly Carcinogenic to Humans) - Supplement 7 [1987]; Monograph 23 [1980]
Nickel	7440-02-0	Group 2B (Possibly Carcinogenic to Humans) - Monograph 49 [1990]; Supplement 7 [1987]
Arsenic	7440-38-2	Group 1 (Carcinogenic to Humans) - Monograph 100C [2012]; Monograph 84 [2004] (in drinking water); Supplement 7 [1987]; Monograph 23 [1980]
Beryllium	7440-41-7	Group 1 (Carcinogenic to Humans) - Monograph 100C [2012]; Monograph 58 [1993]; Supplement 7 [1987]
Cadmium	7440-43-9	Group 1 (Carcinogenic to Humans) - Monograph 100C [2012]; Monograph 58 [1993]; Supplement 7 [1987]
Hydrochloric Acid	7647-01-0	Group 1 (Carcinogenic to Humans) - Monograph 100F [2012]; Monograph 54 [1992] As Acid mists, strong inorganic
Nitric Acid	7697-37-2	Group 1 (Carcinogenic to Humans) - Monograph 100F [2012]; Monograph 54 [1992] As Acid mists, strong inorganic
Selenium	7782-49-2	Group 3 (Not Classified) - Supplement 7 [1987]; Monograph 9 [1975]
Chromium Nitrate Nonahydrate	7789-02-8	Group 3 (Not Classified) - Monograph 49 [1990]; Supplement 7 [1987]; Monograph 23 [1980]; Monograph 2 [1973] As Chromic nitrate [13548-38-4]

National Toxicology Program (NTP)

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Chemical Name	CAS Number	Classification
Lead	7439-92-1	Reasonably Anticipated To Be A Human Carcinogen (listed under Lead and lead compounds)
Nickel	7440-02-0	Reasonably Anticipated To Be A Human Carcinogen (listed under Nickel compounds and metallic nickel)
Arsenic	7440-38-2	Known Human Carcinogen
Beryllium	7440-41-7	Known Human Carcinogen
Cadmium	7440-43-9	Known Human Carcinogen

U.S. OSHA specifically regulated carcinogens

Chemical Name	CAS Number	Classification
Beryllium	7440-41-7	see 29 CFR 1910.1024
Cadmium	7440-43-9	see 29 CFR 1910.1027

11.3 Additional Toxicology Information:

Causes skin irritation. Causes serious eye irritation.

SECTION 12: Ecological Information

12.1. Ecotoxicity

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Chemical Name	CAS Number	Species	Exposure	Toxicity
Nickel	7440-02-0	Freshwater Algae	Acute	EC50 72 h Pseudokirchneriella subcapitata 0.18 mg/L (IUCLID); EC50 96 h Pseudokirchneriella subcapitata 0.174 - 0.311 mg/L [static] (EPA)
Copper	7440-50-8	Freshwater Algae	Acute	EC50 72 h Pseudokirchneriella subcapitata 0.0426 - 0.0535 mg/L [static] (EPA); EC50 96 h Pseudokirchneriella subcapitata 0.031 - 0.054 mg/L [static] (EPA)
Sodium Carbonate	497-19-8	Freshwater Fish	Acute	LC50 96 h Lepomis macrochirus 300 mg/L [static] (EPA); LC50 96 h Pimephales promelas 310 - 1220 mg/L [static] (EPA)
Lead	7439-92-1	Freshwater Fish	Acute	LC50 96 h Cyprinus carpio 0.44 mg/L [semi-static] (EPA); LC50 96 h Oncorhynchus mykiss 1.17 mg/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 1.32 mg/L [static] (EPA)
Nickel	7440-02-0	Freshwater Fish	Acute	LC50 96 h Brachydanio rerio >100 mg/L (IUCLID); LC50 96 h Cyprinus carpio 1.3 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 10.4 mg/L [static] (EPA)
Cadmium	7440-43-9	Freshwater Fish	Acute	LC50 96 h Oncorhynchus mykiss 0.003 mg/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 0.006 mg/L [static] (EPA); LC50 96 h Cyprinus carpio 0.002 mg/L (EPA); LC50 96 h Cyprinus carpio 4.26 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 0.24 mg/L [static] (EPA); LC50 96 h Lepomis macrochirus 21.1 mg/L [flow-through] (EPA); LC50 96 h Oryzias latipes 0.016 mg/L (EPA); LC50 96 h Pimephales promelas 0.0004 - 0.003 mg/L (EPA)
Copper	7440-50-8	Freshwater Fish	Acute	LC50 96 h Pimephales promelas 0.0068 - 0.0156 mg/L (EPA); LC50 96 h Pimephales promelas <0.3 mg/L [static] (EPA); LC50 96 h Pimephales promelas 0.2 mg/L [flow-through] (EPA); LC50 96 h Oncorhynchus mykiss 0.052 mg/L [flow-through] (EPA); LC50 96 h Lepomis macrochirus 1.25 mg/L [static] (EPA); LC50 96 h Cyprinus carpio 0.3 mg/L [semi-static] (EPA); LC50 96 h Cyprinus carpio 0.8 mg/L [static] (EPA); LC50 96 h Poecilia reticulata 0.112 mg/L [flow-through] (EPA)

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Selenium	7782-49-2	Freshwater Fish	Acute	LC50 96 h Oncorhynchus mykiss >100 mg/L [semi-static] (ECHA)
Tartaric Acid	87-69-4	Freshwater Fish	Acute	LC50 96 h Danio rerio >100 mg/L [static] (ECHA)
Sodium Carbonate	497-19-8	Water Flea	Acute	EC50 48 h Daphnia magna 265 mg/L (IUCLID)
Lead	7439-92-1	Water Flea	Acute	EC50 48 h water flea 600 µg/L
Nickel	7440-02-0	Water Flea	Acute	EC50 48 h Daphnia magna >100 mg/L (IUCLID); EC50 48 h Daphnia magna 1 mg/L [Static] (EPA)
Cadmium	7440-43-9	Water Flea	Acute	EC50 48 h Daphnia magna 0.0244 mg/L [Static] (EPA)
Copper	7440-50-8	Water Flea	Acute	EC50 48 h Daphnia magna 0.03 mg/L [Static] (EPA)
Hydrofluoric Acid	7664-39-3	Water Flea	Acute	EC50 48 h Daphnia species 270 mg/L (IUCLID)
Antimony	7440-36-0	Water Flea	Chronic	NOEC 21 d Daphnia magna 1.74 mg/L [semi-static] (reproduction, ECHA_API)
Selenium	7782-49-2	Water Flea	Chronic	NOEC 21 d Daphnia magna >=3.42 µg/L [semi-static] (reproduction, ECHA_API)

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.

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SECTION 14: Transportation Information

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

Not regulated according to DOT regulations.

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

Not regulated according to IATA Dangerous Goods Regulations.

14.3 Transportation of Dangerous Goods (TDG, Canada)

Not regulated according to TDG regulations.

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SECTION 15: Regulatory Information

15.01. Occupational Safety and Health Administration (OSHA) Hazards

Chemical Name	CAS Number	Regulatory Information
Lead	7439-92-1	30 µg/m ³ Action Level (See 29 CFR 1910.1025); 50 µg/m ³ TWA (See 29 CFR 1910.1025)
Beryllium	7440-41-7	0.2 µg/m ³ TWA (See 29 CFR 1910.1024); 0.1 µg/m ³ Action Level (See 29 CFR 1910.1024); 2.0 µg/m ³ STEL (See 29 CFR 1910.1024, 15 min)
Cadmium	7440-43-9	5 µg/m ³ TWA (See 29 CFR 1910.1027); 2.5 µg/m ³ Action Level

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

Chemical Name	CAS Number	RQ	TPQ
Hydrochloric Acid	7647-01-0	500 lb TPQ (gas only)	5000 lb EPCRA RQ (gas only)
Hydrofluoric Acid	7664-39-3	100 lb TPQ	100 lb EPCRA RQ
Nitric Acid	7697-37-2	1000 lb TPQ	1000 lb EPCRA RQ

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

Chemical Name	CAS Number	Regulatory Information
Lead	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	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)
Thallium	7440-28-0	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 of the pieces of the solid metal released is >100 µm)
Antimony	7440-36-0	5000 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); 2270 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)
Arsenic	7440-38-2	1 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); 0.454 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)



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Beryllium	7440-41-7	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 $>100\text{ }\mu\text{m}$); 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 $>100\text{ }\mu\text{m}$)
Cadmium	7440-43-9	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 $>100\text{ }\mu\text{m}$); 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 $>100\text{ }\mu\text{m}$)
Copper	7440-50-8	5000 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 $>100\text{ }\mu\text{m}$); 2270 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 $>100\text{ }\mu\text{m}$)
Hydrochloric Acid	7647-01-0	5000 lb final RQ; 2270 kg final RQ
Hydrofluoric Acid	7664-39-3	100 lb final RQ; 45.4 kg final RQ
Nitric Acid	7697-37-2	1000 lb final RQ; 454 kg final RQ
Selenium	7782-49-2	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 $>100\text{ }\mu\text{m}$); 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 $>100\text{ }\mu\text{m}$)

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15.04. Superfund Amendments and Reauthorization Act (SARA) 313 Toxics Release Inventory (TRI)

Chemical Name	CAS Number	List	Regulatory Information
Barium Nitrate	10022-31-8	Emission Reporting	"1.0 % de minimis concentration (includes any unique chemical substance that contains Barium as part of that chemical's infrastructure except for Barium sulfate CAS 7727-43-7, listed under Chemical Category N040)" As Barium compounds [RR-00555-0]; "1.0 % de minimis concentration (reportable only when in aqueous solution, listed under Chemical Category N511)" As Nitrate compounds, water dissociable [RR-03804-0]
Lead	7439-92-1	Emission Reporting	not eligible for the de minimis exemption
Lead	7439-92-1	Chemicals of Special Concern	100 lb RT (this lower threshold does not apply to lead when it is contained in stainless steel, brass or bronze alloy)
Nickel	7440-02-0	Emission Reporting	0.1 % de minimis concentration
Thallium	7440-28-0	Emission Reporting	1.0 % de minimis concentration
Antimony	7440-36-0	Emission Reporting	1.0 % de minimis concentration
Arsenic	7440-38-2	Emission Reporting	0.1 % de minimis concentration
Beryllium	7440-41-7	Emission Reporting	0.1 % de minimis concentration
Cadmium	7440-43-9	Emission Reporting	0.1 % de minimis concentration
Copper	7440-50-8	Emission Reporting	1.0 % de minimis concentration
Hydrochloric Acid	7647-01-0	Emission Reporting	1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)
Hydrofluoric Acid	7664-39-3	Emission Reporting	1.0 % de minimis concentration
Nitric Acid	7697-37-2	Emission Reporting	1.0 % de minimis concentration
Selenium	7782-49-2	Emission Reporting	1.0 % de minimis concentration
Chromium Nitrate Nonahydrate	7789-02-8	Emission Reporting	"1.0 % de minimis concentration (reportable only when in aqueous solution, listed under Chemical Category N511)" As Nitrate compounds, water dissociable [RR-03804-0]; "1.0 % de minimis concentration (includes any unique chemical substance that contains Chromium as part of that chemical's infrastructure except for Chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the Chromite ore processing residue (COPR), no de minimis concentration has been assigned to this chemical category, listed under Chemical Category N090)" As Chromium(III) compounds [RR-03889-1]

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15.05. Massachusetts Right-to-Know Substance List

Chemical Name	CAS Number	Regulatory Information
Barium Nitrate	10022-31-8	Present
Calcium Carbonate	471-34-1	"Present (including dust)" As Calcium carbonate [1317-65-3]
Lead	7439-92-1	Teratogen
Nickel	7440-02-0	Carcinogen; Extraordinarily hazardous
Silicon	7440-21-3	Present (dust)
Thallium	7440-28-0	Present
Antimony	7440-36-0	Present
Arsenic	7440-38-2	Carcinogen; Extraordinarily hazardous
Beryllium	7440-41-7	Carcinogen; Extraordinarily hazardous
Cadmium	7440-43-9	Carcinogen; Extraordinarily hazardous
Copper	7440-50-8	Present
Hydrochloric Acid	7647-01-0	Extraordinarily hazardous
Hydrofluoric Acid	7664-39-3	Extraordinarily hazardous
Nitric Acid	7697-37-2	Extraordinarily hazardous
Selenium	7782-49-2	Present

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15.06. Pennsylvania Right-to-Know Hazardous Substances

Chemical Name	CAS Number	Regulatory Information
Barium Nitrate	10022-31-8	Environmental hazard
Calcium Carbonate	471-34-1	"Present" As Limestone [1317-65-3]
Lead	7439-92-1	Environmental hazard
Nickel	7440-02-0	Environmental hazard; Special hazardous substance
Silicon	7440-21-3	Present
Thallium	7440-28-0	Environmental hazard
Antimony	7440-36-0	Environmental hazard
Arsenic	7440-38-2	Environmental hazard (including inorganic); Special hazardous substance
Beryllium	7440-41-7	Environmental hazard (dust; metal); Special hazardous substance
Cadmium	7440-43-9	Environmental hazard (dust; fume; metal; powder); Special hazardous substance (metal; powder)
Copper	7440-50-8	Environmental hazard (dust; fume; metal)
Hydrochloric Acid	7647-01-0	Environmental hazard
Hydrofluoric Acid	7664-39-3	Environmental hazard
Nitric Acid	7697-37-2	Environmental hazard
Selenium	7782-49-2	Environmental hazard
Chromium Nitrate Nonahydrate	7789-02-8	"Environmental hazard" As Chromium compounds [RR-00634-8]

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15.07. New Jersey Worker and Community Right-to-Know Components

Chemical Name	CAS Number	Regulatory Information
Barium Nitrate	10022-31-8	sn 0186
Calcium Carbonate	471-34-1	"sn 4001" As Calcium carbonate [1317-65-3]
Lead	7439-92-1	sn 1096
Nickel	7440-02-0	sn 1341
Silicon	7440-21-3	sn 3125
Thallium	7440-28-0	sn 1840
Antimony	7440-36-0	sn 0141
Arsenic	7440-38-2	sn 0152
Beryllium	7440-41-7	sn 0222
Cadmium	7440-43-9	sn 0305
Copper	7440-50-8	sn 0528
Hydrochloric Acid	7647-01-0	sn 1012
Hydrofluoric Acid	7664-39-3	sn 3759
Nitric Acid	7697-37-2	sn 1356
Selenium	7782-49-2	sn 1648
Chromium Nitrate Nonahydrate	7789-02-8	"sn 0435" As Chromium nitrate [13548-38-4]; "sn 2245" As Chromium compounds [RR-00634-8]; "sn 3722" As Nitrate compounds [RR-01770-9]; "sn 2870" As Chromium(III) compounds [RR-03889-1]

15.08. California Proposition 65

Chemical Name	CAS Number	Regulatory Information
Lead	7439-92-1	carcinogen, 10/1/1992
Lead	7439-92-1	developmental toxicity, 2/27/1987
Lead	7439-92-1	male reproductive toxicity, 2/27/87
Lead	7439-92-1	female reproductive toxicity 2/27/87
Lead	7439-92-1	15 µg/day NSRL (oral)
Nickel	7440-02-0	carcinogen, 10/1/1989 (metallic)
Arsenic	7440-38-2	0.06 µg/day NSRL (inhalation); 10 µg/day NSRL (except inhalation)
Beryllium	7440-41-7	carcinogen, 10/1/1987
Beryllium	7440-41-7	0.1 µg/day NSRL
Cadmium	7440-43-9	carcinogen, 10/1/1987
Cadmium	7440-43-9	developmental toxicity, 5/1/1997
Cadmium	7440-43-9	male reproductive toxicity, 5/1/97
Cadmium	7440-43-9	0.05 µg/day NSRL (inhalation)

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

Chemical Name	CAS Number	List	Status
Barium Nitrate	10022-31-8	DSL	Present
Calcium Carbonate	471-34-1	DSL	Present
Calcium Carbonate	471-34-1	NDSL	"Present" As Calcium carbonate [1317-65-3]
Sodium Carbonate	497-19-8	DSL	Present
Lead	7439-92-1	DSL	Present
Nickel	7440-02-0	DSL	Present
Silicon	7440-21-3	DSL	Present
Thallium	7440-28-0	DSL	Present
Antimony	7440-36-0	DSL	Present
Arsenic	7440-38-2	DSL	Present
Beryllium	7440-41-7	DSL	Present
Cadmium	7440-43-9	DSL	Present
Copper	7440-50-8	DSL	Present
Hydrochloric Acid	7647-01-0	DSL	Present
Hydrofluoric Acid	7664-39-3	DSL	Present
Nitric Acid	7697-37-2	DSL	Present
Water	7732-18-5	DSL	Present
Selenium	7782-49-2	DSL	Present
Chromium Nitrate Nonahydrate	7789-02-8	DSL	"Present" As Chromium nitrate [13548-38-4]
Tartaric Acid	87-69-4	DSL	Present

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

Chemical Name	CAS Number	Status
Barium Nitrate	10022-31-8	Present (ACTIVE)
Calcium Carbonate	471-34-1	Present (ACTIVE)
Sodium Carbonate	497-19-8	Present (ACTIVE)
Lead	7439-92-1	Present (ACTIVE)
Nickel	7440-02-0	Present (ACTIVE)
Silicon	7440-21-3	Present (ACTIVE)
Thallium	7440-28-0	Present (ACTIVE)
Antimony	7440-36-0	Present (ACTIVE)
Arsenic	7440-38-2	Present (ACTIVE)
Beryllium	7440-41-7	Present (ACTIVE)
Cadmium	7440-43-9	Present (ACTIVE)
Copper	7440-50-8	Present (ACTIVE)
Hydrochloric Acid	7647-01-0	Present (ACTIVE)
Hydrofluoric Acid	7664-39-3	Present (ACTIVE)
Nitric Acid	7697-37-2	Present (ACTIVE)
Water	7732-18-5	Present [XU] (ACTIVE)
Selenium	7782-49-2	Present (ACTIVE)
Chromium Nitrate Nonahydrate	7789-02-8	"Present (ACTIVE)" As Nitric acid, chromium(3+) salt (3:1) [13548-38-4]
Tartaric Acid	87-69-4	Present (ACTIVE)

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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)

Chemical Name	CAS Number	List	Number
Barium Nitrate	10022-31-8	EINECS	233-020-5
Calcium Carbonate	471-34-1	EINECS	207-439-9
Sodium Carbonate	497-19-8	EINECS	207-838-8
Lead	7439-92-1	EINECS	231-100-4
Nickel	7440-02-0	EINECS	231-111-4
Silicon	7440-21-3	EINECS	231-130-8
Thallium	7440-28-0	EINECS	231-138-1
Antimony	7440-36-0	EINECS	231-146-5
Arsenic	7440-38-2	EINECS	231-148-6
Beryllium	7440-41-7	EINECS	231-150-7
Cadmium	7440-43-9	EINECS	231-152-8
Copper	7440-50-8	EINECS	231-159-6
Hydrochloric Acid	7647-01-0	EINECS	231-595-7
Hydrofluoric Acid	7664-39-3	EINECS	231-634-8
Nitric Acid	7697-37-2	EINECS	231-714-2
Water	7732-18-5	EINECS	231-791-2
Selenium	7782-49-2	EINECS	231-957-4
Chromium Nitrate Nonahydrate	7789-02-8	EINECS	"236-921-1" As Chromium trinitrate [13548-38-4]
Tartaric Acid	87-69-4	EINECS	201-766-0

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15.12. China - Inventory of Existing chemical Substances (IECSC)

Chemical Name	CAS Number	Status
Barium Nitrate	10022-31-8	Present [35583]
Calcium Carbonate	471-34-1	Present [34102]
Sodium Carbonate	497-19-8	Present [34127]
Lead	7439-92-1	Present [25764]
Nickel	7440-02-0	Present [25343]
Silicon	7440-21-3	Present [13814]
Thallium	7440-28-0	Present [33902]
Antimony	7440-36-0	Present [34285]
Arsenic	7440-38-2	Present [29975]
Beryllium	7440-41-7	Present [25604]
Cadmium	7440-43-9	Present [13601]
Copper	7440-50-8	Present [34399]
Hydrochloric Acid	7647-01-0	Present [37053]
Hydrofluoric Acid	7664-39-3	Present [27221]
Nitric Acid	7697-37-2	Present [35578]
Water	7732-18-5	Present [32224]
Selenium	7782-49-2	Present [35336]
Chromium Nitrate Nonahydrate	7789-02-8	Present [21184]
Tartaric Acid	87-69-4	Present [21192] (listed under D-Tartaric acid)

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15.13. Korea - Existing Chemicals Inventory (KECI/KECL)

Chemical Name	CAS Number	List	Status
Barium Nitrate	10022-31-8	Annex 1	Present [KE-02070]
Barium Nitrate	10022-31-8	Annex 2	"97-3-693 (1997-3-0693)" As Barium compounds [RR-00555-0]
Calcium Carbonate	471-34-1	Annex 1	Present [KE-04487]
Sodium Carbonate	497-19-8	Annex 1	Present [KE-31380]
Lead	7439-92-1	Annex 1	Present [KE-21887]
Nickel	7440-02-0	Annex 1	Present [KE-25818]
Silicon	7440-21-3	Annex 1	Present [KE-31029]
Thallium	7440-28-0	Annex 1	Present [KE-33716]
Antimony	7440-36-0	Annex 1	Present [KE-01834]
Antimony	7440-36-0	Annex 3	"Present (97-1-176)" As Inorganic antimony compounds [RR-00554-9]
Arsenic	7440-38-2	Annex 1	Present [KE-01933]
Beryllium	7440-41-7	Annex 1	Present [KE-02829]
Cadmium	7440-43-9	Annex 1	Present [KE-04397]
Copper	7440-50-8	Annex 1	Present [KE-08896]
Hydrochloric Acid	7647-01-0	Annex 1	Present [KE-20189]
Hydrofluoric Acid	7664-39-3	Annex 1	Present [KE-20198]
Nitric Acid	7697-37-2	Annex 1	Present [KE-25911]
Water	7732-18-5	Annex 1	Present [KE-35400]
Selenium	7782-49-2	Annex 1	Present [KE-30924]
Chromium Nitrate Nonahydrate	7789-02-8	Annex 1	"Present [KE-06019]" As Chromium nitrate [13548-38-4]
Tartaric Acid	87-69-4	Annex 1	Present [KE-10801]

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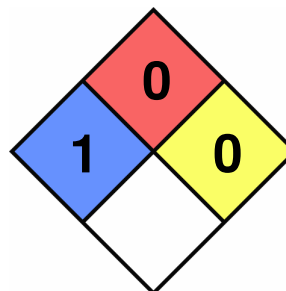
15.14. Japan - Existing and New Chemical Substances Inventory (ENCS)

Chemical Name	CAS Number	MITI No.
Barium Nitrate	10022-31-8	(1)-86
Calcium Carbonate	471-34-1	(1)-122
Sodium Carbonate	497-19-8	(1)-164
Lead	7439-92-1	- (exempt)
Nickel	7440-02-0	- (exempt)
Silicon	7440-21-3	- (exempt)
Thallium	7440-28-0	- (exempt)
Antimony	7440-36-0	- (exempt)
Arsenic	7440-38-2	- (exempt)
Beryllium	7440-41-7	- (exempt)
Cadmium	7440-43-9	- (exempt)
Copper	7440-50-8	- (exempt)
Hydrochloric Acid	7647-01-0	(1)-215
Hydrofluoric Acid	7664-39-3	(1)-306
Nitric Acid	7697-37-2	(1)-394
Water	7732-18-5	- (listed on Japanese Pharmacopoeia 8th Edition)
Selenium	7782-49-2	- (exempt)
Chromium Nitrate Nonahydrate	7789-02-8	(1)-281
Tartaric Acid	87-69-4	(2)-1456

SECTION 16: Other Information

16.1 National Fire Protection Associate (NFPA) Rating

Health: 1
Flammability: 0
Reactivity: 0
Special Hazard:





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16.2 Document Revision

Last Revision Date:

2026-05-04

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