

Material Safety Data Sheet

Section 1. Product and Company Identification

Product Identification: Trace Metals in Fish
 MSDS Number: CRM-TMF
 Company Identification: High-Purity Standards
 P.O. Box 41727
 Charleston, SC 29423
 Telephone: (843) 767-7900
 FAX: (843) 767-7906
 In case of emergency call INFOTRAC: 800-535-5053

Section 2. Chemical Composition

Component	CAS/EINECS Registry #	Percent Concentration	ACGIH TLV	OSHA PEL
Arsenic	7440-38-2/231-148-6	0.01	0.01 mg/m ³	10 µg/ m ³
Calcium Carbonate	471-34-1/207-439-9	0.01 (as Ca)	0.5 mg/m ³	0.5 mg/m ³
Cadmium	7440-43-9/231-152-8	<0.001	0.002 mg/m ³ (respirable particulate)	0.005 mg/m ³
Chromium	7440-47-3/231-157-5	0.002	0.5 mg/m ³	1 mg/m ³
Copper	7440-50-8/231-159-6	0.005	0.2 mg/m ³ (fumes)	0.1 mg/m ³ (fumes)
Iron	7439-89-6/231-096-4	0.01	10 mg/m ³	5 mg/m ³
Lead	7439-92-1/231-100-4	0.001	0.05 mg/m ³	0.05 mg/m ³
Mercury	7439-97-6/231-106-7	0.01	0.05 mg/m ³	0.025 mg/m ³
Nickel	7440-02-0/231-111-4	0.002	1.5 mg/m ³	1 mg/m ³
Ammonium Dihydrogen Phosphate (NH ₄ H ₂ PO ₄)	7722-76-1/231-764-5	0.001 (as P)	Not Available	Not Available
Selenium	7782-49-2/231-957-4	0.001	0.2 mg/m ³	0.2 mg/ m ³
Zinc	7440-66-6/231-175-3	0.1	5 mg/m ³	1 mg/m ³
Nitric Acid	7697-37-2/231-714-2	2	2 mg/kg	5 mg/m ³
Water, deionized	7732-18-5/231-791-2	Balance	Not Available	Not Available

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Section 3. Hazard Identification

Emergency Overview: Mildly corrosive. May cause irritation to areas of contact. Wash areas of contact with water for at least 15 minutes. If ingested, do not induce vomiting. Dilute with water and call a physician. May cause cancer. Potential symptoms of overexposure are irritation of the eyes, mucous membranes and skin, dental erosion, bronchitis, pneumonitis, delayed pulmonary edema.

Target Organs: Eyes, skin, respiratory system, immune system, nasal cavities, teeth, blood, bones. Increases risk of lung, liver, kidney, and bladder cancer with prolonged exposure.

Skin/eye Contact: Liquid may cause burns to skin and eyes.

Inhalation: May cause irritation.

Ingestion: May cause nausea, vomiting, and diarrhea. Ingestion of arsenic compounds may be poisonous, leading to death. Animal studies indicate that prolonged ingestion of some soluble nickel compounds may affect the blood, bone marrow, thymus, spleen, kidneys, and immune system.

Section 4. First Aid Measures

Inhalation: Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

Skin/eye Contact: Flush eyes with plenty of water for at least 15 minutes. Remove contaminated shoes and clothing. Rinse affected area with large amount of water followed by washing the area with soap and water. Call a physician if irritation develops.

Ingestion: CALL A PHYSICIAN; If swallowed rinse mouth, do NOT induce vomiting, if conscious give large quantities of water or milk.

Section 5. Fire Fighting Measures

Fire & Explosion hazards: While nitric acid is not combustible, it is a strong oxidizing agent that can react with combustible materials. NO_x compounds can be released in event of fire.

Extinguishing Media: Use any extinguishing media that is suitable for the surrounding area. Use a water spray to dilute nitric acid and to absorb liberated nitrogen oxides.

Specific Methods: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode.

Section 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Cover the spill with sodium bicarbonate or a soda ash-slaked lime mixture (50:50) to neutralize the acid. Place the neutralized material into containers suitable for eventual disposal, reclamation, or destruction. Always dispose of in accordance with local regulations.

Section 7. Handling and Storage

Store in a cool, dry, ventilated storage area with acid resistant floors and good drainage. Keep out of direct sunlight and away from heat, water, and incompatible materials. When diluting, the acid should always be added slowly to water and in small amounts. Refer to Section 8 for personal handling instructions. Wash exposed skin area thoroughly after handling.

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Section 8. Exposure Controls and Personal Protection

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

Respiratory Protection: Normal room ventilation is adequate.

Personal Protection: Wear proper gloves, safety glasses with side shields, lab coat/apron.

Section 9. Physical and Chemical Properties

Molecular Weight: N/A

Boiling Point: Approximately 100°C

Freezing Point: N/A

Vapor Pressure (mm): N/A

Vapor Density (air+1): N/A

Specific Gravity (H₂O = 1): Approximately 1.0

Solubility in H₂O: Complete

Appearance: Clear, light gray liquid

Odor: Odorless to a faint pungent odor

pH: <1

Section 10. Stability and Reactivity

Stability Indicator: YES

Conditions to Avoid: Metals, chlorine, organic materials, strong alkali, cyanides.

Incompatibles: Strong reducing agents.

Hazardous Decomposition Products: NO_x compounds including nitric oxide (NO), nitrogen dioxide (NO₂), nitrous oxide (N₂O) and nitric acid mist or vapor.

Hazardous Polymerization: NO

Section 11. Toxicological Information

Toxicity Data:

May affect skin, mucous membranes and eyes. Swallowing may lead to a negative effect on mouth and throat and to the risk of perforation or the corrosion of esophagus and stomach.

Cadmium, lead, and nickel are investigated as a tumorigens.

RTECS#

HNO₃- QU5775000 As- CG0525000 CaCO₃- EV9580000 Cd- EU9800000

Cr- GB4200000 Cu- GL5325000 Hg- OV4550000 Pb- OF7525000

Ni- QR5950000 Se- VS7700000 Zn- ZG8600000

LD_{LO} Oral, Human: (HNO₃) 430 mg/kg; LD₅₀, Oral, Rat: (As) 763 mg/kg; LD_{LO} Oral, Human: (Cd) 2330 mg/kg; LD₅₀ Unreported Route, Rat: (Cr) 27.5 mg/kg; TD_{LO} Oral, Human: (Cu) 120 µg/kg; TC_{LO} Inhalation, Rat: (Hg) 1 mg/m³/24hrs/5wks continuous; TD₅₀ Oral, Woman: (Pb) 450 mg/kg/6 year; LD₅₀, Intravenous, Mouse: (Ni) 50 mg/kg; LD₅₀, Oral, Rat: (Se) 6700 mg/kg; TD_{LO} Implant; LD_{LO} Oral, Duck: (Zn) 388 mg/kg.

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Section 12. Ecological Information

Ecotoxicological information: Do not allow material to reach ground water, water bodies, or sewage system.

Section 13. Disposal Considerations

Follow federal, state and local regulations for acid waste.

Section 14. Transport Information

D.O.T. Classification: Not hazardous by DOT regulations (based on low concentration of acid).

Section 15. Regulations (Not meant to be all inclusive-selected regulation listed)

TSCA Status: Components of this solution are listed on the TSCA Inventory.

RCRA Status: 7439-97-6 (Mercury)

SARA: Subject to the reporting requirements of Section 313 or SARA Title III and of 40 CFR 372

Risk Phrases: R20/21/22, R45 Harmful by inhalation or skin contact or if swallowed; May cause cancer.

Safety Phrases: S36/37/39 Wear suitable protective clothing, gloves and eye/face protection

WHMIS Information (Canada): E: Corrosive

Note: CRM-TMF is an inorganic solution containing no biological materials.

Section 16. Other Information

HPS products are intended for laboratory use only. All products should be handled and used by trained professional personnel only. The responsibility for the safe handling and use of these products rest solely with the buyer and/or user. The MSDS was prepared carefully and represents the best data currently available to us; however, HPS does not certify the data on the MSDS. Certified values for this material are given only on the Certificate of Analysis.

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