

Safety Data Sheet

Section 1. Product and Company Identification

Product Identification: ICP-200.8-2
 MSDS Number: ICP-200.8-2
 Recommended Use: For Laboratory Use.
 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. Hazard Identification

Classification:

Skin Corrosion/Irritation, Category 1

Serious Eye Damage/ Eye Irritation, Category 1

Labeling:



Symbol:

Signal Word: Danger.

Hazard Statement: Causes severe skin burns and eye damage.

Precautionary Statement: Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling.

Section 3. Composition

Component	CAS/EINECS Registry #	Percent Concentration
Aluminum	7429-90-5/231-072-3	0.001
Antimony	7440-36-0/231-146-5	0.001
Arsenic	7440-38-2/231-148-6	0.001
Barium Carbonate (BaCO_3)	513-77-9/208-167-3	0.001 (as Ba)
Barium Nitrate ($\text{Ba}(\text{NO}_3)_2$)	10022-31-8/233-020-5	
Beryllium Acetate ($\text{Be}_4\text{O}(\text{C}_2\text{H}_3\text{O}_2)_6$)	19049-40-2/ 242-785-4	0.001 (as Be)
Cadmium	7440-43-9/231-152-8	0.001
Chromium	7440-47-3/231-157-5	0.001
Cobalt	7440-48-4/231-158-0	0.001
Copper	7440-50-8/231-159-6	0.001
Lead	7439-92-1/231-100-4	0.001
Manganese	7439-96-5/231-105-1	0.001
Molybdenum	7439-98-7/231-107-2	0.001
Nickel	7440-02-0/231-111-4	0.001

Safety Data Sheet No. ICP.200.8-2	Date: April 11, 2014	
ICP.200-8-2	Revision: 001	Page 2 of 6

Selenium	7782-49-2/231-957-4	0.05
Silver	7440-22-4/231-131-3	0.001
Thallium	7440-28-0/231-138-1	0.001
Thorium Oxide (ThO ₂)	1314-20-1/215-225-1	0.001 (as Th)
Uranium Oxide (U ₃ O ₈)	1344-59-8/215-702-4	0.001 (as U)
Ammonium Metavanadate (NH ₄ VO ₃)	7803-55-6/232-261-3	0.001 (as V)
Zinc	7440-66-6/231-175-3	0.001
Nitric Acid	7697-37-2/ 231-714-2	2
Hydrofluoric Acid	7664-39-3/231-634-8	<0.5
Water, deionized	7732-18-5/ 231-791-2	Balance

**Note: Barium is derived from either Barium carbonate or Barium Nitrate. For this reason both sources are listed on the SDS. Refer to the product's Certificate of Analysis to determine which source was used in the production of the lot number received.*

Section 4. First Aid Measures

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Gently wash with plenty of soap and water. Rub calcium gluconate gel immediately to skin.

Obtain medical assistance. Wash contaminated clothing before reuse.

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 doctor/physician.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Target Organs: Eyes, skin, respiratory system, teeth, and skeletal system.

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; however, it is present in limited quantities in this solution. NO_x compounds can be released in case of fire. Hydrofluoric acid may ignite or explode on contact with combustible materials.

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. Do not allow to enter drainage systems or water ways. Dike area and dilute spill with water and neutralize with soda ash, limestone, etc. Place the neutralized material into containers

Safety Data Sheet No. ICP.200.8-2	Date: April 11, 2014	
ICP.200-8-2	Revision: 001	Page 3 of 6

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.

Section 8. Exposure Controls and Personal Protection

Engineering Controls: Provide exhaust ventilation or other engineering controls to keep any buildup of airborne contaminants below their respective threshold limit value. Ensure the availability of eyewash stations and safety showers.

Personal Protection: Wear appropriate gloves impermeable to HF, safety glasses with face shield, and lab coat/apron to avoid any direct skin contact.

Exposure Limits:

Component	ACGIH TLV	OSHA PEL
Aluminum	10 mg/m ³	15 mg/m ³
Antimony	0.5 mg/m ³	0.5 mg/m ³
Arsenic	0.01 mg/m ³	10 µg/m ³
Barium	0.5 mg/m ³	0.5 mg/m ³
Beryllium Acetate	0.002 mg/m ³	0.002 mg/m ³
Cadmium	0.002 mg/m ³ (respirable particulate)	0.005 mg/m ³
Chromium	0.5 mg/m ³	1 mg/m ³
Cobalt	0.02 mg/m ³	0.1 mg/m ³
Copper	0.2 mg/m ³ (fumes)	0.1 mg/m ³ (fumes)
Lead	0.05 mg/m ³	0.05 mg/m ³
Manganese	0.2 mg/m ³	C 5 mg/m ³
Molybdenum	5 mg/m ³	5 mg/m ³
Nickel	1.5 mg/m ³	1 mg/m ³
Selenium	0.2 mg/m ³	0.2 mg/m ³
Silver	0.1 mg/m ³	Not Available
Thallium	0.1 mg/m ³	0.1 mg/m ³
Thorium Oxide	Not Available	Not Available
Uranium Oxide	0.2 mg/m ³	0.05 mg/m ³
Ammonium Metavanadate	0.05 mg/m ³	Not Available
Zinc	5 mg/m ³	1 mg/m ³
Nitric Acid	2 mg/kg	5 mg/m ³
Hydrofluoric Acid	C: 3 mg/ml	2.5 mg/m ³ STEL: 6 mg/ml

Section 9. Physical and Chemical Properties

Physical State: Liquid

Color: Clear, colorless liquid

Odor: Odorless to a faint pungent odor

Odor threshold: None

Safety Data Sheet No. ICP.200.8-2	Date: April 11, 2014	
ICP.200-8-2	Revision: 001	Page 4 of 6

pH: <2
 Melting point: N/A
 Freezing Point: N/A
 Boiling Point: Approximately 100°C
 Flash point: N/A
 Evaporation rate: N/A
 Flammability: N/A
 Explosion limits: N/A
 Vapor Pressure (mm): N/A
 Vapor Density (air+1): N/A
 Relative density: (H₂O = 1): Approximately 1.0
 Solubility in H₂O: Complete
 Auto ignition temperature: N/A
 Decomposition temperature: N/A
 Molecular Weight: N/A

Section 10. Stability and Reactivity

Stability Indicator: YES
 Conditions to Avoid: Avoid heat and contact with combustible and other incompatible materials.
 Incompatibles: Strong reducing agents, metallic powders, strong bases, chlorine, calcium compounds, hydroxides, organic materials, strong alkali, cyanides.
 Hazardous Decomposition Products: HF and NO_x compounds including nitric oxide (NO), nitrogen dioxide (NO₂), nitrous oxide (N₂O) and nitric acid mist or vapor.
 Hazardous Polymerization: Will not occur.

Section 11. Toxicological Information

May cause severe irritation/burns to respiratory system and areas of contact. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. The symptoms may be delayed.
 This solution contains depleted radioactive thorium oxide and natural uranium oxide at 0.001% concentration. Both are weakly radioactive and emits alpha particles which are harmful to the body. For the energy range of alpha particles usually encountered, a fraction of a millimeter of any ordinary material is sufficient for absorbance. Thin rubber, acrylic, stout paper, or cardboard will suffice.

RTECS#

HNO ₃ - QU5775000	HF- MW7875000
Al-BD0330000	Sb-CC4025000
As- CG0525000	BaCO ₃ - CQ8600000
Be ₄ O(C ₂ H ₃ O ₂) ₆ – DS29750000	Cd- EU9800000
Cr- GB4200000	Co- GF8750000
Cu- GL5325000	Pb- OF7525000
Mn- OO9275000	Mo- QA4680000
Ni- QR5950000	Se- VS7700000
Ag- VW3500000	ThO ₂ - XO6950000
Tl- XG3425000	U ₃ O ₈ - YR3490000
NH ₄ VO ₃ -YW0875000	Zn- ZG8600000
Ba(NO ₃) ₂ - CQ9625000	

Safety Data Sheet No. ICP.200.8-2	Date: April 11, 2014	
ICP.200-8-2	Revision: 001	Page 5 of 6

LD_{LO} Oral, Human: (Nitric Acid) 430 mg/kg
 LC_{LO} Inhalation, Human: (Hydrofluoric Acid) 50 mg/kg/30 min
 LD₅₀ Oral, Rat: (Aluminum) >5000 mg/kg
 LD₅₀ Oral, Rat: (Antimony) 7g/kg
 LD₅₀, Oral, Rat: (Arsenic) 763 mg/kg
 LD_{LO} Oral, Human: (Barium Carbonate) 17 mg/kg
 LD₅₀ Oral, Rat: (Ba(NO₃)₂) 355 mg/kg.
 TD_{LO} Intratracheal, Rat: (Beryllium Acetate) 13 mg/kg
 LD_{LO} Oral, Human: (Cadmium) 2330 mg/kg
 LD₅₀ Unreported Route, Rat: (Chromium) 27.5 mg/kg
 LD_{LO} Oral, Rabbit: (Cobalt) 750 mg/kg
 TD_{LO} Oral, Human: (Copper) 120 µg/kg
 TD₅₀ Oral, Woman: (Lead) 450 mg/kg/6 year
 LD₅₀ Oral, Rat: (Manganese Acetate) 9 g/kg
 TD_{LO} Oral, Mouse: (Molybdenum) 448 mg/kg (multigenerations)
 LD₅₀, Intravenous, Mouse: (Nickel) 50 mg/kg
 LD₅₀, Oral, Rat: (Selenium) 6700 mg/kg
 TD_{LO} Implant, Mouse: (Silver) 11 g/kg
 TD_{LO} Oral, Man: (Thallium) 5,714 µg/kg
 TD_{LO} Intraarterial, Human: (Thorium) 490 mg/kg
 TD₅₀ Unreported Route, Rat: (Uranium Oxide) 750 mg/kg
 LD₅₀ Oral, Rat: (Ammonium Metavanadate) 58,100 µg/kg
 LD_{LO} Oral, Duck: (Zinc) 388 mg/kg.

Section 12. Ecological Information

Ecotoxicological information: Do not allow material to reach ground water, water bodies, or sewage system. High concentrations of zinc have been shown to be detrimental to aquatic life.

Section 13. Disposal Considerations

General: Follow Federal, state and local regulations for waste.

Section 14. Transport Information

D.O.T. Classification: Hazardous by IATA and 49CFR regulations (based on concentration of acid).
 D.O.T. Shipping Name: Corrosive liquid, Acidic, Inorganic, n.o.s. (Nitric Acid Solution)
 D.O.T. Hazard Class: 8
 U.N./N.A. Number: 3264
 Packing Group: II
 D.O.T. Label: Corrosive (8)

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

OSHA Status: These items meet the OSHA Hazard Communication Standard (29 CFR 1910.1200) definition of a hazardous material.
 TSCA Status: Components of this solution are listed on the TSCA Inventory.
 RCRA Status: Yes (Hydrofluoric Acid-U134); (Ammonium Metavanadate-P119)

Safety Data Sheet No. ICP.200.8-2	Date: April 11, 2014	
ICP.200-8-2	Revision: 001	Page 6 of 6

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

Risk Phrases: R20/21/22, R45, R48 Harmful by inhalation or skin contact or if swallowed; May cause cancer; Danger of serious damage to health by prolonged exposure; Danger of cumulative effects.

Safety Phrases: S36/37/39, S53 Wear suitable protective clothing, gloves and eye/face protection; Avoid exposure- obtain special instruction before use.

WHMIS Information (Canada): E: Corrosive

ICP-200.8-2 contains a limited quantity radioactive material that is exempt from radioactive labeling requirements under 49CFR section 173.421. The massic activity of ICP-200.8-2 is less than 0.3kBq.

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 rests solely with the buyer and/or user. The SDS was prepared carefully and represents the best data currently available to us; however, HPS does not certify the data on the SDS. Certified values for this material are given only on the Certificate of Analysis.

Theodore C. Rains, Ph.D.