

## Safety Data Sheet

### Section 1. Product and Company Identification

Product Identification: ICP-MS-MCS Solution B  
 MSDS Number: ICP-MS-MCS Solution B  
 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
Arsenic	7440-38-2/231-148-6	0.002
Barium Carbonate (BaCO <sub>3</sub> )	513-77-9/208-167-3	0.002 (as Ba)
Barium Nitrate (Ba(NO <sub>3</sub> ) <sub>2</sub> )	10022-31-8/233-020-5	
Calcium Carbonate (CaCO <sub>3</sub> )	471-34-1/207-439-9	0.1 (as Ca)
Cadmium	7440-43-9/231-152-8	0.002
Cobalt	7440-48-4/231-158-0	0.002
Copper	7440-50-8/231-159-6	0.002
Iron	7439-89-6/231-096-4	0.1
Lead	7439-92-1/231-100-4	0.002
Molybdenum	7439-98-7/231-107-2	0.002
Ammonium Dihydrogen Phosphate (NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub> )	7722-76-1/231-764-5	0.1 (as P)
Potassium Nitrate (KNO <sub>3</sub> )	7757-79-1/231-818-8	0.1 (as K)
Selenium	7782-49-2/231-957-4	0.002
Silver	7440-22-4/231-131-3	0.002

<b>Safety Data Sheet No. ICP-MS-MCS Solution B</b>	<b>Date: April 18, 2014</b>	
<b>ICP-MS-MCS Solution B</b>	<b>Revision: 001</b>	<b>Page 2 of 5</b>

Thallium	7440-28-0/231-138-1	0.002
Nitric Acid	7697-37-2/ 231-714-2	2
Hydrofluoric Acid	7664-39-3/231-634-8	<0.001
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<sub>x</sub> 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 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.

<b>Safety Data Sheet No. ICP-MS-MCS Solution B</b>	<b>Date: April 18, 2014</b>	
<b>ICP-MS-MCS Solution B</b>	<b>Revision: 001</b>	<b>Page 3 of 5</b>

### 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.

**Respiratory Protection:** Provide approved respiratory apparatus for non-routine or emergency use. Use an approved vapor respirator when the vapor or mist concentrations are high. If necessary, refer to the NIOSH document Guide to the Selection and Use of Particulate Respirators Certified under 42 CFR 84 for selection and use of respirators certified by NIOSH.

**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
Arsenic	0.01 mg/m <sup>3</sup>	10 µg/ m <sup>3</sup>
Barium	0.5 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
Calcium Carbonate	0.5 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
Cadmium	0.002 mg/m <sup>3</sup> (respirable particulate)	0.005 mg/m <sup>3</sup>
Cobalt	0.02 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Copper	0.2 mg/m <sup>3</sup> (fumes)	0.1 mg/m <sup>3</sup> (fumes)
Iron	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Lead	0.05 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Molybdenum	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Ammonium Dihydrogen Phosphate	Not Available	Not Available
Potassium Nitrate	Not Available	Not Available
Selenium	0.2 mg/m <sup>3</sup>	0.2 mg/ m <sup>3</sup>
Silver	0.1 mg/m <sup>3</sup>	Not Available
Thallium	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Nitric Acid	2 mg/kg	5 mg/m <sup>3</sup>
Hydrofluoric Acid	C: 3 mg/ml	2.5 mg/m <sup>3</sup> STEL: 6 mg/ml

### Section 9. Physical and Chemical Properties

Physical State: Liquid

Color: Clear, colorless to brownish-red

Odor: Odorless to a faint pungent odor

Odor threshold: None

pH: <2

Melting point: N/A

Freezing Point: N/A

Boiling Point: Approximately 100°C

Flash point: N/A

Evaporation rate: N/A

<b>Safety Data Sheet No. ICP-MS-MCS Solution B</b>	<b>Date: April 18, 2014</b>	
<b>ICP-MS-MCS Solution B</b>	<b>Revision: 001</b>	<b>Page 4 of 5</b>

Flammability: N/A  
 Explosion limits: N/A  
 Vapor Pressure (mm): N/A  
 Vapor Density (air+1): N/A  
 Relative density: (H<sub>2</sub>O = 1): Approximately 1.0  
 Solubility in H<sub>2</sub>O: 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<sub>x</sub> compounds including nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O) and nitric acid mist or vapor.  
 Hazardous Polymerization: Will not occur.

### Section 11. Toxicological Information

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.

#### RTECS#

HNO <sub>3</sub> - QU5775000	HF - MW7875000
Ag - VW3500000	As - CG0525000
BaCO <sub>3</sub> - CQ8600000	CaCO <sub>3</sub> - EV9580000
Cd - EU9800000	Co - GF8750000
Cu - GL5325000	KNO <sub>3</sub> - TT3700000
Mo - QA4680000	Mn - OO9275000
Pb - OF7525000	Se - VS7700000
Tl- XG3425000	Fe - NO4565500
Ba(NO <sub>3</sub> ) <sub>2</sub> - CQ9625000	

#### Toxicity Data:

LD<sub>LO</sub> Oral, Human: (Nitric Acid) 430 mg/kg  
 LC<sub>LO</sub> Inhalation, Human: (Hydrofluoric Acid) 50 mg/kg/30 min  
 LD<sub>50</sub>, Oral, Rat: (Arsenic) 763 mg/kg  
 LD<sub>LO</sub> Oral, Human: (Barium Carbonate) 17 mg/kg  
 LD<sub>50</sub> Oral, Rat: (Ba(NO<sub>3</sub>)<sub>2</sub>) 355 mg/kg.  
 LD<sub>LO</sub> Oral, Human: (Cadmium) 2330 mg/kg  
 LD<sub>LO</sub> Oral, Rabbit: (Cobalt) 750 mg/kg  
 TD<sub>LO</sub> Oral, Human: (Copper) 120 µg/kg  
 LD<sub>50</sub> Oral, Rat: (Potassium Nitrate) 3750 mg/kg  
 TD<sub>LO</sub> Oral, Mouse: (Molybdenum) 448 mg/kg (multigenerations)  
 TD<sub>50</sub> Oral, Woman: (Lead) 450 mg/kg/6 years  
 LD<sub>50</sub>, Oral, Rat: (Selenium) 6700 mg/kg  
 TD<sub>LO</sub> Oral, Man: (Thallium) 5,714 µg/kg.

<b>Safety Data Sheet No. ICP-MS-MCS Solution B</b>	<b>Date: April 18, 2014</b>	
<b>ICP-MS-MCS Solution B</b>	<b>Revision: 001</b>	<b>Page 5 of 5</b>

#### Section 12. Ecological Information

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

#### 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)

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

RCRA Status: Yes (HF- 7664-39-3)

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

Risk Phrases: R20/21/22 Harmful by inhalation, skin contact, or if swallowed.

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

WHMIS Information (Canada): E: Corrosive

#### 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.