

## Section 1. Product and Company Identification

Product Identification: CRM-TMDW  
 MSDS Number: CRM-TMDW  
 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. Causes serious 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 <sub>3</sub> )	513-77-9/208-167-3	<0.001 (as Ba)
Barium Nitrate (Ba(NO <sub>3</sub> ) <sub>2</sub> )	10022-31-8/233-020-5	
Beryllium Acetate (Be <sub>4</sub> O(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> )	19049-40-2/242-785-4	<0.001 (as Be)
Bismuth	7440-69-9/231-177-4	<0.001
Calcium Carbonate (CaCO <sub>3</sub> )	471-34-1/207-439-9	0.004 (as Ca)
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
Iron	7439-89-6/231-096-4	<0.001

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Lead	7439-92-1/231-100-4	<0.001
Lithium Carbonate (Li <sub>2</sub> CO <sub>3</sub> )	554-13-2/209-062-5	<0.001 (as Li)
Magnesium	7439-95-4/231-104-6	0.001
Manganese Acetate Tetrahydrate (Mn(CH <sub>3</sub> CO <sub>2</sub> ) <sub>2</sub> )*4H <sub>2</sub> O	6156-78-1/211-334-3	<0.001 (as Mn)
Molybdenum	7439-98-7/231-107-2	<0.001
Nickel	7440-02-0/231-111-4	<0.001
Potassium Nitrate (KNO <sub>3</sub> )	7757-79-1/231-818-8	<0.001 (as K)
Rubidium Carbonate (Rb <sub>2</sub> CO <sub>3</sub> )	584-09-8/209-530-9	<0.001 (as Rb)
Selenium	7782-49-2/231-957-4	<0.001
Silver	7440-22-4/231-131-3	<0.001
Sodium Carbonate (Na <sub>2</sub> CO <sub>3</sub> )	497-19-8/207-838-8	<0.001 (as Na)
Strontium Nitrate (Sr(NO <sub>3</sub> ) <sub>2</sub> )	10042-76-9/233-131-9	<0.001 (as Sr)
Tellurium	13494-80-9/236-813-4	<0.001
Thallium	7440-28-0/231-138-1	<0.001
Ammonium Metavanadate (NH <sub>4</sub> VO <sub>3</sub> )	7803-55-6/232-261-3	<0.001 (as V)
Uranium Oxide (U <sub>3</sub> O <sub>8</sub> )	1344-59-8/215-702-4	<0.001 (as U)
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.

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### 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.

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.

### 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 <sup>3</sup>	15 mg/m <sup>3</sup>
Antimony	0.5 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
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>
Beryllium Acetate	0.002 mg/m <sup>3</sup>	0.002 mg/m <sup>3</sup>
Bismuth	Not Available	Not Available
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>
Chromium	0.5 mg/m <sup>3</sup>	1 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>
Lithium Carbonate	Not Available	Not Available
Magnesium	Not Available	Not Available
Manganese Acetate	0.2 mg/m <sup>3</sup>	C 5 mg/m <sup>3</sup>

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Tetrahydrate		
Molybdenum	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Nickel	1.5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
Potassium Nitrate	Not Available	Not Available
Rubidium Carbonate	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
Sodium Carbonate	Not Available	Not Available
Strontium Nitrate	Not Available	Not Available
Tellurium	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Thallium	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>
Ammonium Metavanadate	0.05 mg/m <sup>3</sup>	Not Available
Uranium Oxide	0.2 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Zinc	5 mg/m <sup>3</sup>	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 liquid  
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  
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.

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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.

#### RTECS#

HNO <sub>3</sub> - QU5775000	HF - MW7875000	Al - BD0330000
Sb - CC4025000	As - CG0525000	BaCO <sub>3</sub> - CQ8600000
Be <sub>4</sub> O(C <sub>2</sub> H <sub>3</sub> O <sub>2</sub> ) <sub>6</sub> - DS29750000	Bi-EB2600000	CaCO <sub>3</sub> - EV9580000
Cd - EU9800000	Cr - GB4200000	Co - GF8750000
Cu - GL5325000	Fe - NO4565500	Pb - OF7525000
Li <sub>2</sub> CO <sub>3</sub> - OJ5800000	Mg - FW6475100	Mn-AI5775000
Mo - QA4680000	Ni - QR5950000	KNO <sub>3</sub> - TT3700000
Rb <sub>2</sub> CO <sub>3</sub> - FG0650000	Se - VS7700000	Ag - VW3500000
Na <sub>2</sub> CO <sub>3</sub> - VZ4050000	Sr(NO <sub>3</sub> ) <sub>2</sub> - WK9800000	Te - WY2625000
Tl- XG3425000	NH <sub>4</sub> VO <sub>3</sub> - YW0875000	U - YR3490000
Zn - ZG8600000	Ba(NO <sub>3</sub> ) <sub>2</sub> - CQ9625000	

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: (Aluminum) >5000 mg/kg  
 TD<sub>LO</sub> LD<sub>50</sub> Oral, Rat: (Antimony) 7g/kg  
 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.  
 TD<sub>LO</sub> Intratracheal, Rat: (Beryllium Acetate) 13 mg/kg  
 LD<sub>50</sub> Oral, Rat: (Bismuth) 5 g/kg  
 LD<sub>LO</sub> Oral, Human: (Cadmium) 2330 mg/kg;  
 LD<sub>LO</sub> Oral, Rabbit: (Cobalt) 750 mg/kg;  
 LD<sub>50</sub> Unreported Route, Rat: (Chromium) 27.5 mg/kg;  
 TD<sub>LO</sub> Oral, Human: (Copper) 120 µg/kg  
 LD<sub>50</sub> Oral, Rat: (Iron)30 g/kg  
 TD<sub>50</sub> Oral, Woman: (Lead) 450 mg/kg/6 years;  
 LD<sub>50</sub> Oral, Rat: (Lithium Carbonate) 525 mg/kg;  
 LD<sub>50</sub> Oral, Rat: (Manganese Acetate) 3730mg/kg  
 TD<sub>LO</sub> Oral, Mouse: (Molybdenum) 448 mg/kg (multigenerations);  
 LD<sub>50</sub>, Intravenous, Mouse: (Nickel) 50 mg/kg;  
 Implant, LD<sub>50</sub> Oral, Rat: (Potassium Nitrate) 3750 mg/kg;  
 LD<sub>50</sub>, Oral, Rat: (Selenium) 6700 mg/kg;  
 LD<sub>50</sub> Oral, Mouse: (Silver) 11 g/kg;  
 LD<sub>50</sub>, Oral, Mouse: (Sodium Carbonate) 6600 mg/kg;  
 Oral rabbit: (Tellurium) LD<sub>50</sub>: 67 mg/kg;  
 TD<sub>LO</sub> Oral, Man: (Thallium) 5,714 µg/kg;  
 LD<sub>50</sub> Oral, Rat: (Ammonium Metavanadate) 58 mg/kg  
 LD<sub>LO</sub> TD<sub>50</sub> Unreported Route, Rat: (Triuranium Octaoxide) 750 mg/kg;  
 LD<sub>LO</sub> Oral, Duck: (Zinc) 388 mg/kg.

### Section 12. Ecological Information

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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 (Hydrofluoric Acid-U134) (Ammonium Metavanadate-P119)

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

Risk Phrases: R36/38 Irritating to eyes and skin.

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

WHMIS Information (Canada): E: Corrosive

CRM-TMDW is a limited quantity radioactive material that is exempt from radioactive labeling requirements under 49CFR section 173.421. The massic activity of CRM-TMDW 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.