

## Section 1. Product and Company Identification

Product Identification: WAVECAL  
 SDS Number: WAVECAL  
 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
Lanthanum Oxide (La <sub>2</sub> O <sub>3</sub> )	1312-81-8/215-200-5	0.002 (as La)
Lithium Carbonate (Li <sub>2</sub> CO <sub>3</sub> )	554-13-2/209-062-5	0.002 (as Li)
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	0.002 (as Mn)
Molybdenum	7439-98-7/231-107-2	0.002
Nickel	7440-02-0/231-111-4	0.002
Ammonium Dihydrogen Phosphate (NH <sub>4</sub> H <sub>2</sub> PO <sub>4</sub> )	7722-76-1/231-764-5	0.01 (as P)
Potassium Nitrate (KNO <sub>3</sub> )	7757-79-1/231-818-8	0.01 (as K)
Scandium Oxide (Sc <sub>2</sub> O <sub>3</sub> )	12060-08-1/235-042-0	0.002 (as Sc)
Sodium Carbonate (Na <sub>2</sub> CO <sub>3</sub> )	497-19-8/207-838-8	0.002 (as Na)
Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	7664-93-9/231-639-5	0.01 (as S)
Hydrochloric Acid	7647-01-0/231-595-7	2
Water, deionized	7732-18-5/231-791-2	Balance

<b>Safety Data Sheet No. WAVECAL</b>	<b>Date: April 18, 2014</b>	
<b>WAVECAL</b>	<b>Revision: 001</b>	<b>Page 2 of 4</b>

#### Section 4. First Aid Measures

- IF ON SKIN (or hair):** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Call a physician if irritation develops.
- IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- IF SWALLOWED:** Rinse mouth. Do NOT induce vomiting. Call a physician. May cause nausea, vomiting, and diarrhea.
- IF INHALED:** Remove to fresh air and keep at rest in a position comfortable for breathing. May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membrane and upper respiratory tract.
- Target Organs:** Eyes, skin.

#### Section 5. Fire Fighting Measures

- Fire & Explosion hazards:** Hydrochloric acid is a negligible fire hazard when exposed to heat and/or flames. Hydrochloric acid may react with the evolution of heat on contact with water; the acid may release toxic, corrosive, flammable, or explosive gases.
- Extinguishing Media:** Use regular dry chemical, carbon dioxide, water, or regular foam.
- 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. Avoid breathing vapours, mist, or gas. Ensure adequate ventilation. 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 general and local (e.g., fume hood) ventilation systems to maintain airborne concentrations below the TLV. Ensure the availability of eyewash stations and safety showers.

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

##### Exposure Limits:

Component	ACGIH TLV	OSHA PEL
Arsenic	0.01 mg/m <sup>3</sup>	10 µg/ m <sup>3</sup>
Lanthanum Oxide	Not Available	Not Available
Lithium Carbonate	Not Available	Not Available
Manganese Acetate Tetrahydrate	0.2 mg/m <sup>3</sup>	C 5 mg/m <sup>3</sup>

<b>Safety Data Sheet No. WAVECAL</b>	<b>Date: April 18, 2014</b>	
<b>WAVECAL</b>	<b>Revision: 001</b>	<b>Page 3 of 4</b>

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>
Ammonium Dihydrogen Phosphate	Not Available	Not Available
Potassium Nitrate	Not Available	Not Available
Scandium Oxide	Not Available	Not Available
Sodium Carbonate	Not Available	Not Available
Sulfuric Acid	5 mg/m <sup>3</sup>	1 mg/m <sup>3</sup>
Hydrochloric Acid	C 2ppm	C 5ppm C 7 mg/m <sup>3</sup>

### Section 9. Physical and Chemical Properties

Physical State: Liquid  
Color: Clear, colorless to grey liwuid  
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: Metals, hydroxides, carbonates, cyanides  
Incompatibles: Strong oxidizing agents  
Hazardous Decomposition Products: When heated to decomposition, emits toxic hydrogen chloride fumes and will react with water or steam to produce heat and toxic and corrosive fumes. Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.  
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#

HCl:MW4025000      As: CG0525000      KNO<sub>3</sub>: TT3700000      La<sub>2</sub>O<sub>3</sub>: OE5330000

<b>Safety Data Sheet No. WAVECAL</b>	<b>Date: April 18, 2014</b>	
<b>WAVECAL</b>	<b>Revision: 001</b>	<b>Page 4 of 4</b>

Li<sub>2</sub>CO<sub>3</sub>: OJ5800000      Mn: AI5775000      Mo:QA4680000      Na<sub>2</sub>CO<sub>3</sub>: VZ4050000  
Ni: QR5950000      H<sub>2</sub>SO<sub>4</sub>: WS5600000

**Toxicity Data:**

Oral, rabbit: (Hydrochloric Acid) LD<sub>50</sub> = 900 mg/kg  
LD<sub>50</sub>, Oral, Rat: (Arsenic) 763 mg/kg  
LD<sub>50</sub> Oral, Rat: (Potassium Nitrate) 3750 mg/kg  
LD<sub>50</sub> Oral, Rat: (Lanthanum Oxide) >9968 mg/kg  
LD<sub>50</sub> Oral, Rat: (Lithium Carbonate) 525 mg/kg  
LD<sub>50</sub> Oral, Rat: (Manganese) 3730mg/kg  
TD<sub>LO</sub> Oral, Mouse: (Molybdenum) 448 mg/kg (multigenerations)  
LD<sub>50</sub>, Oral, Mouse: (Sodium Carbonate) 6600 mg/kg  
LD<sub>50</sub>, Intravenous, Mouse: (Nickel) 50 mg/kg  
LD<sub>50</sub> Oral, Rat: (Sulfuric Acid) 2140 mg/kg; LC<sub>50</sub> Inhalation, Rat: (Sulfuric Acid) 510 mg/m<sup>3</sup>/2H, No toxic effect noted.

**Section 12. Ecological Information**

Ecotoxicological information: Do not allow material to reach ground water, water bodies, or sewage system. Hydrochloric acid has a slight acute and chronic toxicity 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. (Hydrochloric 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: No  
SARA: Subject to the reporting requirements of Section 313 or SARA Title III and of 40 CFR 372  
Risk Phrases: R20, R21, R22 Harmful by inhalation, skin contact, or if ingested.  
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.