Section 1. Product and Company Identification

Product Identification: PE Wavecal Solution
SDS Number: WAVECAL-PE
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

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS/EINECS Registry #</th>
<th>Percent Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium Carbonate (BaCO₃)</td>
<td>513-77-9/208-167-3</td>
<td>&lt;0.001 (as Ba)</td>
</tr>
<tr>
<td>Barium Nitrate (Ba(NO₃)₂)</td>
<td>10022-31-8/233-020-5</td>
<td></td>
</tr>
<tr>
<td>Calcium Carbonate (CaCO₃)</td>
<td>471-34-1/207-439-9</td>
<td>&lt;0.001 (as Ca)</td>
</tr>
<tr>
<td>Lanthanum Oxide (La₂O₃)</td>
<td>1312-81-8/215-200-5</td>
<td>0.001 (as La)</td>
</tr>
<tr>
<td>Lithium Carbonate (Li₂CO₃)</td>
<td>554-13-2/209-062-5</td>
<td>0.001 (as Li)</td>
</tr>
<tr>
<td>Manganese Acetate Tetrahydrate (Mn(CH₃CO₂)₂)*4H₂O</td>
<td>6156-78-1/211-334-3</td>
<td>0.001 (as Mn)</td>
</tr>
<tr>
<td>Potassium Nitrate (KNO₃)</td>
<td>7757-79-1/231-818-8</td>
<td>0.005 (as K)</td>
</tr>
<tr>
<td>Sodium Carbonate (Na₂CO₃)</td>
<td>497-19-8/207-838-8</td>
<td>0.001 (as Na)</td>
</tr>
<tr>
<td>Strontium Carbonate (SrCO₃)</td>
<td>1633-05-2/216-643-7</td>
<td>0.001 (as Sr)</td>
</tr>
<tr>
<td>Nitric Acid</td>
<td>7697-37-2/ 231-714-2</td>
<td>2.0</td>
</tr>
</tbody>
</table>
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.

Target Organs: Eyes, skin.

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. NOx 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 proper gloves, safety glasses with side shields, lab coat/apron.

Exposure Limits:

<table>
<thead>
<tr>
<th>Component</th>
<th>ACGIH TLV</th>
<th>OSHA PEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium</td>
<td>0.5 mg/m³</td>
<td>0.5 mg/m³</td>
</tr>
</tbody>
</table>
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: (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: Decomposes slowly to release oxygen.
Conditions to Avoid: Metals, chlorine, organic materials, strong alkali, cyanides, excess heat, combustible materials, and light.
Incompatibles: Strong reducing agents.
Hazardous Decomposition Products: NOₓ compounds including nitric oxide (NO), nitrogen dioxide (NO₂), nitrous oxide (N₂O) and nitric acid mist or vapor. Irritating and toxic fumes and gases, oxygen, hydrogen gas.
Hazardous Polymerization: Has not been reported.

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#
HNO₃-QU5775000 BaCO₃-CQ8600000
CaCO₃-FF9335000  
Li₂CO₃-OJ5800000  
KNO₃-TT3700000  
SrCO₃-WK8305000  
La₂O₃-OE5330000  
Mn-AI5775000  
Na₂CO₃-VZ4050000  
Ba(NO₃)₂-CQ9625000

LD₅₀ Oral, Human: (Nitric Acid) 430 mg/kg
LD₅₀ Oral, Human: (Barium Carbonate) 17 mg/kg
LD₅₀ Oral, Rat: (Ba(NO₃)₂) 355 mg/kg.
LD₅₀ Oral, Rat: (Calcium Carbonate) 6450 mg/kg
LD₅₀ Oral, Rat: (Lanthanum Oxide) >9968 mg/kg
LD₅₀ Oral, Rat: (Lithium Carbonate) 525 mg/kg
LD₅₀ Oral, Rat: (Manganese Acetate) 3730mg/kg
LD₅₀ Oral, Rat: (Potassium Nitrate) 3750 mg/kg
LD₅₀, Oral, Mouse: (Sodium Carbonate) 6600 mg/kg

Section 12. Ecological Information
Ecotoxicological information: Do not allow material to reach ground water, water bodies, or sewage system.

Section 13. Disposal Considerations

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: No.
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

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.