

## Section 1. Product and Company Identification

Product Identification: Oral/Parenteral Elemental Impurities Standard  
 SDS Number: USP232-2  
 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
Copper	7440-50-8/231-159-6	0.1
Ammonium Molybdate (NH <sub>4</sub> ) <sub>2</sub> MoO <sub>4</sub>	13106-76-8/236-031-3	0.01
Nickel	7440-02-0/ 231-111-4	0.05
Ammonium Metavanadate (NH <sub>4</sub> VO <sub>3</sub> )	7803-55-6/232-261-3	0.01 (as V)
Nitric Acid	7697-37-2/ 231-714-2	7
Water, deionized	7732-18-5/ 231-791-2	Balance

## 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. Animal studies indicate that prolonged ingestion of some soluble nickel compounds may affect the blood, bone marrow, thymus, spleen, kidneys, and immune system.

<b>Safety Data Sheet No. USP232-2</b>	<b>Date: April 18, 2014</b>	
<b>Oral/Parenteral Elemental Impurities Standard</b>	<b>Revision: 001</b>	<b>Page 2 of 4</b>

**IF INHALED:** Remove to fresh air and keep at rest in a position comfortable for breathing. Inhalation of high concentrations of nickel may cause irritation of mucous membranes causing sore throat, coughing, and shortness of breath.

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

##### Exposure Limits:

Component	ACGIH TLV	OSHA PEL
Copper	0.2 mg/m <sup>3</sup> (fumes)	0.1 mg/m <sup>3</sup> (fumes)
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 Metavanadate	0.05 mg/m <sup>3</sup>	Not Available
Nitric Acid	2 mg/kg	5 mg/m <sup>3</sup>

#### Section 9. Physical and Chemical Properties

**Physical State:** Liquid

**Color:** Blue

**Odor:** Odorless to a faint pungent odor

<b>Safety Data Sheet No. USP232-2</b>	<b>Date: April 18, 2014</b>	
<b>Oral/Parenteral Elemental Impurities Standard</b>	<b>Revision: 001</b>	<b>Page 3 of 4</b>

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, chlorine, organic materials, strong alkali, cyanides.  
 Incompatibles: Strong reducing agents.  
 Hazardous Decomposition Products: 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	Cu GL5325000
Mo: QA4680000	Ni: QR5950000
NH <sub>4</sub> VO <sub>3</sub> - YW0875000	

LD<sub>LO</sub> Oral, Human: (Nitric Acid) 430 mg/kg  
 TD<sub>LO</sub> Oral, Human: (Copper) 120 µg/kg.  
 TDLO Oral, Mouse: (Molybdenum) 448 mg/kg (multigenerations).  
 LD<sub>50</sub>, Intravenous, Mouse: (Nickel) 50 mg/kg.  
 LD<sub>50</sub> Oral, Rat: (Ammonium Metavanadate) 58 mg/kg.

<b>Safety Data Sheet No. USP232-2</b>	<b>Date: April 18, 2014</b>	
<b>Oral/Parenteral Elemental Impurities Standard</b>	<b>Revision: 001</b>	<b>Page 4 of 4</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, Ammonium metavanadate (P119)

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

Risk Phrases: R20/21/22, R45 Harmful by inhalation, skin contact, or ingestion. May cause cancer.

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.