Section 1. Product and Company Identification

Product Identification:	AG-7500 series Tuning Sol
SDS Number:	ICP-MS-TS-9 Solution A
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
Arsenic	7440-38-2/231-148-6	<0.001
Barium Carbonate ($BaCO_3$)	513-77-9/208-167-3	<0.001 (as Ba)
Beryllium Acetate ($Be_4O(C_2H_3O_2)_6$)	19049-40-2/242-785-4	<0.001 (as Be)
Bismuth	7440-69-9/231-177-4	<0.001
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
Indium	7440-74-6/231-180-0	<0.001
Lead	7439-92-1/231-100-4	<0.001
Lithium Carbonate	554-13-2/209-062-5	<0.001 (as ^{6}Li)
Lutetium Oxide	12032-20-1/234-764-3	<0.001 (as Lu)

(Lu_2O_3)		
Magnesium	7439-95-4/231-104-6	<0.001
Manganese Acetate Tetrahydrate ($Mn(CH_3CO_2)_2)*4H_2O$	6156-78-1/211-334-3	<0.001 (as Mn)
Nickel	7440-02-0/231-111-4	<0.001
Scandium Oxide (Sc_2O_3)	12060-08-1/235-042-0	<0.001 (as Sc)
Sodium Carbonate	497-19-8/207-838-8	<0.001 (as Na)
Strontium Nitrate ($Sr(NO_3)_2$)	10042-76-9/233-131-9	<0.001 (as Sr)
Thallium	7440-28-0/231-138-1	<0.001
Thorium Oxide (ThO_2)	1314-20-1/215-225-1	<0.001 (as Th)
Uranium Oxide (U_3O_8)	1344-59-8/215-702-4	<0.001 (as U)
Ammonium Metavanadate (NH_4VO_3)	7803-55-6/232-261-3	<0.001 (as V)
Ytterbium Oxide (Yb_2O_3)	1314-37-0/215-234-0	<0.001 (as Yb)
Yttrium Oxide (Y_2O_3)	1314-36-9/215-233-5	<0.001 (as Y)
Zinc	7440-66-6/231-175-3	<0.001
Nitric Acid	7697-37-2/ 231-714-2	5
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: May cause nausea, vomiting, and diarrhea. Uranium may bind to plasma protein and to bone; may damage the kidneys and liver. Rinse mouth with water. If swallowed, do NOT induce vomiting. If conscious give large quantities of water or milk. CALL A PHYSICIAN.

IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.

Target Organs: Eyes, skin, respiratory system, teeth, liver, kidneys, lungs.

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_x 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
Aluminum	10 mg/m^3	15 mg/m^3
Arsenic	0.01 mg/m^3	10 $\mu g/ m^3$
Barium Carbonate	0.5 mg/m^3	0.5 mg/m^3
Beryllium Acetate	0.002 mg/m^3	0.002 mg/m^3
Bismuth	Not Available	Not Available
Cadmium	0.002 mg/m^3 (respirable particulate)	0.005 mg/m^3
Chromium	0.5 mg/m^3	1 mg/m^3
Cobalt	0.02 mg/m^3	0.1 mg/m^3
Copper	0.2 mg/m^3 (fumes)	0.1 mg/m^3 (fumes)
Indium	0.05 mg/m^3	0.05 mg/m^3
Lead	0.05 mg/m^3	0.05 mg/m^3
Lithium	Not Available	Not Available

Carbonate		
Lutetium Oxide	Not Available	Not Available
Magnesium	Not Available	Not Available
Manganese Acetate Tetrahydrate	0.2 mg/m^3	C 5 mg/m^3
Nickel	1.5 mg/m^3	1 mg/m^3
Scandium Oxide	Not Available	Not Available
Sodium Carbonate	Not Available	Not Available
Strontium Nitrate	Not Available	Not Available
Thallium	0.1 mg/m^3	0.1 mg/m^3
Thorium Oxide	Not Available	Not Available
Uranium Oxide	0.2 mg/m^3	0.05 mg/m^3
Ammonium Metavanadate	0.05 mg/m^3	Not Available
Ytterbium Oxide	Not Available	Not Available
Yttrium Oxide	1 mg/m^3	Not Available
Zinc	5 mg/m^3	1 mg/m^3
Nitric Acid	2 mg/kg	5 mg/m^3

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_2O = 1): N/A
Solubility in H_2O: 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_x compounds including nitric oxide (NO), nitrogen dioxide (NO_2), nitrous oxide (N_2O) 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. Arsenic, Beryllium, Cadmium, Cobalt, Lead, and Nickel are known or investigated as possible carcinogenic substances.

Thorium oxide and natural uranium oxide are known to be human carcinogens. This solution contains depleted radioactive thorium oxide and uranium oxide at <0.001% concentration. Thorium oxide and uranium oxide are weakly radioactive and emit alpha particles which are harmful to the body. For the energy range of alpha particles usually encountered, a fraction of a millimeter of any ordinary material is sufficient for absorbance. Thin rubber, acrylic, stout paper, or cardboard will suffice.

RTECS#

HNO_3: QU5775000
Al-BD0330000
$BaCO_3$-CQ8600000
Bi-EB2600000
Cr-GB4200000
Cu-GL5325000
Pb-OF7525000
Mg - OM2100000
Ni - QR5950000
Tl; XG3425000
Na_2CO_3 - VZ4050000
Th- XO6950
Zn-ZG8600000
As - CG0525000
$Be_4O(C_2H_3O_2)_6$-DS29750000
Cd-EU9800000
Co-GF8750000
In-NL1050000
Li_2CO_3-OJ5800000
Mn-AI5775000
$Sr(NO_3)_2$– WK9800000
U-YR3490000
NH_4VO_3- YW0875000
Y-ZG3850000

LD_{LO} Oral, Human: (Nitric Acid) 430 mg/kg.
LD_{50} Oral, Rat: (Aluminum) >5000 mg/kg
LD_{50}, Oral, Rat: (Arsenic) 763 mg/kg
LD_{LO} Oral, Human: (Barium Carbonate) 17 mg/kg
TD_{LO} Intratracheal, Rat: (Beryllium Acetate) 13 mg/kg
LD_{50} Oral, Rat: (Bismuth) 5 g/kg
LD_{LO} Oral, Human: (Cadmium) 2330 mg/kg.
LD_{50} Unreported Route, Rat: (Chromium) 27.5 mg/kg
LD_{LO} Oral, Rabbit: (Cobalt) 750 mg/kg
LD_{LO} Subcutaneous, Mouse: (Indium) 10mg/kg
TD_{LO} Oral, Human: (Copper) 120 μg/kg
LD_{50} Oral, Rat: (Lithium Carbonate) 525 mg/kg
TD_{50} Oral, Woman: (Lead) 450 mg/kg/6 years
LD_{50} Oral, Rat: (Manganese) 3730mg/kg

LD_{50}, Intravenous, Mouse: (Nickel) 50 mg/kg
LD_{50} Oral, rat: (Strontium Nitrate) 2750 mg/kg
LD_{50}, Oral, Mouse: (Sodium Carbonate) 6600 mg/kg.
TD_{LO} Intraarterial, Human: (Thorium Oxide) 490 mg/kg
TD_{LO} Oral, Man: (Thallium) 5,714 μg/kg.
TD_{50} Unreported Route, Rat: (Uranium Octaoxide) 750 mg/kg.
LD_{50} Oral, Rat: (Ammonium Metavanadate) 58 mg/kg.
LD_{LO} Oral, Mouse: (Yttrium) >6 g/kg
LD_{LO} Oral, Duck: (Zinc) 388 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

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: 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.