RICCA CHEMICAL COMPANY®

Safety Data Sheet

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: VeriSpec® ICP-MS Tuning Solution 8
10 ppm: Ge, Mo, Pd, Ru, Sb, Sn; 5 ppm Ir, Ti , Manufactured and Tested in an ISO 17025/Guide 34 Faci

Product Number: RV010680

Other Identifying Product Numbers: RV010680-100N

1.2. Recommended Use and Restrictions on Use

Calibration Standard

1.3. Details of the Supplier of the Safety Data Sheet

Company: Ricca Chemical Company

Address: 448 West Fork Drive
Arlington, TX 76012 USA

Telephone: 888-467-4222

1.4. Emergency Telephone Number (24 hr)

CHEMTREC (USA) 800-424-9300
CHEMTREC (International) 1+ 703-527-3887

SECTION 2: Hazard(s) Identification

2.1. Classification of the Substance or Mixture (in accordance with OSHA HCS 29 CFR 1910.1200)

For the full text of the Hazard and Precautionary Statements listed below, see Section 16.

Hazard Class	Category	Hazard Statement	Precautionary Statements
Skin Corrosion / Irritation	Category 1B	H314	P260, P264, P280, P301+P330+P331, P303+P361+P353, P363, P304+P340, P310, P321, P305+P351+P338, P405, P501
Corrosive to Metals	Category 1	H290	P234, P390, P406

2.2. GHS Label Elements

Pictograms:

Safety Data Sheet

Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.

Precautionary Statements:

Precautionary Number	Precautionary Statement
P234	Keep only in original container.
P260	Do not breathe fumes, mist, vapors, or spray.
P264	Wash arms, hands and face thoroughly after handling.
P280	Wear protective gloves and eye protection.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER or physician.
P321	Specific treatment (Wash areas of contact with water).
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents in accordance with local, state, federal and international regulations.

2.3. WHMIS Classification

WHMIS classification is not included based on the recommended option (Option 4) found in the Canada Gazette Part II, Vol. 149, No.3, page 458

2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

Safety Data Sheet

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Hydrochloric Acid	HCl	36.46 g/mol	7647-01-0	5.00%
Germanium Oxide	GeO_2	104.63 g/mol	1310-53-8	0.00%
Tin (IV) Fluoride	SnF_4	194.70 g/mol	7783-62-2	0.00%
Molybdenum Pentafluoride	MoF_5	Data not available.	13819-84-6	0.00%
Ruthenium (III) Chloride	$RuCl_3$	207.42 g/mol	10049-08-8	0.00%
Fluoroantimonic Acid	$HSbF_6$	236.76 g/mol	16950-06-4	0.00%
Palladium (II) Nitrate	$Pd(NO_3)_2$	230.42 g/mol	10102-05-3	0.00%
Ammonium Hexafluorotitanate	$(NH_4)_2TiF_6$	197.93 g/mol	16962-40-6	0.00%
Iridium (III) Chloride	$IrCl_3$	298.57 g/mol	10025-83-9	0.00%

SECTION 4: First-Aid Measures

4.1. General First Aid Information

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Inhalation: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Skin Contact: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

4.2. Most Important Symptoms and Effects, Acute and Delayed

May cause mild irritation to areas of contact.

4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water).

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Not considered to be a fire or explosion hazard.

5.2. Specific Hazards Arising from the Substance or Mixture

Not considered to be a fire or explosion hazard.

5.3. Special Protective Equipment for Firefighters

Wear protective clothing and NIOSH-approved breathing equipment appropriate for the surrounding fire.

Safety Data Sheet

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection.

6.2. Cleanup and Containment Methods and Materials

Absorb with suitable material and dispose of in accordance with local regulations.

SECTION 7: Handling and Storage

7.1. Precautions for Safe Handling and Storage Conditions

Store in corrosive resistant container with a resistant inner liner.

SECTION 8: Exposure Controls / Personal Protection

8.1. Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Ammonium Hexafluorotitanate (16962-40-6)	TWA	USA	2.5 mg/m³ TWA (as F) 2.5 mg/m³ TWA (dust)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Ammonium Hexafluorotitanate (16962-40-6)	TLV-TWA	USA	2.5 mg/m³ TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Fluoroantimonic Acid (16950-06-4)	TWA	USA	0.5 mg/m³ TWA (as Sb)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Fluoroantimonic Acid (16950-06-4)	TLV-TWA	USA	0.5 mg/m³ TWA (as Sb)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrochloric Acid (7647-01-0)	TLV-Ceiling	USA	2 ppm Ceiling	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrochloric Acid (7647-01-0)	PEL-Ceiling	USA	5 ppm Ceiling 7 mg/m³ Ceiling	U.S. - OSHA - Final PELs - Ceiling Limits
Tin (IV) Fluoride (7783-62-2)	TWA	USA	2 mg/m³ TWA (except oxides, as Sn)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Tin (IV) Fluoride (7783-62-2)	TLV-TWA	USA	2 mg/m³ TWA (except Tin hydride, as Sn)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

8.2. Exposure Controls

Engineering Controls: No specific controls are needed. Normal room ventilation is adequate.

Respiratory Protection: No specific controls are needed. Normal room ventilation is adequate

Skin Protection: Wear protective gloves and eye protection.

Eye Protection: Wear protective gloves and eye protection.

8.3. Personal Protective Equipment

Wear protective gloves and eye protection.

Safety Data Sheet

SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Data not available.
Physical State: Liquid
Odor: Data not available.
Odor Threshold: Data not available.
pH: Data not available.
Melting/Freezing Point: Data not available.
Initial Boiling Point /Range: Data not available.
Flash Point: Data not available.
Evaporation Rate: Data not available.
Flammability: Data not available.
Flammability/Explosive Limits: Data not available.
Vapor Pressure: Data not available.
Vapor Density: Data not available.
Relative Density: 1.06
Solubility: Data not available.
Partition Coeffieient (n-Octanol/Water): Data not available.
Auto-Ignition Temperature: Data not available.
Decomposition Temperature: Data not available.
Viscosity: Data not available.
ExplosiveProperties: Data not available.
Oxidizing Properties: Data not available.

SECTION 10: Stability and Reactivity

10.1. Reactivity and Chemical Stability

Stable under normal conditions of use and storage.

10.2. Possibility of Hazardous Reactions

Data not available.

10.3. Conditions to Avoid and Incompatible Materials

Keep only in original container.

10.4. Hazardous Decomposition Products

May emit irritating fumes when heated to decomposition.

Safety Data Sheet

SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Not applicable.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Not applicable.

Acute Toxicity - Other Information:

Data not available.

Skin Corrosion and Irritation:

Causes severe skin burns and eye damage. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection. IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water). IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Serious Eye Damage and Irritation:

Not applicable.

Respiratory Sensitization:

Not applicable.

Skin Sensitization:

Not applicable.

Germ Cell Mutagenicity:

Not applicable.

Carcinogenicity:

Not applicable.

Reproductive Toxicity:

Not applicable.

Specific Target Organ Toxicity from Single Exposure:

Not applicable.

Specific Target Organ Toxicity from Repeated Exposure:

Not applicable.

Aspiration Hazard:

Not applicable.

Safety Data Sheet

Additional Toxicology Information:

Data not available.

SECTION 12: Ecological Information

12.1. Ecotoxicity

Not applicable.

12.2. Persistence and Degradability

Data not available.

12.3. Bioaccumulative Potential

Data not available.

12.4. Mobility in Soil

Data not available.

12.5. Other Adverse Ecological Effects

Data not available.

SECTION 13: Disposal Considerations

13.1. Waste Treatment Methods

Data not available.

SECTION 14: Transportation Information

14.1. Transportation by Land - Department of Transportation (DOT, United States of America)

Sizes: 100 mL

UN Number: UN3264

Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, n.o.s. (Hydrochloric Acid)

Hazard Class: 8

Packing Group: III

Hazard Placard Labels:

Safety Data Sheet

Sizes:
UN Number:
Proper Shipping Name:
Hazard Class:
Packing Group:
Hazard Placard Labels:

14.2. Transportation by Air - International Air Transport Association (IATA)

Sizes: 100 mL
UN Number: UN3264
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, n.o.s. (Hydrochloric Acid)
Hazard Class: 8
Packing Group: III
Hazard Placard Labels:

SECTION 15: Regulatory Information

15.1. Occupational Safety and Health Administration (OSHA) Hazards

Not listed.

15.2. Superfund Amendments and Reauthorization Act (SARA) 302 Extremely Hazardous Substances

Hydrochloric Acid (CAS # 7647-01-0): 500 lb TPQ (gas only)
Hydrochloric Acid (CAS # 7647-01-0): 5000 lb EPCRA RQ (gas only)

15.3. Superfund Amendments and Reauthorization Act (SARA) 311/312 Hazardous Chemicals

Hydrochloric Acid (CAS # 7647-01-0): 5000 lb final RQ; 2270 kg final RQ

15.4. Superfund Amendments and Reauthorization Act (SARA) 313 Toxic Release Inventory (TRI)

Fluoroantimonic Acid (CAS # 16950-06-4): 1.0 % de minimis concentration (listed under Chemical Category N010)
Ammonium Hexafluorotitanate (CAS # 16962-40-6): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)
Hydrochloric Acid (CAS # 7647-01-0): 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)

15.5. Massachusetts Right-to-Know Substance List

Hydrochloric Acid (CAS # 7647-01-0): Extraordinarily hazardous

Safety Data Sheet

15.6. Pennsylvania Right-to-Know Hazardous Substances

Fluoroantimonic Acid (CAS # 16950-06-4): Environmental hazard
Fluoroantimonic Acid (CAS # 16950-06-4): Present
Hydrochloric Acid (CAS # 7647-01-0): Environmental hazard
Hydrochloric Acid (CAS # 7647-01-0): Present

15.7. New Jersey Worker and Community Right-to-Know Components

Palladium (II) Nitrate (CAS # 10102-05-3): sn 3722
Palladium (II) Nitrate (CAS # 10102-05-3): SN 3722 500 lb TPQ (water dissociable, Category Code N511)
Fluoroantimonic Acid (CAS # 16950-06-4): sn 2223
Fluoroantimonic Acid (CAS # 16950-06-4): SN 2223 500 lb TPQ (Category Code N010)
Ammonium Hexafluorotitanate (CAS # 16962-40-6): sn 0936
Hydrochloric Acid (CAS # 7647-01-0): corrosive
Hydrochloric Acid (CAS # 7647-01-0): sn 1012
Hydrochloric Acid (CAS # 7647-01-0): SN 1012 500 lb TPQ (>=37% concentration); SN 2909 500 lb TPQ (Hydrogen chloride gas only)

15.8. California Proposition 65

Not listed.

15.9. Canada Domestic Substances List / Non-Domestic Substances List (DSL/NDSL)

Iridium (III) Chloride (CAS # 10025-83-9): Present (DSL)
Ruthenium (III) Chloride (CAS # 10049-08-8): Present (DSL)
Palladium (II) Nitrate (CAS # 10102-05-3): Present (DSL)
Germanium Oxide (CAS # 1310-53-8): Present (CEPA, subsection 81(3) applies) (DSL)
Fluoroantimonic Acid (CAS # 16950-06-4): Present (NDSL)
Ammonium Hexafluorotitanate (CAS # 16962-40-6): Present (NDSL)
Hydrochloric Acid (CAS # 7647-01-0): Present (DSL)

15.10. United States of America Toxic Substances Control Act (TSCA) List

Iridium (III) Chloride (CAS # 10025-83-9): Present
Ruthenium (III) Chloride (CAS # 10049-08-8): Present
Palladium (II) Nitrate (CAS # 10102-05-3): Present
Germanium Oxide (CAS # 1310-53-8): Present
Fluoroantimonic Acid (CAS # 16950-06-4): Present
Ammonium Hexafluorotitanate (CAS # 16962-40-6): Present
Hydrochloric Acid (CAS # 7647-01-0): Present [T]

15.11. European Inventory of Existing Commercial Chemical Substances (EINECS), European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)

Not listed.

Safety Data Sheet

SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

May be corrosive to metals. Causes severe skin burns and eye damage.

Keep only in original container. Do not breathe fumes, mist, vapors, or spray. Wash arms, hands and face thoroughly after handling. Wear protective gloves and eye protection.

IF SWALLOWED: rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. IF INHALED: Remove person to fresh air and keep comfortable for breathing. 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 or physician. Specific treatment (Wash areas of contact with water). Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Store locked up. Store in corrosive resistant container with a resistant inner liner.

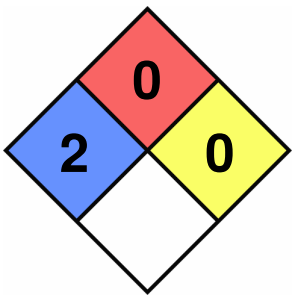
Dispose of contents in accordance with local, state, federal and international regulations.

16.2. Miscellaneous Hazard Classes

Canadian Carcinogenicity Hazard Class: Not Applicable.
Physical Hazards Not Otherwise Classified (PHNOC): Not Applicable.
Health Hazards Not Otherwise Classified (HHNOC): Not Applicable.
Not Applicable.

16.3. National Fire Protection Association (NFPA) Rating

Health: 2
Flammability: 0
Reactivity: 0
Special Hazard:



Safety Data Sheet

16.4. Document Revision

Last Revision Date: 9/15/2016

DISCLAIMER

When handled properly by qualified personnel, the product described herein does not present a significant health or safety hazard. Alteration of its characteristics by concentration, evaporation, addition of other substances, or other means may present hazards not specifically addressed herein and which must be evaluated by the user. The information furnished herein is believed to be accurate and represents the best data currently available to us. No warranty, expressed or implied, is made and RICCA CHEMICAL COMPANY assumes no legal responsibility or liability whatsoever resulting from its use.