

Safety Data Sheet

SECTION 1: Identification

1.1. Product Identifier

Trade Name or Designation: MISA Standard 5, Fluoride Soluble Group

Product Number: RMISA5

Other Identifying Product Numbers: RMISA5-100

1.2. Recommended Use and Restrictions on Use

General Laboratory Reagent

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

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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
Acute Toxicity - Oral	Category 4	H302	P264, P270, P301+P312, P330, P501
Acute Toxicity - Inhalation	Category 2	H330	P260, P271, P285, P304+P340, P310, P320, P403+P233, P405, P501
Skin Corrosion / Irritation	Category 1	H314	P260, P264, P280, P301+P330+P331, P303+P361+P353, P363, P304+P340, P310, P321, P305+P351+P338, P405, P501
Eye Damage / Irritation	Category 1	H318	P280, P305+P351+P338, P310
Respiratory Sensitizer	Category 1	H334	P261, P285, P304+P341, P342+P311, P501
Skin Sensitizer	Category 1	H317	P261, P272, P280, P302+P352, P332+P313, P321, P363, P501
Specific Target Organs/Systemic Toxicity Following Single Exposure	Category 1	H370	P260, P264, P270, P307+P311, P321, P405, P501
Specific Target Organs/Systemic Toxicity Following Repeated Exposure	Category 1	H372	P260, P264, P270, P314, P501
Corrosive to Metals	Category 1	H290	P234, P390, P406

2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**



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Hazard Statements:

Hazard Number	Hazard Statement
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.



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Precautionary Statements:

Precautionary Number	Precautionary Statement
P234	Keep only in original container.
P260	Do not breathe dust, fumes or mist.
P261	Avoid breathing dust, fumes or mist.
P264	Wash arms, hands and face thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P272	Contaminated work clothing must not be allowed out of the workplace.
P280	Wear protective gloves and eye protection.
P285	In case of inadequate ventilation wear respiratory protection.
P301+P312	IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.
P301+P330+P331	IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P302+P352	IF ON SKIN: Wash with plenty of soap and water.
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.
P304+P341	IF INHALED: If breathing is difficult, 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 d Continue rinsing.
P307+P311	IF exposed: Call a POISON CENTER or physician.
P310	Immediately call a POISON CENTER or physician.
P314	Get medical attention if you feel unwell.
P320	Specific treatment is urgent (Wash areas of contact with water immediately).
P321	Specific treatment (Wash areas of contact with water immediately).
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER or physician.
P363	Wash contaminated clothing before reuse.
P390	Absorb spillage to prevent material damage.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
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



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2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

SECTION 3: Composition / Information on Ingredients

3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H ₂ O	18.01 g/mol	7732-18-5	93.94%
Nitric Acid	HNO ₃	63.01 g/mol	7697-37-2	5.58%
Hydrofluoric Acid	HF	20.00 g/mol	7664-39-3	0.13%
Ammonium Tetrafluoroborate	BF ₄ H ₄ N	104.84 g/mol	13826-83-0	0.09%
Ammonium Sulfate	(NH ₄) ₂ SO ₄	132.13 g/mol	7783-20-2	0.04%
Ammonium Dihydrogen Phosphate	NH ₄ H ₂ PO ₄	97.99 g/mol	7722-76-1	0.04%
Ammonium Hexafluorogermanate	(NH ₄) ₂ GeF ₆	Data not available.	16962-47-3	0.03%
Zirconyl Nitrate	ZrO(NO ₃) ₂ ·2H ₂ O	231.23 g/mol	13826-66-9	0.03%
Ammonium Hexafluoroniobate	NH ₄ NbF ₆	224.93 g/mol	12062-13-4	0.03%
Ammonium Heptafluorotantalate	(NH ₄) ₂ TaF ₇	Data not available.	12022-02-5	0.02%
Antimony Trioxide	Sb ₂ O ₃	291.51 g/mol	1309-64-4	0.01%
Hafnium Oxide	HfO ₂	210.48 g/mol	12055-23-1	0.01%
Tungsten	W	183.84 g/mol	7440-33-7	0.01%
Titanium	Ti	47.86 g/mol	7440-32-6	0.01%
Tin	Sn	118.71 g/mol	7440-31-5	0.01%
Silicon	Si	28.08 g/mol	7440-21-3	0.01%
Rhenium	Re	186.20 g/mol	7440-15-5	0.01%
Molybdenum	Mo	95.95 g/mol	7439-98-7	0.01%

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. May cause irritation, redness, pain, and tearing.

Inhalation: IF INHALED: If breathing is difficult, 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. May cause irritation, redness and pain. Contact will discolor skin yellow-brown depending on exposure which will wear off after a period of time.

Ingestion: IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

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4.2. Most Important Symptoms and Effects, Acute and Delayed

Corrosive Liquid. May be fatal if swallowed. Contains a low level of a suspected carcinogen. Avoid contact with skin, eyes, and clothing. Avoid breathing vapor. If swallowed, do not induce vomiting. Dilute with water and call a physician. Wash areas of contact with plenty of water. Potential symptoms of overexposure are irritation of the eyes, mucous membranes and skin, dental erosion, bronchitis, pneumonitis, delayed pulmonary edema. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause irritation, redness and pain. Contact will discolor skin yellow-brown depending on exposure which will wear off after a period of time.

4.3. Medical Attention or Special Treatment Needed

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

SECTION 5: Fire-Fighting Measures

5.1. Extinguishing Media

Use water or water spray.

5.2. Specific Hazards Arising from the Substance or Mixture

Not combustible, but substance is an oxidizer and its heat of reaction with reducing agents or combustibles may cause ignition. Can react with metals to release flammable hydrogen gas.

5.3. Special Protective Equipment for Firefighters

Use protective clothing and breathing equipment appropriate for the surrounding fire.

SECTION 6: Accidental Release Measures

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

Wear protective gloves and eye protection. In case of inadequate ventilation wear respiratory protection.

6.2. Cleanup and Containment Methods and Materials

Do not flush to sewer. Absorb with suitable material. Containerize for disposal with a hazardous waste disposal facility. 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. As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage.



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SECTION 8: Exposure Controls / Personal Protection

8.1. Control Parameters

Chemical Name	Limit Type	Country	Exposure Limit	Information Source
Ammonium Tetrafluoroborate (13826-83-0)	TWA	USA	2.5 mg/m ³ TWA (as F) 2.5 mg/m ³ TWA (dust)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Ammonium Tetrafluoroborate (13826-83-0)	TLV-TWA	USA	2.5 mg/m ³ TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Antimony Trioxide (1309-64-4)	TWA	USA	0.5 mg/m ³ TWA (as Sb)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Antimony Trioxide (1309-64-4)	TLV-TWA	USA	0.5 mg/m ³ TWA (as Sb)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hafnium Oxide (12055-23-1)	TLV-TWA	USA	0.5 mg/m ³ TWA (as Hf)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TWA	USA	2.5 mg/m ³ TWA (as F) 2.5 mg/m ³ TWA (dust)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TWA	USA	3 ppm TWA (as F)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Hydrofluoric Acid (7664-39-3)	TLV-Ceiling	USA	2 ppm Ceiling (as F)	ACGIH - Threshold Limit Values - Ceilings (TLV-C)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	0.5 ppm TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Hydrofluoric Acid (7664-39-3)	TLV-TWA	USA	2.5 mg/m ³ TWA (as F)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Molybdenum (7439-98-7)	TLV-TWA	USA	10 mg/m ³ TWA (inhalable fraction) 3 mg/m ³ TWA (respirable fraction)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Nitric Acid (7697-37-2)	TWA	USA	2 ppm TWA 5 mg/m ³ TWA	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Nitric Acid (7697-37-2)	TLV-STEL	USA	4 ppm STEL	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Nitric Acid (7697-37-2)	TLV-TWA	USA	2 ppm TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Silicon (7440-21-3)	TWA	USA	15 mg/m ³ TWA (total dust) 5 mg/m ³ TWA (respirable fraction)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Tin (7440-31-5)	TWA	USA	2 mg/m ³ TWA (except oxides, as Sn)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Tin (7440-31-5)	TLV-TWA	USA	2 mg/m ³ TWA (except Tin hydride, as Sn)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Tin (7440-31-5)	TLV-TWA	USA	2 mg/m ³ TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Tungsten (7440-33-7)	TLV-STEL	USA	10 mg/m ³ STEL	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)



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Tungsten (7440-33-7)	TLV-STEL	USA	10 mg/m ³ STEL (as W)	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Tungsten (7440-33-7)	TLV-TWA	USA	5 mg/m ³ TWA (as W)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Tungsten (7440-33-7)	TLV-TWA	USA	5 mg/m ³ TWA	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Zirconyl Nitrate (13826-66-9)	TWA	USA	5 mg/m ³ TWA (as Zr)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Zirconyl Nitrate (13826-66-9)	TLV-STEL	USA	10 mg/m ³ STEL (as Zr)	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Zirconyl Nitrate (13826-66-9)	TLV-TWA	USA	5 mg/m ³ TWA (as Zr)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)

8.2. Exposure Controls

Engineering Controls: Use only outdoors or in a well-ventilated area. No specific controls are needed. Normal room ventilation is adequate.

Respiratory Protection: In case of inadequate ventilation wear respiratory protection. Normal room ventilation is adequate.

Skin Protection: Wear protective gloves and eye protection. Chemical resistant gloves.

Eye Protection: Wear protective gloves and eye protection. Safety glasses or goggles.

8.3. Personal Protective Equipment

Wear protective gloves and eye protection. In case of inadequate ventilation wear respiratory protection. Normal room ventilation is adequate. Chemical resistant gloves. Safety glasses or goggles.



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SECTION 9: Physical and Chemical Properties

9.1. Basic Physical and Chemical Properties

Appearance: Colorless liquid

Physical State: Liquid

Odor: Data not available.

Odor Threshold: Data not available.

pH: Acidic

Melting/Freezing Point: Approximately 0°C

Initial Boiling Point /Range: Approximately 100°C - Approximately 100°C

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: 1.04

Solubility: Miscible

Partition Coefficient (n-Octanol/Water): Data not available.

Auto-Ignition Temperature: Data not available.

Decomposition Temperature: Data not available.

Viscosity: Data not available.

Explosive Properties: 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. Strong bases, metallic powders.

10.4. Hazardous Decomposition Products

Will not occur.



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SECTION 11: Toxicological Information

11.1. Information on Toxicological Effects

Acute Toxicity - Oral Exposure:

Harmful if swallowed. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth. Dispose of contents in accordance with local, state, federal and international regulations.

Acute Toxicity - Dermal Exposure:

Not applicable.

Acute Toxicity - Inhalation Exposure:

Fatal if inhaled. Do not breathe dust, fumes or mist. Use only outdoors or in a well-ventilated area. In case of inadequate ventilation wear respiratory protection. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician. Specific treatment is urgent (Wash areas of contact with water immediately). Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Acute Toxicity - Other Information:

LDLo, Oral, Human: 430 mg/kg (Nitric Acid), details of toxic effects not reported other than lethal dose value. Antimony Trioxide is a suspected carcinogen.

Skin Corrosion and Irritation:

Causes severe skin burns and eye damage. Do not breathe dust, fumes or mist. 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 immediately). 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:

Causes serious eye damage. Wear protective gloves and eye protection. 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.

Respiratory Sensitization:

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Avoid breathing dust, fumes or mist. In case of inadequate ventilation wear respiratory protection. IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a POISON CENTER or physician. Dispose of contents in accordance with local, state, federal and international regulations.

Skin Sensitization:

May cause an allergic skin reaction. Avoid breathing dust, fumes or mist. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves and eye protection. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical attention. Specific treatment (Wash areas of contact with water immediately). Wash contaminated clothing before reuse. Dispose of contents in accordance with local, state, federal and international regulations.

Germ Cell Mutagenicity:

Not applicable.



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Carcinogenicity:

Not applicable.

Reproductive Toxicity:

Not applicable.

Specific Target Organ Toxicity from Single Exposure:

Causes damage to organs. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. IF exposed: Call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately). Store locked up. Dispose of contents in accordance with local, state, federal and international regulations.

Specific Target Organ Toxicity from Repeated Exposure:

Causes damage to organs through prolonged or repeated exposure. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Get medical attention if you feel unwell. Dispose of contents in accordance with local, state, federal and international regulations.

Aspiration Hazard:

Not applicable.

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.



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SECTION 14: Transportation Information

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

UN Number: UN3264

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

Hazard Class: 8

Packing Group: III

Hazard Placard Labels:



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

UN Number: UN3264

Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, n.o.s., (Nitric Acid and Hydrofluoric 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

Hydrofluoric Acid (CAS # 7664-39-3): 100 lb EPCRA RQ

Hydrofluoric Acid (CAS # 7664-39-3): 100 lb TPQ

Nitric Acid (CAS # 7697-37-2): 1000 lb EPCRA RQ

Nitric Acid (CAS # 7697-37-2): 1000 lb TPQ



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

Antimony Trioxide (CAS # 1309-64-4): 1000 lb final RQ; 454 kg final RQ

Ammonium Tetrafluoroborate (CAS # 13826-83-0): 5000 lb final RQ; 2270 kg final RQ

Molybdenum (CAS # 7439-98-7): 10 curie final RQ; 0.37 TBq final RQ

Molybdenum (CAS # 7439-98-7): 100 curie final RQ; 3.7 TBq final RQ

Molybdenum (CAS # 7439-98-7): 1000 curie final RQ; 37 TBq final RQ

Rhenium (CAS # 7440-15-5): 10 curie final RQ (12.7 hr half-life); 0.37 TBq final RQ (12.7 hr half-life); 10 curie final RQ (64.0 hr half-life); 0.37 TBq final RQ (64.0 hr half-life)

Rhenium (CAS # 7440-15-5): 10 curie final RQ; 0.37 TBq final RQ

Rhenium (CAS # 7440-15-5): 100 curie final RQ; 3.7 TBq final RQ

Rhenium (CAS # 7440-15-5): 1000 curie final RQ; 37 TBq final RQ

Silicon (CAS # 7440-21-3): 1 curie final RQ; 0.037 TBq final RQ

Silicon (CAS # 7440-21-3): 1000 curie final RQ; 37 TBq final RQ

Tin (CAS # 7440-31-5): 1 curie final RQ; 0.037 TBq final RQ

Tin (CAS # 7440-31-5): 10 curie final RQ; 0.37 TBq final RQ

Tin (CAS # 7440-31-5): 100 curie final RQ; 3.7 TBq final RQ

Tin (CAS # 7440-31-5): 1000 curie final RQ; 37 TBq final RQ

Titanium (CAS # 7440-32-6): 1 curie final RQ; 0.037 TBq final RQ

Titanium (CAS # 7440-32-6): 1000 curie final RQ; 37 TBq final RQ

Tungsten (CAS # 7440-33-7): 10 curie final RQ; 0.37 TBq final RQ

Tungsten (CAS # 7440-33-7): 100 curie final RQ; 3.7 TBq final RQ

Tungsten (CAS # 7440-33-7): 1000 curie final RQ; 37 TBq final RQ

Hydrofluoric Acid (CAS # 7664-39-3): 100 lb final RQ; 45.4 kg final RQ

Nitric Acid (CAS # 7697-37-2): 1000 lb final RQ; 454 kg final RQ

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

Antimony Trioxide (CAS # 1309-64-4): 1.0 % de minimis concentration (listed under Chemical Category N010)

Ammonium Tetrafluoroborate (CAS # 13826-83-0): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)

Ammonium Hexafluorogermanate (CAS # 16962-47-3): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)

Hydrofluoric Acid (CAS # 7664-39-3): 1.0 % de minimis concentration

Nitric Acid (CAS # 7697-37-2): 1.0 % de minimis concentration

Ammonium Dihydrogen Phosphate (CAS # 7722-76-1): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)

Ammonium Sulfate (CAS # 7783-20-2): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)



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15.5. Massachusetts Right-to-Know Substance List

Antimony Trioxide (CAS # 1309-64-4): Present

Ammonium Tetrafluoroborate (CAS # 13826-83-0): Present

Molybdenum (CAS # 7439-98-7): Present

Silicon (CAS # 7440-21-3): Present (dust, exempt when encapsulated or if particulates are not present and cannot be substantially generated through use of the product)

Tin (CAS # 7440-31-5): Present

Tungsten (CAS # 7440-33-7): Present

Hydrofluoric Acid (CAS # 7664-39-3): Extraordinarily hazardous

Nitric Acid (CAS # 7697-37-2): Extraordinarily hazardous

Ammonium Sulfate (CAS # 7783-20-2): Present

15.6. Pennsylvania Right-to-Know Hazardous Substances

Antimony Trioxide (CAS # 1309-64-4): Environmental hazard

Antimony Trioxide (CAS # 1309-64-4): Present

Antimony Trioxide (CAS # 1309-64-4): Present (listed under Antimony oxide)

Ammonium Tetrafluoroborate (CAS # 13826-83-0): Environmental hazard

Ammonium Tetrafluoroborate (CAS # 13826-83-0): Present

Ammonium Tetrafluoroborate (CAS # 13826-83-0): Present (dust)

Molybdenum (CAS # 7439-98-7): Present

Silicon (CAS # 7440-21-3): Present

Tin (CAS # 7440-31-5): Present

Tungsten (CAS # 7440-33-7): Present

Hydrofluoric Acid (CAS # 7664-39-3): Environmental hazard

Hydrofluoric Acid (CAS # 7664-39-3): Present

Hydrofluoric Acid (CAS # 7664-39-3): Present (dust)

Nitric Acid (CAS # 7697-37-2): Environmental hazard

Nitric Acid (CAS # 7697-37-2): Present

Water (CAS # 7732-18-5): Present

Ammonium Sulfate (CAS # 7783-20-2): Environmental hazard

Ammonium Sulfate (CAS # 7783-20-2): Present



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

Antimony Trioxide (CAS # 1309-64-4): carcinogen

Antimony Trioxide (CAS # 1309-64-4): sn 0149

Antimony Trioxide (CAS # 1309-64-4): sn 2223

Antimony Trioxide (CAS # 1309-64-4): SN 2223 TPQ: 500 lb (Category Code N010. Includes any unique chemical substance that contains the named metal as part of that chemical structure.)

Zirconyl Nitrate (CAS # 13826-66-9): sn 3722

Zirconyl Nitrate (CAS # 13826-66-9): SN 3722 TPQ: 500 lb (water dissociable, Category Code N511)

Ammonium Tetrafluoroborate (CAS # 13826-83-0): sn 0100

Ammonium Tetrafluoroborate (CAS # 13826-83-0): sn 0936

Molybdenum (CAS # 7439-98-7): sn 1309

Silicon (CAS # 7440-21-3): flammable - third degree

Silicon (CAS # 7440-21-3): sn 3125 (powder)

Tin (CAS # 7440-31-5): flammable - third degree

Tin (CAS # 7440-31-5): sn 1858

Titanium (CAS # 7440-32-6): flammable - third degree

Titanium (CAS # 7440-32-6): sn 1860

Tungsten (CAS # 7440-33-7): flammable - third degree

Tungsten (CAS # 7440-33-7): sn 1959

Hydrofluoric Acid (CAS # 7664-39-3): corrosive

Hydrofluoric Acid (CAS # 7664-39-3): sn 0936

Hydrofluoric Acid (CAS # 7664-39-3): sn 3759

Hydrofluoric Acid (CAS # 7664-39-3): SN 3759 TPQ: 100 lb; SN 1014 TPQ: 500 lb (Hydrogen fluoride gas only, NJ uses UN1052 for reporting purposes)

Nitric Acid (CAS # 7697-37-2): corrosive; reactive - second degree

Nitric Acid (CAS # 7697-37-2): sn 1356

Nitric Acid (CAS # 7697-37-2): SN 1356 TPQ: 500 lb

Nitric Acid (CAS # 7697-37-2): sn 3722

Nitric Acid (CAS # 7697-37-2): SN 3722 TPQ: 500 lb (water dissociable, Category Code N511)

15.8. California Proposition 65

Antimony Trioxide (CAS # 1309-64-4): carcinogen, initial date 10/1/90



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

Hafnium Oxide (CAS # 12055-23-1): Present
Antimony Trioxide (CAS # 1309-64-4): Present
Zirconyl Nitrate (CAS # 13826-66-9): Present
Ammonium Tetrafluoroborate (CAS # 13826-83-0): Present
Molybdenum (CAS # 7439-98-7): Present
Rhenium (CAS # 7440-15-5): Present
Silicon (CAS # 7440-21-3): Present
Tin (CAS # 7440-31-5): Present
Titanium (CAS # 7440-32-6): Present
Tungsten (CAS # 7440-33-7): Present
Hydrofluoric Acid (CAS # 7664-39-3): Present
Nitric Acid (CAS # 7697-37-2): Present
Ammonium Dihydrogen Phosphate (CAS # 7722-76-1): Present
Water (CAS # 7732-18-5): Present
Ammonium Sulfate (CAS # 7783-20-2): Present

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

Hafnium Oxide (CAS # 12055-23-1): Present
Antimony Trioxide (CAS # 1309-64-4): Present
Zirconyl Nitrate (CAS # 13826-66-9): Present
Ammonium Tetrafluoroborate (CAS # 13826-83-0): Present
Molybdenum (CAS # 7439-98-7): Present
Rhenium (CAS # 7440-15-5): Present
Silicon (CAS # 7440-21-3): Present
Tin (CAS # 7440-31-5): Present
Titanium (CAS # 7440-32-6): Present
Tungsten (CAS # 7440-33-7): Present
Hydrofluoric Acid (CAS # 7664-39-3): Present [T]
Nitric Acid (CAS # 7697-37-2): Present
Ammonium Dihydrogen Phosphate (CAS # 7722-76-1): Present
Water (CAS # 7732-18-5): Present
Ammonium Sulfate (CAS # 7783-20-2): Present

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

Not listed.

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SECTION 16: Other Information

16.1. Full Text of Hazard Statements and Precautionary Statements

May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Fatal if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes damage to organs. Causes damage to organs through prolonged or repeated exposure.

Keep only in original container. Do not breathe dust, fumes or mist. Wash arms, hands and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves and eye protection. In case of inadequate ventilation wear respiratory protection.

IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. IF ON SKIN: Wash with plenty of soap and water. 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. IF exposed: Call a POISON CENTER or physician. Get medical attention if you feel unwell. Specific treatment is urgent (Wash areas of contact with water immediately). If skin irritation occurs: Get medical attention. If experiencing respiratory symptoms: Call a POISON CENTER or physician. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Store in a well-ventilated place. Keep container tightly closed. 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

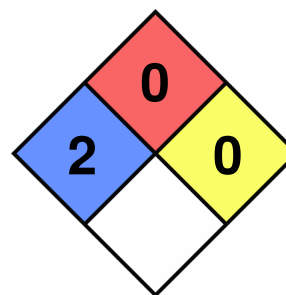
Canadian Carcinogenicity Hazard Class: Not Applicable.

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:



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16.4. Document Revision

Last Revision Date: 5/1/2015

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.