

## Safety Data Sheet

### SECTION 1: Identification

#### 1.1. Product Identifier

**Trade Name or Designation:** MISA Standard 1, Rare Earth Metals

**Product Number:** RMISA1

**Other Identifying Product Numbers:** RMISA1-100

#### 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

### 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 - 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
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



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### 2.2. GHS Label Elements

Pictograms:



Signal Word: **Danger**

Hazard Statements:

Hazard Number	Hazard Statement
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H330	Fatal 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.
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.
P280	Wear protective gloves and eye protection.
P285	In case of inadequate ventilation wear respiratory 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 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).
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

### 2.4. Hazards not Otherwise Classified or Covered by GHS

Data not available.

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### SECTION 3: Composition / Information on Ingredients

#### 3.1. Components of Substance or Mixture

Chemical Name	Formula	Molecular Weight	CAS Number	Weight%
Water	H <sub>2</sub> O	18.01 g/mol	7732-18-5	94.33%
Nitric Acid	HNO <sub>3</sub>	63.01 g/mol	7697-37-2	5.44%
Cerium (III) Nitrate Hexahydrate	Ce(NO <sub>3</sub> ) <sub>3</sub> ·6H <sub>2</sub> O	326.13 g/mol	10294-41-4	0.03%
Thorium Nitrate	Th(NO <sub>3</sub> ) <sub>4</sub>	712.09 g/mol	13823-29-5	0.02%
Scandium Oxide	Sc <sub>2</sub> O <sub>3</sub>	Data not available.	12060-08-1	0.01%
Yttrium Oxide	Y <sub>2</sub> O <sub>3</sub>	225.80 g/mol	1314-36-9	0.01%
Uranium Oxide	UO <sub>3</sub>	286.02 g/mol	1344-58-7	0.01%
Praseodymium Oxide	Pr <sub>6</sub> O <sub>11</sub>	Data not available.	12037-29-5	0.01%
Lanthanum Oxide	La <sub>2</sub> O <sub>3</sub>	325.80 g/mol	1312-81-8	0.01%
Terbium Oxide	Tb <sub>4</sub> O <sub>7</sub>	Data not available.	12037-01-3	0.01%
Neodymium Oxide	Nd <sub>2</sub> O <sub>3</sub>	336.47 g/mol	1313-97-9	0.01%
Samarium Oxide	Sm <sub>2</sub> O <sub>3</sub>	348.71 g/mol	12060-58-1	0.01%
Europium Oxide	Eu <sub>2</sub> O <sub>3</sub>	Data not available.	1308-96-9	0.01%
Gadolinium Oxide	Gd <sub>2</sub> O <sub>3</sub>	362.49 g/mol	12064-62-9	0.01%
Dysprosium Oxide	Dy <sub>2</sub> O <sub>3</sub>	372.99 g/mol	1308-87-8	0.01%
Erbium Oxide	Er <sub>2</sub> O <sub>3</sub>	382.51 g/mol	12061-16-4	0.01%
Holmium Oxide	Ho <sub>2</sub> O <sub>3</sub>	Data not available.	12055-62-8	0.01%
Thulium Oxide	Tm <sub>2</sub> O <sub>3</sub>	Data not available.	12036-44-1	0.01%
Ytterbium (III) Oxide	Yb <sub>2</sub> O <sub>3</sub>	394.07 g/mol	1314-37-0	0.01%
Lutetium Oxide	Lu <sub>2</sub> O <sub>3</sub>	Data not available.	12032-20-1	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: 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. 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. 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

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. 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
Nitric Acid (7697-37-2)	TWA	USA	2 ppm TWA 5 mg/m <sup>3</sup> 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)
Uranium Oxide (1344-58-7)	TWA	USA	0.25 mg/m <sup>3</sup> TWA (as U)	U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)
Uranium Oxide (1344-58-7)	TLV-STEL	USA	0.6 mg/m <sup>3</sup> STEL (as U)	ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)
Uranium Oxide (1344-58-7)	TLV-TWA	USA	0.2 mg/m <sup>3</sup> TWA (as U)	ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)
Yttrium Oxide (1314-36-9)	TLV-TWA	USA	1 mg/m <sup>3</sup> TWA (as Y)	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:**

Not applicable.

**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.

**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:**

Not applicable.

**Skin Sensitization:**

Not applicable.

**Germ Cell Mutagenicity:**

Not applicable.

**Carcinogenicity:**

Not applicable.

**Reproductive Toxicity:**

Not applicable.



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### 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)

**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)

**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

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

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

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

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)

Cerium (III) Nitrate Hexahydrate (CAS # 10294-41-4): 1.0 % de minimis concentration (reportable only when in aqueous solution, Chemical Category N511)

Thorium Nitrate (CAS # 13823-29-5): 1.0 % de minimis concentration (reportable only when in aqueous solution, Chemical Category N511)

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



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### 15.5. Massachusetts Right-to-Know Substance List

Thorium Nitrate (CAS # 13823-29-5): Present

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

### 15.6. Pennsylvania Right-to-Know Hazardous Substances

Thorium Nitrate (CAS # 13823-29-5): Present

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

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

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

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

Cerium (III) Nitrate Hexahydrate (CAS # 10294-41-4): sn 3722

Cerium (III) Nitrate Hexahydrate (CAS # 10294-41-4): SN 3722 TPQ: 500 lb (water dissociable, Category Code N511)

Thorium Nitrate (CAS # 13823-29-5): sn 1857

Thorium Nitrate (CAS # 13823-29-5): sn 3722

Thorium Nitrate (CAS # 13823-29-5): SN 3722 TPQ: 500 lb (water dissociable, Category Code N511)

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

Not listed.



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

Cerium (III) Nitrate Hexahydrate (CAS # 10294-41-4): Present  
Lutetium Oxide (CAS # 12032-20-1): Present  
Thulium Oxide (CAS # 12036-44-1): Present  
Terbium Oxide (CAS # 12037-01-3): Present  
Praseodymium Oxide (CAS # 12037-29-5): Present  
Holmium Oxide (CAS # 12055-62-8): Present  
Scandium Oxide (CAS # 12060-08-1): Present  
Samarium Oxide (CAS # 12060-58-1): Present  
Erbium Oxide (CAS # 12061-16-4): Present  
Gadolinium Oxide (CAS # 12064-62-9): Present  
Dysprosium Oxide (CAS # 1308-87-8): Present  
Europium Oxide (CAS # 1308-96-9): Present  
Lanthanum Oxide (CAS # 1312-81-8): Present  
Neodymium Oxide (CAS # 1313-97-9): Present  
Yttrium Oxide (CAS # 1314-36-9): Present  
Ytterbium (III) Oxide (CAS # 1314-37-0): Present  
Uranium Oxide (CAS # 1344-58-7): Present  
Thorium Nitrate (CAS # 13823-29-5): Present  
Nitric Acid (CAS # 7697-37-2): Present  
Water (CAS # 7732-18-5): Present

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

Cerium (III) Nitrate Hexahydrate (CAS # 10294-41-4): Present  
Lutetium Oxide (CAS # 12032-20-1): Present  
Thulium Oxide (CAS # 12036-44-1): Present  
Terbium Oxide (CAS # 12037-01-3): Present  
Praseodymium Oxide (CAS # 12037-29-5): Present  
Holmium Oxide (CAS # 12055-62-8): Present  
Scandium Oxide (CAS # 12060-08-1): Present  
Samarium Oxide (CAS # 12060-58-1): Present  
Erbium Oxide (CAS # 12061-16-4): Present  
Gadolinium Oxide (CAS # 12064-62-9): Present  
Dysprosium Oxide (CAS # 1308-87-8): Present  
Europium Oxide (CAS # 1308-96-9): Present  
Lanthanum Oxide (CAS # 1312-81-8): Present  
Neodymium Oxide (CAS # 1313-97-9): Present  
Yttrium Oxide (CAS # 1314-36-9): Present  
Ytterbium (III) Oxide (CAS # 1314-37-0): Present  
Uranium Oxide (CAS # 1344-58-7): Present  
Thorium Nitrate (CAS # 13823-29-5): Present  
Nitric Acid (CAS # 7697-37-2): Present  
Water (CAS # 7732-18-5): Present



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**15.11. European Inventory of Existing Commercial Chemical Substances (EINECS),  
European List of Notified Chemical Substances (ELINCS), and No Longer Polymers (NLP)**  
Not listed.

### 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. Causes serious eye damage. Fatal 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. Wear protective gloves and eye protection. In case of inadequate ventilation wear respiratory 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. 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). 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

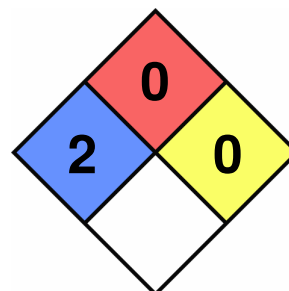
**Canadian Carcinogenicity Hazard Class:** Not Applicable.

**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:**





## Safety Data Sheet

### 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.