

## Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS)

### SECTION 1: Identification

#### 1.1. Product Identifier

**Trade Name or Designation:** Multichem-19 Standard

**Product Number:** RMULTI19

**Other Identifying Product Numbers:** RMULTI19-1N

#### 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 hours)

CHEMTREC (USA) 800-424-9300

CHEMTREC (International) 1+ 703-527-3887

### SECTION 2: Hazard(s) Identification

#### 2.1. Classification of the Substance or Mixture

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

| Hazard Class                | Category   | Hazard Statements: | Precautionary Statements:                                                                                 |
|-----------------------------|------------|--------------------|-----------------------------------------------------------------------------------------------------------|
| 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                                                                                |
| 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.               |

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 immediately).                                                               |
| 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.                                      |

## 2.4. 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  | 90.87   |
| Nitric Acid         | HNO <sub>3</sub>                  | 63.01 g/mol      | 7697-37-2  | 8.43    |
| Calcium Carbonate   | CaCO <sub>3</sub>                 | 100.09 g/mol     | 471-34-1   | 0.48    |
| Magnesium           | Mg                                | 24.30 g/mol      | 7439-95-4  | 0.10    |
| Potassium Carbonate | K <sub>2</sub> CO <sub>3</sub>    | 138.20 g/mol     | 584-08-7   | < 0.1   |
| Boric Acid          | H <sub>3</sub> BO <sub>3</sub>    | 61.83 g/mol      | 10043-35-3 | < 0.1   |
| Strontium Carbonate | SrCO <sub>3</sub>                 | 147.62 g/mol     | 1633-05-2  | < 0.1   |
| Hydrofluoric Acid   | HF                                | 20.00 g/mol      | 7664-39-3  | < 0.1   |
| Silicon             | Si                                | 28.08 g/mol      | 7440-21-3  | < 0.1   |
| Iron                | Fe                                | 55.84 g/mol      | 7439-89-6  | < 0.1   |
| Barium Nitrate      | Ba(NO <sub>3</sub> ) <sub>2</sub> | 261.33 g/mol     | 10022-31-8 | < 0.1   |
| Ammonium Hydroxide  | NH <sub>4</sub> OH                | 35.04 g/mol      | 1336-21-6  | < 0.1   |
| Manganese           | Mn                                | 54.93 g/mol      | 7439-96-5  | < 0.1   |
| Zinc                | Zn                                | 65.40 g/mol      | 7440-66-6  | < 0.1   |
| Lead                | Pb                                | 207.2 g/mol      | 7439-92-1  | < 0.1   |

## 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

Causes severe skin burns and eye damage. Causes serious eye damage.

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### 4.3. Medical Attention or Special Treatment Needed

Immediately call a POISON CENTER or physician. Specific treatment (Wash areas of contact with water immediately). Irrigate immediately with large quantity of water for at least 15 minutes. Call a physician if irritation develops. Remove to fresh air. Give artificial respiration if necessary. If breathing is difficult, give oxygen. Flush with plenty of water for at least 15 minutes. Call a physician if irritation develops. Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

## SECTION 5: Fire-Fighting Measures

### 5.1. Extinguishing Media

Use any means suitable for extinguishing surrounding fire.

### 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. May react explosively with combustible organic or readily oxidizable materials such as: alcohols, turpentine, charcoal, organic refuse, metal powder, hydrogen sulfide, etc.

### 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.

### 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                                                     |
|-----------------------------|------------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Barium Nitrate (10022-31-8) | TLV-TWA    | USA     | "0.5 mg/m <sup>3</sup> TWA (as Ba)" As Barium soluble compounds [RR-00049-7]                                                                                                                                                                                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Barium Nitrate (10022-31-8) | TWA        | USA     | "0.5 mg/m <sup>3</sup> TWA (regulated under CAS 7440-39-3, as Ba)" As Barium, soluble compounds [RR-00049-7]                                                                                                                                                          | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Barium Nitrate (10022-31-8) | TLV-TWA    | USA     | 0.5 mg/m <sup>3</sup> TWA (as Ba)                                                                                                                                                                                                                                     | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Barium Nitrate (10022-31-8) | TWA        | USA     | 0.5 mg/m <sup>3</sup> TWA (regulated under CAS 7440-39-3, as Ba)                                                                                                                                                                                                      | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Boric Acid (10043-35-3)     | TLV-TWA    | USA     | 2 mg/m <sup>3</sup> TWA (inhalable particulate matter, listed under Borate compounds, inorganic)                                                                                                                                                                      | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Boric Acid (10043-35-3)     | TLV-STEL   | USA     | 6 mg/m <sup>3</sup> STEL (inhalable particulate matter, listed under Borate compounds, inorganic)                                                                                                                                                                     | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Boric Acid (10043-35-3)     | TLV-TWA    | USA     | "2 mg/m <sup>3</sup> TWA (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3]; "2 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Borate compounds, inorganic [RR-33876-1] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |

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|                                |          |     |                                                                                                                                                                                                                                                                            |                                                                        |
|--------------------------------|----------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Boric Acid (10043-35-3)        | TLV-STEL | USA | "6 mg/m <sup>3</sup> STEL (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3];<br>"6 mg/m <sup>3</sup> STEL (inhalable particulate matter)" As Borate compounds, inorganic [RR-33876-1] | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Boric Acid (10043-35-3)        | TLV-TWA  | USA | "2 mg/m <sup>3</sup> TWA (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3]                                                                                                            | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Boric Acid (10043-35-3)        | TLV-STEL | USA | "6 mg/m <sup>3</sup> STEL (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3]                                                                                                           | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Boric Acid (10043-35-3)        | TLV-TWA  | USA | "2 mg/m <sup>3</sup> TWA (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3]                                                                                                            | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Boric Acid (10043-35-3)        | TLV-STEL | USA | "6 mg/m <sup>3</sup> STEL (inhalable particulate matter, listed under Borate compounds, inorganic)" As Boric acid (H <sub>3</sub> BO <sub>3</sub> ) [10043-35-3]                                                                                                           | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Boric Acid (10043-35-3)        | TLV-TWA  | USA | 2 mg/m <sup>3</sup> TWA (inhalable particulate matter)                                                                                                                                                                                                                     | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Boric Acid (10043-35-3)        | TLV-STEL | USA | 6 mg/m <sup>3</sup> STEL (inhalable particulate matter)                                                                                                                                                                                                                    | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Ammonium Hydroxide (1336-21-6) | TLV-STEL | USA | "35 ppm STEL" As Ammonia [7664-41-7]                                                                                                                                                                                                                                       | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Ammonium Hydroxide (1336-21-6) | TWA      | USA | "50 ppm TWA; 35 mg/m <sup>3</sup> TWA" As Ammonia [7664-41-7]                                                                                                                                                                                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Ammonium Hydroxide (1336-21-6) | TLV-TWA  | USA | "25 ppm TWA" As Ammonia [7664-41-7]                                                                                                                                                                                                                                        | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |

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|                                |          |     |                                                                                                                                               |                                                                        |
|--------------------------------|----------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Ammonium Hydroxide (1336-21-6) | TLV-STEL | USA | 35 ppm STEL                                                                                                                                   | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Ammonium Hydroxide (1336-21-6) | TLV-TWA  | USA | 25 ppm TWA                                                                                                                                    | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Ammonium Hydroxide (1336-21-6) | TWA      | USA | 50 ppm TWA; 35 mg/m <sup>3</sup> TWA                                                                                                          | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Calcium Carbonate (471-34-1)   | TWA      | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Calcium carbonate [1317-65-3]                       | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Lead (7439-92-1)               | PEL      | USA | "30 µg/m <sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m <sup>3</sup> TWA" As Lead [7439-92-1]                                      | U.S. - OSHA - Specifically Regulated Chemicals with PELs               |
| Lead (7439-92-1)               | TLV-TWA  | USA | "0.05 mg/m <sup>3</sup> TWA" As Lead [7439-92-1]                                                                                              | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Lead (7439-92-1)               | TWA      | USA | "50 µg/m <sup>3</sup> TWA" As Lead [7439-92-1]                                                                                                | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Lead (7439-92-1)               | TLV-TWA  | USA | 0.05 mg/m <sup>3</sup> TWA                                                                                                                    | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Lead (7439-92-1)               | TWA      | USA | 50 µg/m <sup>3</sup> TWA                                                                                                                      | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Lead (7439-92-1)               | PEL      | USA | 30 µg/m <sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m <sup>3</sup> TWA                                                            | U.S. - OSHA - Specifically Regulated Chemicals with PELs               |
| Lead (7439-92-1)               | PEL      | USA | "30 µg/m <sup>3</sup> Action Level (See 29 CFR 1910.1025, as Pb); 50 µg/m <sup>3</sup> TWA (as Pb)" As Lead, inorganic compounds [RR-00538-9] | U.S. - OSHA - Specifically Regulated Chemicals with PELs               |
| Lead (7439-92-1)               | TLV-TWA  | USA | "0.05 mg/m <sup>3</sup> TWA (as Pb)" As Lead inorganic compounds [RR-00538-9]                                                                 | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Lead (7439-92-1)               | TWA      | USA | "50 µg/m <sup>3</sup> TWA (as Pb)" As Lead, inorganic compounds [RR-00538-9]                                                                  | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |

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|                       |             |     |                                                                                                                                                            |                                                                   |
|-----------------------|-------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Manganese (7439-96-5) | TLV-TWA     | USA | "0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]                                                                                              | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]                                                                                              | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | TLV-TWA     | USA | "0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | TLV-TWA     | USA | "0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]                                                                                              | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | TLV-TWA     | USA | 0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)                                       | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | PEL-Ceiling | USA | 5 mg/m <sup>3</sup> Ceiling (fume)                                                                                                                         | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | TLV-TWA     | USA | "0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]                                                                                              | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (fume)" As Manganese [7439-96-5]                                                                                              | U.S. - OSHA - Final PELs - Ceiling Limits                         |

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|-----------------------|-------------|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Manganese (7439-96-5) | TLV-TWA     | USA | "0.02 mg/m <sup>3</sup> TWA (respirable particulate matter); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter)" As Manganese, elemental [7439-96-5] | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Manganese (7439-96-5) | PEL-Ceiling | USA | "5 mg/m <sup>3</sup> Ceiling (as Mn)" As Manganese compounds [RR-00602-0]                                                                                  | U.S. - OSHA - Final PELs - Ceiling Limits                         |
| Manganese (7439-96-5) | TLV-TWA     | USA | 0.02 mg/m <sup>3</sup> TWA (respirable particulate matter, as Mn); 0.1 mg/m <sup>3</sup> TWA (inhalable particulate matter, as Mn)                         | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA) |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |
| Silicon (7440-21-3)   | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust); 5 mg/m <sup>3</sup> TWA (respirable fraction)" As Silicon [7440-21-3]                                              | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)          |

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|-------------------------------|-------------|-----|---------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Silicon (7440-21-3)           | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust);<br>5 mg/m <sup>3</sup> TWA (respirable<br>fraction)" As Silicon<br>[7440-21-3]          | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Silicon (7440-21-3)           | TWA         | USA | 15 mg/m <sup>3</sup> TWA (total dust);<br>5 mg/m <sup>3</sup> TWA (respirable<br>fraction)                                      | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Silicon (7440-21-3)           | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust);<br>5 mg/m <sup>3</sup> TWA (respirable<br>fraction)" As Silicon<br>[7440-21-3]          | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Silicon (7440-21-3)           | TWA         | USA | "15 mg/m <sup>3</sup> TWA (total dust);<br>5 mg/m <sup>3</sup> TWA (respirable<br>fraction)" As Silicon<br>[7440-21-3]          | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Hydrofluoric Acid (7664-39-3) | TWA         | USA | "3 ppm TWA (as F)" As<br>Hydrogen fluoride<br>[7664-39-3];<br>"2.5 mg/m <sup>3</sup> TWA (as F)" As<br>Fluorides [RR-02792-9]   | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Hydrofluoric Acid (7664-39-3) | TLV-Ceiling | USA | "2 ppm Ceiling (as F)" As<br>Hydrogen fluoride<br>[7664-39-3]                                                                   | ACGIH - Threshold Limit Values -<br>Ceilings (TLV-C)                 |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | "0.5 ppm TWA (as F)" As<br>Hydrogen fluoride<br>[7664-39-3];<br>"2.5 mg/m <sup>3</sup> TWA (as F)" As<br>Fluorides [RR-02792-9] | ACGIH - Threshold Limit Values - Time<br>Weighted Averages (TLV-TWA) |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | "0.5 ppm TWA (as F)" As<br>Hydrogen fluoride<br>[7664-39-3]                                                                     | ACGIH - Threshold Limit Values - Time<br>Weighted Averages (TLV-TWA) |
| Hydrofluoric Acid (7664-39-3) | TWA         | USA | "3 ppm TWA (as F)" As<br>Hydrogen fluoride<br>[7664-39-3]                                                                       | U.S. - OSHA - Final PELs - Time<br>Weighted Averages (TWAs)          |
| Hydrofluoric Acid (7664-39-3) | TLV-Ceiling | USA | "2 ppm Ceiling (as F)" As<br>Hydrogen fluoride<br>[7664-39-3]                                                                   | ACGIH - Threshold Limit Values -<br>Ceilings (TLV-C)                 |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | 0.5 ppm TWA (as F)                                                                                                              | ACGIH - Threshold Limit Values - Time<br>Weighted Averages (TLV-TWA) |
| Hydrofluoric Acid (7664-39-3) | TLV-Ceiling | USA | 2 ppm Ceiling (as F)                                                                                                            | ACGIH - Threshold Limit Values -<br>Ceilings (TLV-C)                 |

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|                               |             |     |                                                                    |                                                                        |
|-------------------------------|-------------|-----|--------------------------------------------------------------------|------------------------------------------------------------------------|
| 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) | TWA         | USA | 2.5 mg/m <sup>3</sup> TWA (as F)                                   | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | 2.5 mg/m <sup>3</sup> TWA (as F)                                   | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Hydrofluoric Acid (7664-39-3) | TLV-Ceiling | USA | "2 ppm Ceiling (as F)" As Hydrogen fluoride<br>[7664-39-3]         | ACGIH - Threshold Limit Values - Ceilings (TLV-C)                      |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | "0.5 ppm TWA (as F)" As Hydrogen fluoride<br>[7664-39-3]           | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Hydrofluoric Acid (7664-39-3) | TWA         | USA | "3 ppm TWA (as F)" As Hydrogen fluoride<br>[7664-39-3]             | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Hydrofluoric Acid (7664-39-3) | TLV-Ceiling | USA | "2 ppm Ceiling (as F)" As Hydrogen fluoride<br>[7664-39-3]         | ACGIH - Threshold Limit Values - Ceilings (TLV-C)                      |
| Hydrofluoric Acid (7664-39-3) | TLV-TWA     | USA | "0.5 ppm TWA (as F)" As Hydrogen fluoride<br>[7664-39-3]           | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Hydrofluoric Acid (7664-39-3) | TWA         | USA | "3 ppm TWA (as F)" As Hydrogen fluoride<br>[7664-39-3]             | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2)       | TLV-STEL    | USA | "4 ppm STEL" As Nitric acid<br>[7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2)       | TLV-TWA     | USA | "2 ppm TWA" As Nitric acid<br>[7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2)       | TWA         | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid<br>[7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2)       | TLV-TWA     | USA | "2 ppm TWA" As Nitric acid<br>[7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2)       | TWA         | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid<br>[7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2)       | TLV-STEL    | USA | "4 ppm STEL" As Nitric acid<br>[7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2)       | TLV-STEL    | USA | 4 ppm STEL                                                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |

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|                         |          |     |                                                                 |                                                                        |
|-------------------------|----------|-----|-----------------------------------------------------------------|------------------------------------------------------------------------|
| Nitric Acid (7697-37-2) | TLV-TWA  | USA | 2 ppm TWA                                                       | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| 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) | TWA      | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2) | TLV-TWA  | USA | "2 ppm TWA" As Nitric acid [7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2) | TLV-STEL | USA | "4 ppm STEL" As Nitric acid [7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2) | TWA      | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2) | TLV-STEL | USA | "4 ppm STEL" As Nitric acid [7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2) | TLV-TWA  | USA | "2 ppm TWA" As Nitric acid [7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2) | TWA      | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |
| Nitric Acid (7697-37-2) | TLV-TWA  | USA | "2 ppm TWA" As Nitric acid [7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2) | TLV-STEL | USA | "4 ppm STEL" As Nitric acid [7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2) | TLV-TWA  | USA | "2 ppm TWA" As Nitric acid [7697-37-2]                          | ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)      |
| Nitric Acid (7697-37-2) | TLV-STEL | USA | "4 ppm STEL" As Nitric acid [7697-37-2]                         | ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL) |
| Nitric Acid (7697-37-2) | TWA      | USA | "2 ppm TWA; 5 mg/m <sup>3</sup> TWA" As Nitric acid [7697-37-2] | U.S. - OSHA - Final PELs - Time Weighted Averages (TWAs)               |

### 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:** Colorless liquid

**Physical State:** Liquid

**Odor:** Data not available.

**Odor Threshold:** Data not available.

**pH:** Acidic

**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:** 1.0

**Solubility:** Miscible

**Partition Coefficient:** 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, strong reducing agents, metallic powders.

### 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 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.

**Specific Target Organ Toxicity from Single Exposure:**

Not applicable.

**Specific Target Organ Toxicity from Repeated Exposure:**

Not applicable.

**Aspiration Hazard:**

Not applicable.

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**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:** 1 L

**UN Number:** UN3264

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

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**



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

**Sizes:** 1 L

**UN Number:** UN3264

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

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**



### 14.3 Transportation of Dangerous Goods (TDG, Canada)

**Sizes:** 1 L

**UN Number:** UN3264

**Proper Shipping Name:** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (nitric acid)

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**



## SECTION 15: Regulatory Information

### 15.1. Occupational Safety and Health Administration (OSHA) Hazards

Lead (CAS # 7439-92-1): "30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025, as Pb); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025, as Pb)" As Lead, inorganic compounds [RR-00538-9]

Lead (CAS # 7439-92-1): 30 µg/m<sup>3</sup> Action Level (See 29 CFR 1910.1025); 50 µg/m<sup>3</sup> TWA (See 29 CFR 1910.1025)



## Safety Data Sheet

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

Ammonium Hydroxide (CAS # 1336-21-6): "100 lb EPCRA RQ" As Ammonia [7664-41-7]  
Ammonium Hydroxide (CAS # 1336-21-6): "500 lb TPQ" As Ammonia [7664-41-7]  
Ammonium Hydroxide (CAS # 1336-21-6): 100 lb EPCRA RQ  
Ammonium Hydroxide (CAS # 1336-21-6): 500 lb TPQ  
Hydrofluoric Acid (CAS # 7664-39-3): "100 lb EPCRA RQ" As Hydrogen fluoride [7664-39-3]  
Hydrofluoric Acid (CAS # 7664-39-3): "100 lb TPQ" As Hydrogen fluoride [7664-39-3]  
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" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): "1000 lb TPQ" As Nitric acid [7697-37-2]  
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

Ammonium Hydroxide (CAS # 1336-21-6): "1000 lb final RQ; 454 kg final RQ" As Ammonium hydroxide [1336-21-6]  
Ammonium Hydroxide (CAS # 1336-21-6): 100 lb final RQ; 45.4 kg final RQ  
Ammonium Hydroxide (CAS # 1336-21-6): 1000 lb final RQ; 454 kg final RQ  
Lead (CAS # 7439-92-1): "10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ ); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ )" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): 10 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ ); 4.54 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ )  
Zinc (CAS # 7440-66-6): "454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ ); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ )" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): 454 kg final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ ); 1000 lb final RQ (no reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is  $>100\text{ }\mu\text{m}$ )  
Hydrofluoric Acid (CAS # 7664-39-3): "100 lb final RQ; 45.4 kg final RQ" As Hydrofluoric acid [7664-39-3]  
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" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): 1000 lb final RQ; 454 kg final RQ

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

Barium Nitrate (CAS # 10022-31-8): "1.0 % de minimis concentration (includes any unique chemical substance that contains Barium as part of that chemical's infrastructure except for Barium sulfate CAS 7727-43-7, listed under Chemical Category N040)" As Barium compounds [RR-00555-0]

Barium Nitrate (CAS # 10022-31-8): "1.0 % de minimis concentration (includes any unique chemical substance that contains Barium as part of that chemical's infrastructure except for Barium sulfate CAS 7727-43-7, listed under Chemical Category N040)" As Barium compounds [RR-00555-0];  
"1.0 % de minimis concentration (reportable only when in aqueous solution, listed under Chemical Category N511)" As Nitrate compounds, water dissociable [RR-03804-0]

Barium Nitrate (CAS # 10022-31-8): 1.0 % de minimis concentration (includes any unique chemical substance that contains Barium as part of that chemical's infrastructure except for Barium sulfate CAS 7727-43-7, listed under Chemical Category N040)

Barium Nitrate (CAS # 10022-31-8): 1.0 % de minimis concentration (reportable only when in aqueous solution, listed under Chemical Category N511)

Ammonium Hydroxide (CAS # 1336-21-6): "1.0 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)" As Ammonia [7664-41-7];

"1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)" As Aqueous ammonia from water dissociable ammonium salts and other sources [RR-47925-4]

Ammonium Hydroxide (CAS # 1336-21-6): 1.0 % de minimis concentration (10% of total aqueous Ammonia is reportable under this listing)

Ammonium Hydroxide (CAS # 1336-21-6): 1.0 % de minimis concentration (includes anhydrous Ammonia and aqueous Ammonia from water dissociable Ammonium salts and other sources, 10% of total aqueous Ammonia is reportable under this listing)

Lead (CAS # 7439-92-1): "100 lb RT (this lower threshold

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

Barium Nitrate (CAS # 10022-31-8): "Present" As Barium nitrate [10022-31-8]

Barium Nitrate (CAS # 10022-31-8): Present

Ammonium Hydroxide (CAS # 1336-21-6): "Present" As Ammonium hydroxide [1336-21-6]

Ammonium Hydroxide (CAS # 1336-21-6): Extraordinarily hazardous (including anhydrous)

Ammonium Hydroxide (CAS # 1336-21-6): Present

Calcium Carbonate (CAS # 471-34-1): "Present (including dust)" As Calcium carbonate [1317-65-3]

Lead (CAS # 7439-92-1): "Teratogen" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): Teratogen

Magnesium (CAS # 7439-95-4): "Present" As Magnesium [7439-95-4]

Magnesium (CAS # 7439-95-4): Present

Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5]

Manganese (CAS # 7439-96-5): Present

Silicon (CAS # 7440-21-3): "Present (dust)" As Silicon [7440-21-3]

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

Zinc (CAS # 7440-66-6): "Present" As Zinc [7440-66-6]

Zinc (CAS # 7440-66-6): Present

Hydrofluoric Acid (CAS # 7664-39-3): "Extraordinarily hazardous" As Hydrofluoric acid [7664-39-3]

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

Nitric Acid (CAS # 7697-37-2): "Extraordinarily hazardous" As Nitric acid [7697-37-2]

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

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

Barium Nitrate (CAS # 10022-31-8): "Environmental hazard" As Barium compounds [RR-00555-0]  
Barium Nitrate (CAS # 10022-31-8): "Environmental hazard" As Nitric acid, barium salt [10022-31-8]  
Barium Nitrate (CAS # 10022-31-8): "Present" As Barium compounds [RR-00555-0]  
Barium Nitrate (CAS # 10022-31-8): "Present" As Nitric acid, barium salt [10022-31-8]  
Barium Nitrate (CAS # 10022-31-8): Environmental hazard  
Barium Nitrate (CAS # 10022-31-8): Present  
Ammonium Hydroxide (CAS # 1336-21-6): "Environmental hazard" As Ammonium hydroxide ((NH<sub>4</sub>)(OH)) [1336-21-6]  
Ammonium Hydroxide (CAS # 1336-21-6): "Present" As Ammonium hydroxide ((NH<sub>4</sub>)(OH)) [1336-21-6]  
Ammonium Hydroxide (CAS # 1336-21-6): Environmental hazard  
Ammonium Hydroxide (CAS # 1336-21-6): Present  
Calcium Carbonate (CAS # 471-34-1): "Present" As Limestone [1317-65-3]  
Lead (CAS # 7439-92-1): "Environmental hazard" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): "Environmental hazard" As Lead compounds [RR-00630-4]  
Lead (CAS # 7439-92-1): "Present" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): "Present" As Lead compounds [RR-00630-4]  
Lead (CAS # 7439-92-1): Environmental hazard  
Lead (CAS # 7439-92-1): Present  
Magnesium (CAS # 7439-95-4): "Present" As Magnesium [7439-95-4]  
Magnesium (CAS # 7439-95-4): Present  
Manganese (CAS # 7439-96-5): "Environmental hazard" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): "Environmental hazard" As Manganese compounds [RR-00602-0]  
Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): "Present" As Manganese compounds [RR-00602-0]  
Manganese (CAS # 7439-96-5): Environmental hazard  
Manganese (CAS # 7439-96-5): Present  
Silicon (CAS # 7440-21-3): "Present" As Silicon [7440-21-3]  
Silicon (CAS # 7440-21-3): Present  
Zinc (CAS # 7440-66-6): "Environmental hazard" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): "Environmental hazard" As Zinc compounds [RR-00578-7]  
Zinc (CAS # 7440-66-6): "Present" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): "Present" As Zinc c

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

Barium Nitrate (CAS # 10022-31-8): "sn 0186" As Barium nitrate [10022-31-8]

Barium Nitrate (CAS # 10022-31-8): "SN 2146 500 lb TPQ (except Barium sulfate CAS number 7727-43-7, Category Code N040. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Barium compounds [RR-00555-0]

Barium Nitrate (CAS # 10022-31-8): "SN 2146 500 lb TPQ (except Barium sulfate CAS number 7727-43-7, Category Code N040. Includes any unique chemical substance that contains the named metal as part of that chemical structure)" As Barium compounds [RR-00555-0];

"SN 3722 500 lb TPQ (water dissociable, Category Code N511)" As Nitrate compounds [RR-01770-9]

Barium Nitrate (CAS # 10022-31-8): "sn 2146" As Barium compounds [RR-00555-0]

Barium Nitrate (CAS # 10022-31-8): "SN 3722 500 lb TPQ (water dissociable, Category Code N511)" As Nitrate compounds [RR-01770-9]

Barium Nitrate (CAS # 10022-31-8): "sn 3722" As Nitrate compounds [RR-01770-9]

Barium Nitrate (CAS # 10022-31-8): sn 0186

Barium Nitrate (CAS # 10022-31-8): sn 2146

Barium Nitrate (CAS # 10022-31-8): SN 2146 500 lb TPQ (except Barium sulfate CAS number 7727-43-7, Category Code N040. Includes any unique chemical substance that contains the named metal as part of that chemical structure)

Barium Nitrate (CAS # 10022-31-8): sn 3722

Barium Nitrate (CAS # 10022-31-8): SN 3722 500 lb TPQ (water dissociable, Category Code N511)

Boric Acid (CAS # 10043-35-3): "sn 0241" As Borate compounds, inorganic [RR-33876-1]

Boric Acid (CAS # 10043-35-3): sn 0241

Ammonium Hydroxide (CAS # 1336-21-6): "corrosive" As Ammonium hydroxide [1336-21-6]

Ammonium Hydroxide (CAS # 1336-21-6): "SN 0084 500 lb TPQ (The reportable quantity for anhydrous Ammonia is based on 100% of the anhydrous Ammonia. The reportable quantity for aqueous Ammonia is the Ammonia equivalent weight for concentrations of  $\geq 20\%$ .)" As Ammonia [7664-41-7]

Ammonium Hydroxide (CAS # 1336-21-6): "sn 0103" As Ammonium hydroxide [1336-21-6]

Ammoni

### 15.8. California Proposition 65

Lead (CAS # 7439-92-1): "15 µg/day NSRL (oral)" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "carcinogen, 10/1/1992" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "carcinogen, 10/1/1992" As Lead compounds [RR-00630-4]

Lead (CAS # 7439-92-1): "developmental toxicity, 2/27/1987" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "female reproductive toxicity 2/27/87" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): "male reproductive toxicity, 2/27/87" As Lead [7439-92-1]

Lead (CAS # 7439-92-1): 15 µg/day NSRL (oral)

Lead (CAS # 7439-92-1): carcinogen, 10/1/1992

Lead (CAS # 7439-92-1): developmental toxicity, 2/27/1987

Lead (CAS # 7439-92-1): female reproductive toxicity 2/27/87

Lead (CAS # 7439-92-1): male reproductive toxicity, 2/27/87

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

Barium Nitrate (CAS # 10022-31-8): "Present" As Barium nitrate [10022-31-8] (DSL)  
Barium Nitrate (CAS # 10022-31-8): Present (DSL)  
Boric Acid (CAS # 10043-35-3): "Present" As Boric acid (H<sub>3</sub>BO<sub>3</sub>) [10043-35-3] (DSL)  
Boric Acid (CAS # 10043-35-3): Present (DSL)  
Ammonium Hydroxide (CAS # 1336-21-6): "Present" As Ammonium hydroxide [1336-21-6] (DSL)  
Ammonium Hydroxide (CAS # 1336-21-6): Present (DSL)  
Strontium Carbonate (CAS # 1633-05-2): Present (DSL)  
Calcium Carbonate (CAS # 471-34-1): "Present" As Calcium carbonate [1317-65-3] (NDSL)  
Calcium Carbonate (CAS # 471-34-1): "Present" As Carbonic acid, calcium salt (1:1) [471-34-1] (DSL)  
Calcium Carbonate (CAS # 471-34-1): Present (DSL)  
Potassium Carbonate (CAS # 584-08-7): "Present" As Potassium carbonate [584-08-7] (DSL)  
Potassium Carbonate (CAS # 584-08-7): Present (DSL)  
Iron (CAS # 7439-89-6): "Present" As Iron [7439-89-6] (DSL)  
Iron (CAS # 7439-89-6): Present (DSL)  
Lead (CAS # 7439-92-1): "Present" As Lead [7439-92-1] (DSL)  
Lead (CAS # 7439-92-1): Present (DSL)  
Magnesium (CAS # 7439-95-4): "Present" As Magnesium [7439-95-4] (DSL)  
Magnesium (CAS # 7439-95-4): Present (DSL)  
Manganese (CAS # 7439-96-5): "Present" As Manganese [7439-96-5] (DSL)  
Manganese (CAS # 7439-96-5): Present (DSL)  
Silicon (CAS # 7440-21-3): "Present" As Silicon [7440-21-3] (DSL)  
Silicon (CAS # 7440-21-3): Present (DSL)  
Zinc (CAS # 7440-66-6): "Present" As Zinc [7440-66-6] (DSL)  
Zinc (CAS # 7440-66-6): Present (DSL)  
Hydrofluoric Acid (CAS # 7664-39-3): "Present" As Hydrogen fluoride [7664-39-3] (DSL)  
Hydrofluoric Acid (CAS # 7664-39-3): Present (DSL)  
Nitric Acid (CAS # 7697-37-2): "Present" As Nitric acid [7697-37-2] (DSL)  
Nitric Acid (CAS # 7697-37-2): Present (DSL)  
Water (CAS # 7732-18-5): "Present" As Water [7732-18-5] (DSL)  
Water (CAS # 7732-18-5): Present (DSL)

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

All components of this solution are listed as active on the TSCA Inventory or are mixtures (hydrates) of active items listed on the TSCA Inventory.

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Barium Nitrate (CAS # 10022-31-8): "Present (ACTIVE)" As Nitric acid, barium salt (2:1) [10022-31-8]  
Barium Nitrate (CAS # 10022-31-8): Present (ACTIVE)  
Boric Acid (CAS # 10043-35-3): "Present (ACTIVE)" As Boric acid (H<sub>3</sub>BO<sub>3</sub>) [10043-35-3]  
Boric Acid (CAS # 10043-35-3): Present (ACTIVE)  
Ammonium Hydroxide (CAS # 1336-21-6): "Present (ACTIVE)" As Ammonium hydroxide ((NH<sub>4</sub>)(OH)) [1336-21-6]  
Ammonium Hydroxide (CAS # 1336-21-6): Present (ACTIVE)  
Strontium Carbonate (CAS # 1633-05-2): Present (ACTIVE)  
Calcium Carbonate (CAS # 471-34-1): "Present (ACTIVE)" As Carbonic acid, calcium salt (1:1) [471-34-1]  
Calcium Carbonate (CAS # 471-34-1): Present (ACTIVE)  
Potassium Carbonate (CAS # 584-08-7): "Present (ACTIVE)" As Carbonic acid, potassium salt (1:2) [584-08-7]  
Potassium Carbonate (CAS # 584-08-7): Present (ACTIVE)  
Iron (CAS # 7439-89-6): "Present (ACTIVE)" As Iron [7439-89-6]  
Iron (CAS # 7439-89-6): Present (ACTIVE)  
Lead (CAS # 7439-92-1): "Present (ACTIVE)" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): Present (ACTIVE)  
Magnesium (CAS # 7439-95-4): "Present (ACTIVE)" As Magnesium [7439-95-4]  
Magnesium (CAS # 7439-95-4): Present (ACTIVE)  
Manganese (CAS # 7439-96-5): "Present (ACTIVE)" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): Present (ACTIVE)  
Silicon (CAS # 7440-21-3): "Present (ACTIVE)" As Silicon [7440-21-3]  
Silicon (CAS # 7440-21-3): Present (ACTIVE)  
Zinc (CAS # 7440-66-6): "Present (ACTIVE)" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): Present (ACTIVE)  
Hydrofluoric Acid (CAS # 7664-39-3): "Present (ACTIVE)" As Hydrofluoric acid [7664-39-3]  
Hydrofluoric Acid (CAS # 7664-39-3): Present (ACTIVE)  
Nitric Acid (CAS # 7697-37-2): "Present (ACTIVE)" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): Present (ACTIVE)  
Water (CAS # 7732-18-5): "Present (ACTIVE)" As Water [7732-18-5]  
Water (CAS # 7732-18-5): Present (ACTIVE)

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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)

Barium Nitrate (CAS # 10022-31-8): "233-020-5" As Barium nitrate [10022-31-8]  
Barium Nitrate (CAS # 10022-31-8): 233-020-5  
Boric Acid (CAS # 10043-35-3): "233-139-2" As Boric acid [10043-35-3]  
Boric Acid (CAS # 10043-35-3): 233-139-2  
Boric Acid (CAS # 10043-35-3): 234-343-4  
Ammonium Hydroxide (CAS # 1336-21-6): "215-647-6" As Ammonia, aqueous solution [1336-21-6]  
Ammonium Hydroxide (CAS # 1336-21-6): 215-647-6  
Ammonium Hydroxide (CAS # 1336-21-6): 231-635-3  
Strontium Carbonate (CAS # 1633-05-2): 216-643-7  
Calcium Carbonate (CAS # 471-34-1): "207-439-9" As Calcium carbonate [471-34-1]  
Calcium Carbonate (CAS # 471-34-1): 207-439-9  
Potassium Carbonate (CAS # 584-08-7): "209-529-3" As Potassium carbonate [584-08-7]  
Potassium Carbonate (CAS # 584-08-7): 209-529-3  
Potassium Carbonate (CAS # 584-08-7): 241-378-9  
Iron (CAS # 7439-89-6): "231-096-4" As Iron [7439-89-6]  
Iron (CAS # 7439-89-6): 231-096-4  
Lead (CAS # 7439-92-1): "231-100-4" As Lead [7439-92-1]  
Lead (CAS # 7439-92-1): 231-100-4  
Magnesium (CAS # 7439-95-4): "231-104-6" As Magnesium [7439-95-4]  
Magnesium (CAS # 7439-95-4): 231-104-6  
Manganese (CAS # 7439-96-5): "231-105-1" As Manganese [7439-96-5]  
Manganese (CAS # 7439-96-5): 231-105-1  
Silicon (CAS # 7440-21-3): "231-130-8" As Silicon [7440-21-3]  
Silicon (CAS # 7440-21-3): 231-130-8  
Zinc (CAS # 7440-66-6): "231-175-3" As Zinc [7440-66-6]  
Zinc (CAS # 7440-66-6): 231-175-3  
Hydrofluoric Acid (CAS # 7664-39-3): "231-634-8" As Hydrogen fluoride [7664-39-3]  
Hydrofluoric Acid (CAS # 7664-39-3): 231-634-8  
Nitric Acid (CAS # 7697-37-2): "231-714-2" As Nitric acid [7697-37-2]  
Nitric Acid (CAS # 7697-37-2): 231-714-2  
Water (CAS # 7732-18-5): "231-791-2" As Water [7732-18-5]  
Water (CAS # 7732-18-5): 231-791-2

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### 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 immediately). 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.

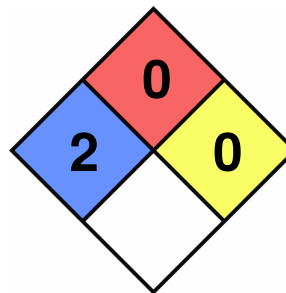
**Physical Hazards Not Otherwise Classified (PHNOC):** Not Applicable.

**Health Hazards Not Otherwise Classified (HHNOC):** Not Applicable.

**Biohazardous Infectious Materials Hazard Class:** Not Applicable.

#### 16.3. National Fire Protection Association (NFPA) Rating

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



#### 16.4. Document Revision

**Last Revision Date:** 2025-02-02

## 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.