RICCA CHEMICAL COMPANY®

# Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

## SECTION 1: Identification

### 1.1. Product Identifier

**Trade Name or Designation** Mixed Calibration Standard 3, ICP, EPA 200.7 version 4.4

**Product Number** RMCAL3

**Other Identifying Product Numbers** RMCAL3-100

### 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** 412 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 |

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## SECTION 2: Hazard(s) Identification

### 2.1. Classification of the Substance or Mixture

| Hazard Class | Category | Hazard Statements | Precautionary Statements |
|---|---|---|---|
| Skin Corrosion / Irritation | Category 2 | H315 | P264,P280,P302+P352,P321, P332+P313,P362+P364 |
| Serious Eye Damage / Eye Irritation | Category 1 | H318 | P280,P305+P351+P338,P310 |
| Corrosive to Metals | Category 1 | H290 | P234,P390,P406 |

### 2.2. GHS Label Elements

**Pictograms:**

**Signal Word:** **Danger**

**Hazard Statements:**

NOTE: Hazard statements may be combined on labels to improve clarity and readability.

| Hazard Number | Hazard Statement |
|---|---|
| H290 | May be corrosive to metals |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |

**Precautionary Statements:**

NOTE: Precautionary statements may be combined or consolidated on labels to improve clarity and readability.

**Prevention**

| Precautionary Number | Precautionary Statement |
|---|---|
| P234 | Keep only in original packaging. |
| P264 | Wash hands, arms, and face thoroughly after handling. |
| P280 | Wear protective gloves and eye protection. |

**Response**

| Precautionary Number | Precautionary Statement |
|---|---|
| P302+P352 | IF ON SKIN: Wash with plenty of water. |
| 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 doctor. |
| P332+P313 | If skin irritation occurs: Get medical advice or attention. |
| P362+P364 | Take off contaminated clothing and wash it before reuse. |
| P390 | Absorb spillage to prevent material damage. |

### 2.3. Hazards not Otherwise Classified

No other hazards identified.

### 2.4. Ingredients of Unknown Acute Toxicity

4.9 percent of this mixture consists of ingredient(s) of unknown acute oral and dermal toxicity.

## SECTION 3: Composition / Information on Ingredients

### 3.1. Components of Mixture

| Chemical Name (IUPAC) | Common Name and Synonyms | CAS Number | Weight% |
|---|---|---|---|
| water | Water | 7732-18-5 | 95.10 |
| nitric acid | Nitric Acid | 7697-37-2 | 4.86 |
| azanium dihydrogen phosphate | Ammonium Dihydrogen Phosphate; Ammonium Phosphate Monobasic | 7722-76-1 | < 0.1 |
| cerium(III) nitrate hexahydrate | Cerium (III) Nitrate Hexahydrate; cerous nitrate hexahydrate | 10294-41-4 | < 0.1 |
| cobalt | Cobalt | 7440-48-4 | < 0.1 |
| vanadium | Vanadium | 7440-62-2 | < 0.1 |

## SECTION 4: First-Aid Measures

### 4.1. Description of Necessary Measures

**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.

**Ingestion:** Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

**Inhalation:** Not expected to require first aid. If necessary, remove to fresh air.

**Skin Contact:** IF ON SKIN: Wash with plenty of 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.

### 4.2. Most Important Symptoms and Effects, Acute and Delayed

Causes skin irritation Corrosive Liquid. 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. Contains a minute amount of a possible carcinogen. 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. Immediate Medical Attention or Special Treatment Needed

Immediately call a poison center or doctor. 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 in a Fire

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 and Precautions 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

As with all chemicals, wash hands thoroughly after handling. Avoid contact with eyes and skin. Protect from freezing and physical damage.

## SECTION 8: Exposure Controls / Personal Protection

### 8.1. Exposure Limits

**U.S. OSHA - Permissible Exposure Limits (PEL) - Time Weighted Averages (TWA)**

| Chemical Name | CAS Number | Exposure Limit |
|---|---|---|
| Cobalt | 7440-48-4 | 0.1 mg/m3 TWA (dust and fume) |
| Nitric Acid | 7697-37-2 | 2 ppm TWA; 5 mg/m3 TWA |

**U.S. OSHA - Permissible Exposure Limits (PEL) - Ceiling Limits**

| Chemical Name | CAS Number | Exposure Limit |
|---|---|---|
| Vanadium | 7440-62-2 | 0.5 mg/m3 Ceiling (respirable dust, as V2O5); 0.1 mg/m3 Ceiling (fume, as V2O5) |

**U.S. OSHA - Permissible Exposure Limits (PEL) - Short Term Exposure Limits (STEL)**

No limits found.

**U.S. OSHA - Specifically Regulated Chemicals**

No limits found.

**ACGIH - Threshold Limit Values - Ceilings (TLV-C)**

No limits found.

**ACGIH - Threshold Limit Values - Short Term Exposure Limits (TLV-STEL)**

| Chemical Name | CAS Number | Exposure Limit |
|---|---|---|
| Nitric Acid | 7697-37-2 | 4 ppm STEL |

**ACGIH - Threshold Limit Values - Time Weighted Averages (TLV-TWA)**

| Chemical Name | CAS Number | Exposure Limit |
|---|---|---|
| Cobalt | 7440-48-4 | 0.02 mg/m3 TWA (inhalable particulate matter) |
| Nitric Acid | 7697-37-2 | 2 ppm TWA |

### 8.2. Engineering Controls

No specific controls are needed. Normal room ventilation is adequate.

### 8.3. Individual Protective Measures and Personal Protective Equipment

**Respiratory Protection:** Normal room ventilation is adequate.

**Skin Protection:** Chemical resistant gloves.

**Eye Protection:** Safety glasses or goggles.

## SECTION 9: Physical and Chemical Properties

### 9.1. Basic Physical and Chemical Properties

| | |
|---|---|
| **Physical State:** | liquid |
| **Color:** | Colorless |
| **Odor:** | Data not available. |
| **Odor Threshold:** | Data not available. |
| **Melting/Freezing Point:** | Approximately 0°C |
| **Boiling Point/Range:** | Approximately 100°C |
| **Flammability:** | Data not available. |
| **Flammability/Explosive Limits:** | Data not available. |
| **Flash Point:** | Not flammable |
| **Auto-Ignition Temperature:** | Data not available. |
| **Decomposition Temperature:** | Data not available. |
| **pH:** | Data not available. |
| **Kinematic Viscosity:** | Data not available. |
| **Solubility:** | miscible |
| **Vapor Pressure:** | Data not available. |
| **Evaporation Rate:** | Data not available. |
| **Relative Density:** | 1.03 |
| **Relative Vapor Density:** | Data not available. |
| **Particle Characteristics:** | Data not available. |
| **Partition Coefficient n-octanol/water, log** | 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 packaging. Strong bases, metallic powders.

### 10.4. Hazardous Decomposition Products

Will not occur.

## SECTION 11: Toxicological Information

### 11.1. Information on Toxicological Effects

**Acute Toxicity - Oral Exposure:**

Not acutely toxic.

| Chemical Name | CAS Number | Toxicity |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Oral LD50 Rat 4200 mg/kg (Source: NLM_CIP) |
| Cobalt | 7440-48-4 | Oral LD50 Rat 6171 mg/kg (Source: NLM_CIP) |
| Vanadium | 7440-62-2 | Oral LD50 Rat >2000 mg/kg (females, Source: NLM_HSDB) |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Oral LD50 Rat >2000 mg/kg (no deaths occurred, Source: ECHA) |

**Acute Toxicity - Dermal Exposure:**

No information found.

| Chemical Name | CAS Number | Toxicity |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Dermal LD50 Rat >2000 mg/kg (Source: ECHA_API) As Cerium nitrate [10108-73-3] |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Dermal LD50 Rabbit >7940 mg/kg (Source: NLM_CIP) |

**Acute Toxicity - Inhalation Exposure:**

Not acutely toxic.

| Chemical Name | CAS Number | Toxicity |
|---|---|---|
| Cobalt | 7440-48-4 | Inhalation LC50 Rat <0.05 mg/L 4 h (death occurred, dust, Source: AICIS) |
| Nitric Acid | 7697-37-2 | Inhalation LC50 Rat 3.22 mg/L 4 h (Source: WHMIS) |

### 11.2 Carcinogenicity:

**International Agency for Research on Cancer (IARC)**

| Chemical Name | CAS Number | Classification |
|---|---|---|
| Cobalt | 7440-48-4 | Group 2A (Probably Carcinogenic to Humans) - Monograph 131 [2023]; Monograph 86 [2006]; Monograph 52 [1991] |
| Nitric Acid | 7697-37-2 | Group 1 (Carcinogenic to Humans) - Monograph 100F [2012]; Monograph 54 [1992] As Acid mists, strong inorganic |

**National Toxicology Program (NTP)**

| Chemical Name | CAS Number | Classification |
|---|---|---|
| Cobalt | 7440-48-4 | Reasonably Anticipated To Be A Human Carcinogen; Male Rat - Clear Evidence; Female Rat - Clear Evidence; Male Mice - Clear Evidence; Female Mice - Clear Evidence (TR-581) |

**U.S. OSHA specifically regulated carcinogens**

| Chemical Name | CAS Number | Classification |
|---|---|---|
| | No data found. | |

### 11.3 Additional Toxicology Information:

Causes skin irritation. Causes serious eye damage.

## SECTION 12: Ecological Information

### 12.1. Ecotoxicity

| Chemical Name | CAS Number | Species | Exposure | Toxicity |
|---|---|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Freshwater Fish | Acute | "LC50 96 h Oncorhynchus mykiss 0.3 mg/L [semi-static] (ECHA)" As Cerium nitrate [10108-73-3] |
| Cobalt | 7440-48-4 | Freshwater Fish | Acute | LC50 96 h Brachydanio rerio >100 mg/L [static] (IUCLID) |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Freshwater Fish | Acute | LC50 96 h Oncorhynchus mykiss >85.9 mg/L [static] (ECHA) |
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Water Flea | Acute | "EC50 48 h Daphnia magna >100 mg/L (IUCLID)" As Cerium nitrate [10108-73-3] |

### 12.2. Persistence and Degradability

Data not available.

### 12.3. Bioaccumulative Potential

Data not available.

### 12.4. Mobility in soil

Data not available.

### 12.5. Other Adverse Ecological Effects

Data not available.

## SECTION 13: Disposal Considerations

### 13.1. Waste Treatment Methods

Data not available.

## SECTION 14: Transportation Information

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

**Sizes:** 100 mL

**UN Number:** UN3264

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

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**


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

**Sizes:** 100 mL

**UN Number:** UN3264

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

**Hazard Class:** 8

**Packing Group:** III

**Hazard Label(s):**

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

**Sizes:** 100 mL

**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

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

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| | | No data found. |

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

| Chemical Name | CAS Number | RQ | TPQ |
|---|---|---|---|
| Nitric Acid | 7697-37-2 | 1000 lb TPQ | 1000 lb EPCRA RQ |

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

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| Nitric Acid | 7697-37-2 | 1000 lb final RQ; 454 kg final RQ |

### 15.04. Superfund Amendments and Reauthorization Act (SARA) 313 Toxics Release Inventory (TRI)

| Chemical Name | CAS Number | List | Regulatory Information |
|---|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Emission Reporting | "1.0 % de minimis concentration (reportable only when in aqueous solution, listed under Chemical Category N511)" As Nitrate compounds, water dissociable [RR-03804-0] |
| Cobalt | 7440-48-4 | Emission Reporting | 0.1 % de minimis concentration |
| Vanadium | 7440-62-2 | Emission Reporting | 1.0 % de minimis concentration (except when contained in an alloy) |
| Nitric Acid | 7697-37-2 | Emission Reporting | 1.0 % de minimis concentration |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Emission Reporting | "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] |

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

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| Cobalt | 7440-48-4 | Present |
| Vanadium | 7440-62-2 | Present (dust and fume) |
| Nitric Acid | 7697-37-2 | Extraordinarily hazardous |

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

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| Cobalt | 7440-48-4 | Environmental hazard; Present (fume) |
| Vanadium | 7440-62-2 | Environmental hazard (dust; fume) |
| Nitric Acid | 7697-37-2 | Environmental hazard |

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

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | "sn 3722" As Nitrate compounds [RR-01770-9] |
| Cobalt | 7440-48-4 | sn 0520 |
| Vanadium | 7440-62-2 | sn 3762 |
| Nitric Acid | 7697-37-2 | sn 1356 |

### 15.08. California Proposition 65

| Chemical Name | CAS Number | Regulatory Information |
|---|---|---|
| Cobalt | 7440-48-4 | carcinogen, 7/1/1992 (powder) |

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

| Chemical Name | CAS Number | List | Status |
|---|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | DSL | "Present" As Cerium nitrate [10108-73-3] |
| Cobalt | 7440-48-4 | DSL | Present |
| Vanadium | 7440-62-2 | DSL | Present |
| Nitric Acid | 7697-37-2 | DSL | Present |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | DSL | Present |
| Water | 7732-18-5 | DSL | Present |

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

| Chemical Name | CAS Number | Status |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | "Present (ACTIVE)" As Nitric acid, cerium(3+) salt (3:1) [10108-73-3] |
| Cobalt | 7440-48-4 | Present (ACTIVE) |
| Vanadium | 7440-62-2 | Present (ACTIVE) |
| Nitric Acid | 7697-37-2 | Present (ACTIVE) |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Present (ACTIVE) |
| Water | 7732-18-5 | Present [XU] (ACTIVE) |

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

| Chemical Name | CAS Number | List | Number |
|---|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | EINECS | "233-297-2" As Cerium trinitrate [10108-73-3] |
| Cobalt | 7440-48-4 | EINECS | 231-158-0 |
| Vanadium | 7440-62-2 | EINECS | 231-171-1 |
| Nitric Acid | 7697-37-2 | EINECS | 231-714-2 |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | EINECS | 231-764-5 |
| Water | 7732-18-5 | EINECS | 231-791-2 |

### 15.12. China - Inventory of Existing chemical Substances (IECSC)

| Chemical Name | CAS Number | Status |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Present [35628] |
| Cobalt | 7440-48-4 | Present [13762] |
| Vanadium | 7440-62-2 | Present [12010] |
| Nitric Acid | 7697-37-2 | Present [35578] |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Present [22403] |
| Water | 7732-18-5 | Present [32224] |

### 15.13. Korea - Existing Chemicals Inventory (KECI/KECL)

| Chemical Name | CAS Number | List | Status |
|---|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | Annex 1 | "Present [KE-05423]" As Cerium nitrate [10108-73-3] |
| Cobalt | 7440-48-4 | Annex 1 | Present [KE-06060] |
| Vanadium | 7440-62-2 | Annex 1 | Present [KE-35266] |
| Nitric Acid | 7697-37-2 | Annex 1 | Present [KE-25911] |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | Annex 1 | Present [KE-01656] |
| Water | 7732-18-5 | Annex 1 | Present [KE-35400] |

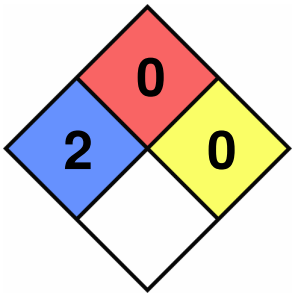
### 15.14. Japan - Existing and New Chemical Substances Inventory (ENCS)

| Chemical Name | CAS Number | MITI No. |
|---|---|---|
| Cerium (III) Nitrate Hexahydrate | 10294-41-4 | (1)-626 |
| Cobalt | 7440-48-4 | - (exempt) |
| Vanadium | 7440-62-2 | - (exempt) |
| Nitric Acid | 7697-37-2 | (1)-394 |
| Ammonium Dihydrogen Phosphate | 7722-76-1 | (1)-379 |
| Water | 7732-18-5 | - (listed on Japanese Pharmacopoeia 8th Edition) |

## SECTION 16: Other Information

### 16.1 National Fire Protection Associate (NFPA) Rating

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



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### 16.2 Document Revision

**Last Revision Date:**
2026-05-25

## 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.