



## Safety Data Sheet

Classified According to OSHA Hazard Communication Standard (HCS 2024)

### SECTION 1: Identification

#### 1.1. Product Identifier

**Trade Name or Designation** Molybdovanadate Reagent, TRAACS

**Product Number** 5208

**Other Identifying Product Numbers** 5208-32, 5208-5

#### 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 1A | H314              | P260,P264,P280,P301+P330+P331,<br>P303+P361+P353,P363,P304+P340,<br>P310,P321,P305+P351+P338,P405, P501 |
| Serious Eye Damage / Eye Irritation | Category 1  | H318              | P280,P305+P351+P338,P310                                                                                |
| Carcinogenicity                     | Category 2  | H351              | P201,P202,P280,P308+P313,P405, P501                                                                     |
| Reproductive Toxicity               | Category 2  | H361              | P201,P202,P280,P308+P313,P405, P501                                                                     |

#### 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                                    |
|---------------|-----------------------------------------------------|
| H314          | Causes severe skin burns and eye damage             |
| H351          | Suspected of causing cancer                         |
| H361          | Suspected of damaging fertility or the unborn child |

Precautionary Statements:

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

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## Prevention

| Precautionary Number | Precautionary Statement                                                   |
|----------------------|---------------------------------------------------------------------------|
| P201                 | Obtain special instructions before use.                                   |
| P202                 | Do not handle until all safety precautions have been read and understood. |
| P260                 | Do not breathe fumes or mist.                                             |
| P264                 | Wash hands, arms, and face thoroughly after handling.                     |
| P280                 | Wear protective gloves and eye protection.                                |

## Response

| Precautionary Number | Precautionary Statement                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| 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 or shower.                                  |
| 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.        |
| P308+P313            | If exposed or concerned: Get medical advice or attention.                                                                               |
| P310                 | Immediately call a poison center or doctor.                                                                                             |
| P321                 | Specific treatment: Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water. |
| P363                 | Wash contaminated clothing before reuse.                                                                                                |

## Storage

| Precautionary Number | Precautionary Statement |
|----------------------|-------------------------|
| P405                 | Store locked up.        |

## Disposal

| Precautionary Number | Precautionary Statement                                                                                                         |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------|
| P501                 | Dispose of contents/container to suitable waste stream in accordance with local, state, federal, and international regulations. |

## 2.3. Hazards not Otherwise Classified

No other hazards identified.

## 2.4. Ingredients of Unknown Acute Toxicity

2 percent of this mixture consists of ingredient(s) of unknown acute oral and inhalation toxicity. 8.2 percent of this mixture consists of ingredient(s) of unknown acute dermal toxicity.

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### 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  | 91.80   |
| sulfuric acid                         | Sulfuric Acid                                                            | 7664-93-9  | 6.19    |
| Molybdate, hexaammonium, tetrahydrate | Ammonium Molybdate Tetrahydrate;<br>Ammonium heptamolybdate tetrahydrate | 12054-85-2 | 1.96    |
| azanium oxido(dioxo)vanadium          | Ammonium Metavanadate                                                    | 7803-55-6  | < 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:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Dilute with water or milk. Do not induce vomiting. Call a physician if necessary.

**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 or shower. May cause irritation, redness, and pain.

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

Suspected of damaging fertility or the unborn child Mildly corrosive liquid. May cause irritation to the skin and eyes. If ingested, dilute with large quantity of water. Do not induce vomiting. Call a physician. Wash areas of contact with plenty of water for at least 15 minutes. EYE CONTACT: May cause irritation, redness, pain, and tearing. SKIN CONTACT: May cause irritation, redness, and pain.

#### 4.3. Immediate Medical Attention or Special Treatment Needed

Immediately call a poison center or doctor. Specific treatment: Wash areas of contact with water. If possible, wipe off areas of contact with dry cloth before flushing with water. 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. Wash areas of contact with soap and 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 considered to be a fire or explosion hazard. May react with metals to release flammable Hydrogen gas.

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## 5.3. Special Protective Equipment and Precautions for Firefighters

Use protective clothing and NIOSH-approved 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

Cover the spill with Sodium Carbonate or a soda ash-slaked lime mixture (50:50). Mix and add water to form slurry. Decant the liquid to the drain with excess water. Treat the solid residue as normal refuse. Wash site with soda ash solution. Always dispose of in accordance with local regulations.

## SECTION 7: Handling and Storage

### 7.1. Precautions for Safe Handling and Storage Conditions

Store locked up. 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

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

| Chemical Name                   | CAS Number | Exposure Limit                                                      |
|---------------------------------|------------|---------------------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | "5 mg/m3 TWA (as Mo)" As Molybdenum, soluble compounds [RR-00036-2] |
| Sulfuric Acid                   | 7664-93-9  | 1 mg/m3 TWA                                                         |

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

No limits found.

### 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)

No limits found.

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

| Chemical Name                   | CAS Number | Exposure Limit                                                                                      |
|---------------------------------|------------|-----------------------------------------------------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | "0.5 mg/m3 TWA (respirable particulate matter, as Mo)" As Molybdenum soluble compounds [RR-00036-2] |
| Sulfuric Acid                   | 7664-93-9  | 0.2 mg/m3 TWA (thoracic particulate matter)                                                         |

## 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.

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## SECTION 9: Physical and Chemical Properties

### 9.1. Basic Physical and Chemical Properties

|                                                   |                     |
|---------------------------------------------------|---------------------|
| <b>Physical State:</b>                            | liquid              |
| <b>Color:</b>                                     | Yellow-green        |
| <b>Odor:</b>                                      | Data not available. |
| <b>Odor Threshold:</b>                            | Data not available. |
| <b>Melting/Freezing Point:</b>                    | Approximately 0°C   |
| <b>Boiling Point/Range:</b>                       | Approximately 100°C |
| <b>Flammability:</b>                              | Data not available. |
| <b>Flammability/Explosive Limits:</b>             | Data not available. |
| <b>Flash Point:</b>                               | Not flammable       |
| <b>Auto-Ignition Temperature:</b>                 | Data not available. |
| <b>Decomposition Temperature:</b>                 | Data not available. |
| <b>pH:</b>                                        | <3                  |
| <b>Kinematic Viscosity:</b>                       | Data not available. |
| <b>Solubility:</b>                                | miscible            |
| <b>Vapor Pressure:</b>                            | Data not available. |
| <b>Evaporation Rate:</b>                          | Data not available. |
| <b>Relative Density:</b>                          | 1.02                |
| <b>Relative Vapor Density:</b>                    | Data not available. |
| <b>Particle Characteristics:</b>                  | Data not available. |
| <b>Partition Coefficient n-octanol/water, log</b> | 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

Organics, chlorates, carbides, fulminates, picrates, alkalines, reducing agents, nitrates, Acetic Acid, oxidizing agents, metals.

### 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 acutely toxic.

| Chemical Name         | CAS Number | Toxicity                                     |
|-----------------------|------------|----------------------------------------------|
| Sulfuric Acid         | 7664-93-9  | Oral LD50 Rat 2140 mg/kg (Source: JAPAN_GHS) |
| Ammonium Metavanadate | 7803-55-6  | Oral LD50 Rat 58100 µg/kg (Source: NLM_CIP)  |

##### Acute Toxicity - Dermal Exposure:

Not acutely toxic.

| Chemical Name         | CAS Number | Toxicity                                      |
|-----------------------|------------|-----------------------------------------------|
| Ammonium Metavanadate | 7803-55-6  | Dermal LD50 Rat 2102 mg/kg (Source: NLM_HSDB) |

##### Acute Toxicity - Inhalation Exposure:

Inhalation acute toxicity estimate (ATE, dust or mist): 6.0582 mg/L, 4 h(calculated)

| Chemical Name | CAS Number | Toxicity                                                        |
|---------------|------------|-----------------------------------------------------------------|
| Sulfuric Acid | 7664-93-9  | Inhalation LC50 Rat 0.375 mg/L 4 h (aerosol, Source: OECD_SIDS) |

#### 11.2 Carcinogenicity:

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

| Chemical Name | CAS Number | Classification                                                                                                                                          |
|---------------|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sulfuric Acid | 7664-93-9  | Group 1 (Carcinogenic to Humans) - Monograph 54 [1992] (occupational exposure to mists and vapours from sulfuric acid and other strong inorganic acids) |

##### National Toxicology Program (NTP)

| Chemical Name | CAS Number | Classification                                                                             |
|---------------|------------|--------------------------------------------------------------------------------------------|
| Sulfuric Acid | 7664-93-9  | Known Human Carcinogen (listed under Strong inorganic acid mists containing sulfuric acid) |

##### U.S. OSHA specifically regulated carcinogens

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

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## 11.3 Additional Toxicology Information:

Causes severe skin burns and eye damage. Suspected of causing cancer. Suspected of damaging fertility or the unborn child.

## SECTION 12: Ecological Information

### 12.1. Ecotoxicity

| Chemical Name | CAS Number | Species         | Exposure | Toxicity                                                |
|---------------|------------|-----------------|----------|---------------------------------------------------------|
| Sulfuric Acid | 7664-93-9  | Freshwater Fish | Acute    | LC50 96 h Brachydanio rerio >500 mg/L [static] (IUCLID) |

### 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)

Not regulated according to DOT regulations.

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

Not regulated according to IATA Dangerous Goods Regulations.

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

Not regulated according to TDG regulations.

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### SECTION 15: Regulatory Information

#### 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              |
|---------------|------------|-------------|------------------|
| Sulfuric Acid | 7664-93-9  | 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            |
|-----------------------|------------|-----------------------------------|
| Sulfuric Acid         | 7664-93-9  | 1000 lb final RQ; 454 kg final RQ |
| Ammonium Metavanadate | 7803-55-6  | 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                                                                                                                                                                   |
|---------------------------------|------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | 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] |
| Sulfuric Acid                   | 7664-93-9  | Emission Reporting | 1.0 % de minimis concentration (acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size)                                                          |
| Ammonium Metavanadate           | 7803-55-6  | Emission Reporting | "1.0 % de minimis concentration (listed under Chemical Category N770)" As Vanadium compounds [RR-00093-1]                                                                                |

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

| Chemical Name         | CAS Number | Regulatory Information    |
|-----------------------|------------|---------------------------|
| Sulfuric Acid         | 7664-93-9  | Extraordinarily hazardous |
| Ammonium Metavanadate | 7803-55-6  | Present                   |

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

| Chemical Name         | CAS Number | Regulatory Information |
|-----------------------|------------|------------------------|
| Sulfuric Acid         | 7664-93-9  | Environmental hazard   |
| Ammonium Metavanadate | 7803-55-6  | Environmental hazard   |

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

| Chemical Name         | CAS Number | Regulatory Information |
|-----------------------|------------|------------------------|
| Sulfuric Acid         | 7664-93-9  | sn 1761                |
| Ammonium Metavanadate | 7803-55-6  | sn 0104                |

### 15.08. California Proposition 65

| Chemical Name | CAS Number | Regulatory Information                                                                       |
|---------------|------------|----------------------------------------------------------------------------------------------|
| Sulfuric Acid | 7664-93-9  | "carcinogen, 3/14/2003" As Strong inorganic acid mists containing sulfuric acid [RR-03978-1] |

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

| Chemical Name                   | CAS Number | List | Status                                           |
|---------------------------------|------------|------|--------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | DSL  | "Present" As Hexaammonium molybdate [12027-67-7] |
| Sulfuric Acid                   | 7664-93-9  | DSL  | Present                                          |
| Water                           | 7732-18-5  | DSL  | Present                                          |
| Ammonium Metavanadate           | 7803-55-6  | DSL  | Present                                          |

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

| Chemical Name                   | CAS Number | Status                                                                  |
|---------------------------------|------------|-------------------------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | "Present (ACTIVE)" As Molybdate (Mo7O246-), ammonium (1:6) [12027-67-7] |
| Sulfuric Acid                   | 7664-93-9  | Present (ACTIVE)                                                        |
| Water                           | 7732-18-5  | Present [XU] (ACTIVE)                                                   |
| Ammonium Metavanadate           | 7803-55-6  | 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)

| Chemical Name                   | CAS Number | List   | Number                                                  |
|---------------------------------|------------|--------|---------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | EINECS | "234-722-4" As Hexaammonium heptamolybdate [12027-67-7] |
| Sulfuric Acid                   | 7664-93-9  | EINECS | 231-639-5                                               |
| Water                           | 7732-18-5  | EINECS | 231-791-2                                               |
| Ammonium Metavanadate           | 7803-55-6  | EINECS | 232-261-3                                               |

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

| Chemical Name                   | CAS Number | Status          |
|---------------------------------|------------|-----------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | Present [33068] |
| Sulfuric Acid                   | 7664-93-9  | Present [23017] |
| Water                           | 7732-18-5  | Present [32224] |
| Ammonium Metavanadate           | 7803-55-6  | Present [12011] |

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

| Chemical Name                   | CAS Number | List    | Status                                                      |
|---------------------------------|------------|---------|-------------------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | Annex 1 | "Present [KE-18391]" As Hexaammonium molybdate [12027-67-7] |
| Sulfuric Acid                   | 7664-93-9  | Annex 1 | Present [KE-32570]                                          |
| Water                           | 7732-18-5  | Annex 1 | Present [KE-35400]                                          |
| Ammonium Metavanadate           | 7803-55-6  | Annex 1 | Present [KE-01756]                                          |

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

| Chemical Name                   | CAS Number | MITI No.                                         |
|---------------------------------|------------|--------------------------------------------------|
| Ammonium Molybdate Tetrahydrate | 12054-85-2 | (1)-389                                          |
| Sulfuric Acid                   | 7664-93-9  | (1)-430                                          |
| Water                           | 7732-18-5  | - (listed on Japanese Pharmacopoeia 8th Edition) |
| Ammonium Metavanadate           | 7803-55-6  | (1)-407                                          |

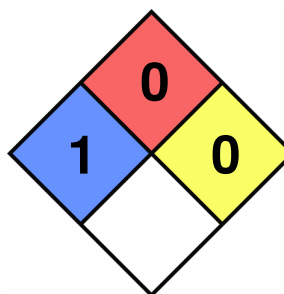
## SECTION 16: Other Information

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## 16.1 National Fire Protection Associate (NFPA) Rating

Health: 1  
Flammability: 0  
Reactivity: 0  
Special Hazard:



## 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.