# Material Safety Data Sheet

Version 5.3
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## 1. PRODUCT AND COMPANY IDENTIFICATION

| | | |
|---|---|---|
| Product name | : | Ammonium metavanadate |
| Product Number | : | 205559 |
| Brand | : | Sigma-Aldrich |
| Supplier | : | Sigma-Aldrich<br>3050 Spruce Street<br>SAINT LOUIS MO 63103<br>USA |
| Telephone | : | +1 800-325-5832 |
| Fax | : | +1 800-325-5052 |
| Emergency Phone # (For both supplier and manufacturer) | : | (314) 776-6555 |
| Preparation Information | : | Sigma-Aldrich Corporation<br>Product Safety - Americas Region<br>1-800-521-8956 |

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

**OSHA Hazards**
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Irritant

**Target Organs**

Central nervous system

**GHS Classification**
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 1)
Acute toxicity, Dermal (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 3)

**GHS Label elements, including precautionary statements**

Pictogram

Signal word Danger

Hazard statement(s)

| | |
|---|---|
| H301 | Toxic if swallowed. |
| H313 | May be harmful in contact with skin. |
| H315 | Causes skin irritation. |
| H319 | Causes serious eye irritation. |
| H330 | Fatal if inhaled. |
| H335 | May cause respiratory irritation. |

Precautionary statement(s)

| | |
|---|---|
| P260 | Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. |
| P284 | Wear respiratory protection. |
| 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/ physician.

**HMIS Classification**

**Health hazard**: 4
**Chronic Health Hazard**: *
**Flammability**: 0
**Physical hazards**: 0

**NFPA Rating**

**Health hazard**: 4
**Fire**: 0
**Reactivity Hazard**: 0

**Potential Health Effects**

**Inhalation** May be fatal if inhaled. Causes respiratory tract irritation.
**Skin** May be harmful if absorbed through skin. Causes skin irritation.
**Eyes** Causes eye irritation.
**Ingestion** Toxic if swallowed.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ammonium trioxovanadate
Ammonium (meta)vanadate

Formula : $H_4NO_3V$
Molecular Weight : 116.98 g/mol

| Component | | Concentration |
|---|---|---|
| **Ammonium trioxovanadate** | | |
| CAS-No. | 7803-55-6 | <=100% |
| EC-No. | 232-261-3 | |

## 4. FIRST AID MEASURES

**General advice**
Consult a physician. Show this safety data sheet to the doctor in attendance.Move out of dangerous area.

**If inhaled**
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact**
Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

**In case of eye contact**
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

## 5. FIREFIGHTING MEASURES

**Suitable extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Special protective equipment for firefighters**
Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Sulphur oxides, Borane/boron oxides, Vanadium/vanadium oxides

**Further information**
The product itself does not burn.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions**
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**Environmental precautions**
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

**Methods and materials for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

## 7. HANDLING AND STORAGE

**Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.

**Conditions for safe storage**
Keep container tightly closed in a dry and well-ventilated place.

Moisture sensitive.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**Components with workplace control parameters**

| Components | CAS-No. | Value | Control parameters | Basis |
|---|---|---|---|---|
| Ammonium trioxovanadate | 7803-55-6 | C | 0.05 mg/m3 | USA. NIOSH Recommended Exposure Limits |
| Remarks | 15 minute ceiling value | | | |

**Personal protective equipment**

**Respiratory protection**
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Hand protection**
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

**Eye protection**
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

**Skin and body protection**
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Hygiene measures**
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**Appearance**

| | |
|---|---|
| Form | solid |
| Colour | no data available |

**Safety data**

| | |
|---|---|
| pH | no data available |
| Melting point/freezing point | no data available |
| Boiling point | no data available |
| Flash point | not applicable |
| Ignition temperature | no data available |
| Auto-ignition temperature | no data available |
| Lower explosion limit | no data available |
| Upper explosion limit | no data available |
| Vapour pressure | no data available |
| Density | 2.32 g/cm3 at 25 °C (77 °F) |
| Water solubility | no data available |
| Partition coefficient: n-octanol/water | no data available |
| Relative vapour density | no data available |
| Odour | no data available |
| Odour Threshold | no data available |
| Evapouration rate | no data available |

## 10. STABILITY AND REACTIVITY

**Chemical stability**
Stable under recommended storage conditions.

**Possibility of hazardous reactions**
no data available

**Conditions to avoid**
no data available

**Materials to avoid**
Strong acids and oxidizing agents

**Hazardous decomposition products**
Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Sulphur oxides, Borane/boron oxides, Vanadium/vanadium oxides
Other decomposition products - no data available

## 11. TOXICOLOGICAL INFORMATION

**Acute toxicity**

**Oral LD50**
LD50 Oral - rat - 58.1 mg/kg

**Inhalation LC50**
LC50 Inhalation - rat - 4 h - 7.8 µg/l

**Dermal LD50**
LD50 Dermal - rat - 2,102 mg/kg

**Other information on acute toxicity**
LD50 Intraperitoneal - rat - 18 mg/kg

LD50 Subcutaneous - rat - 23 mg/kg

**Skin corrosion/irritation**
no data available

**Serious eye damage/eye irritation**
no data available

**Respiratory or skin sensitisation**
no data available

**Germ cell mutagenicity**
Laboratory experiments have shown mutagenic effects.

Genotoxicity in vitro - Human - lymphocyte
Micronucleus test

Genotoxicity in vitro - Human - lymphocyte
DNA damage

Genotoxicity in vitro - Human - lymphocyte
Sister chromatid exchange

**Carcinogenicity**

| | |
|---|---|
| IARC: | No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. |
| ACGIH: | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH. |
| NTP: | No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP. |
| OSHA: | No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA. |

**Reproductive toxicity**
Reproductive toxicity - Hamster - Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.

no data available

**Teratogenicity**

Developmental Toxicity - Hamster - Intraplacental
Specific Developmental Abnormalities: Musculoskeletal system.

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**
Inhalation - May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**
no data available

**Aspiration hazard**
no data available

**Potential health effects**

| | |
|---|---|
| **Inhalation** | May be fatal if inhaled. Causes respiratory tract irritation. |
| **Ingestion** | Toxic if swallowed. |
| **Skin** | May be harmful if absorbed through skin. Causes skin irritation. |
| **Eyes** | Causes eye irritation. |

**Signs and Symptoms of Exposure**
Headache, Tremors, To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**Synergistic effects**
no data available

**Additional Information**
RTECS: YW0875000

## 12. ECOLOGICAL INFORMATION

**Toxicity**

no data available

**Persistence and degradability**
no data available

**Bioaccumulative potential**
no data available

**Mobility in soil**
no data available

**PBT and vPvB assessment**
no data available

**Other adverse effects**

no data available

## 13. DISPOSAL CONSIDERATIONS

**Product**
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**
Dispose of as unused product.

## 14. TRANSPORT INFORMATION

**DOT (US)**
UN number: 2859 Class: 6.1 Packing group: II
Proper shipping name: Ammonium metavanadate
Reportable Quantity (RQ): 1000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**
UN number: 2859 Class: 6.1 Packing group: II EMS-No: F-A, S-A
Proper shipping name: AMMONIUM METAVANADATE
Marine pollutant: No

**IATA**
UN number: 2859 Class: 6.1 Packing group: II
Proper shipping name: Ammonium metavanadate

## 15. REGULATORY INFORMATION

**OSHA Hazards**
Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Irritant

**SARA 302 Components**
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**SARA 313 Components**
The following components are subject to reporting levels established by SARA Title III, Section 313:

| | CAS-No. | Revision Date |
|---|---|---|
| Ammonium trioxovanadate | 7803-55-6 | 1993-04-24 |

**SARA 311/312 Hazards**
Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Ammonium trioxovanadate | 7803-55-6 | 1993-04-24 |

**Pennsylvania Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Ammonium trioxovanadate | 7803-55-6 | 1993-04-24 |

**New Jersey Right To Know Components**

| | CAS-No. | Revision Date |
|---|---|---|
| Ammonium trioxovanadate | 7803-55-6 | 1993-04-24 |

**California Prop. 65 Components**
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

## 16. OTHER INFORMATION

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.