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# Safety Data Sheet

## 1. Chemical product and company identification

Product name : Ammonium molybdate tetrahydrate, powder

### Company information

Name of manufacturer : KANTO CHEMICAL CO., INC.
Address : 2-1, Nihonbashi, Muromachi 2-Chome, Chuo-Ku, Tokyo, 103-0022, JP
Name of section : Business Administration Department, Reagent Division
Telephone number : +81-3-6214-1090
Facsimile number : +81-3-3241-1047
Mail address : BC32@kanto.co.jp

Reference No : 01302

Recommended use : For research use only

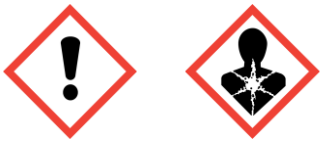
Restrictions on use : Seek expert judgment when using the product for applications other than those recommended.

## 2. Hazards identification

### GHS classification

| | | |
|---|---|---|
| Health hazards | Acute toxicity (oral) | Category 4 |
| | Serious eye damage/eye irritation | Category 2A |
| | Carcinogenicity | Category 2 |
| | Reproductive toxicity | Category 2 |
| | Specific target organ toxicity (single exposure) | Category 3 (respiratory tract irritation.) |
| | Specific target organ toxicity (repeated exposure) | Category 2 (kidney) |

Hazard pictograms



Signal word : Warning

Hazard statements : Harmful if swallowed
Causes serious eye irritation
May cause respiratory irritation
Suspected of causing cancer
Suspected of damaging fertility or the unborn child
May cause damage to organs (kidney) through prolonged or repeated exposure

### Precautionary statements

Prevention : Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash hands, forearms and face thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face

protection.

Response : IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
Call a POISON CENTER or doctor if you feel unwell.
Get medical advice/attention if you feel unwell.
Rinse mouth.
If eye irritation persists: Get medical advice/attention.

Storage : Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

## 3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : Ammonium heptamolybdate tetrahydrate, Hexaammonium heptamolybdate tetrahydrate

| Chemical name | Concentration (%) | Formula | TSCA | EC-No. | CAS RN |
|---|---|---|---|---|---|
| Ammonium molybdate tetrahydrate | ≥ 99 | H24Mo7N6O24·4H2O | Not listed | - | 12054-85-2 |

## 4. First aid measures

### First aid measures

First-aid measures after inhalation : Remove the victim to fresh air, and make him blow his nose and gargle.

First-aid measures after skin contact : Wash the affected areas under running water.

First-aid measures after eye contact : Wash the affected areas under running water for at least 15 minutes. If necessary, get medical treatment.

First-aid measures after ingestion : Give the victim water or salt water and make him vomit. Get medical attention.

Personal Protection in First Aid and Measures : Rescuers should wear proper protective equipment like rubber gloves, goggles.

## 5. Fire fighting measures

Suitable extinguishing media : This product is noncombustible.

Unsuitable extinguishing media : None

Firefighting instructions : Move containers from fire area if it can be done without risk, if not possible, apply water from a safe distance to cool and protect surrounding area.

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| Personal protection (Emergency response) | : | Firefighters should wear protective equipment. |

## 6. Accidental release measures

### Personal Precautions, Protective Equipment and Emergency Procedures

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| General measures | : | Wear proper protective equipment and avoid contact with skin and inhalation of dust. Conduct operations from upwind and evacuate people downwind. |

### Environmental precautions

| | | |
|---|---|---|
| Environmental precautions | : | Attention should be given to avoid discharge of spilled product into rivers and resulting environmental damage. When diluting spill with large amounts of water, discharge of untreated wastewater into the environment must be avoided. |

### Methods and Equipment for Containment and Cleaning up

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| For containment | : | Sweep up in a chemical waste container. Flush contaminated area with copious amounts of water. |

## 7. Handling and storage

### Handling

| | | |
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| Technical measures | : | Wear appropriate protective equipment to avoid contact with skin or inhalation of dust. |
| Precautions for safe handling | : | Use with an enclosed system or a local exhaust ventilation. |

### Storage

| | | |
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| Storage conditions | : | Store in a dark, cool place and tightly closed. |
| Material used in packaging/containers | : | Glass, polyethylene, polypropylene. |

## 8. Exposure controls / Personal protection equipment

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| ACGIH TWA | 0.5 mg/m³ (R) (as Mo) |

| | | |
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| Appropriate engineering controls | : | Install a local ventilation system in case of dusty condition. |

### Protective equipment

| | | |
|---|---|---|
| Respiratory protection | : | If necessary, wear dust mask |
| Hand protection | : | Impervious protective gloves |
| Eye protection | : | Safety goggles |
| Skin and body protection | : | Protective clothing, protective boots |

## 9. Physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Solid |
| Color | : | Colorless - white |
| Odor | : | Odorless |
| pH | : | 5 - 5.5 (5% Aqueous solution) |
| Melting point | : | No data available |
| Freezing point | : | No data available |
| Boiling point | : | No data available |

| | | |
|---|---|---|
| Flash point | : | No data available |
| Auto-ignition temperature | : | No data available |
| Decomposition temperature | : | 190 ° C (Loss of water at 90℃, loss of ammonia at 150℃) |
| Flammability | : | Non flammable. |
| Vapor pressure | : | No data available |
| Relative density | : | No data available |
| Density | : | 2.87 g/cm$^3$ |
| Relative gas density | : | No data available |
| Solubility | : | Organic solvents: Insoluble in ethanol.<br>Water: 30.6 % (25℃) |
| Partition coefficient n-octanol/water (log Pow) | : | No data available |
| Explosive limits (vol %) | : | No data available |
| Viscosity, kinematic | : | No data available |
| Particle characteristics | : | No data available |

## 10. Stability and reactivity

| | | |
|---|---|---|
| Reactivity | : | Produces heteropolylates with phosphoric acid, boric acid, silicic acid, arsenic acid, etc. |
| Chemical stability | : | Stable under normal conditions. |
| Possibility of hazardous reactions | : | Stable under normal conditions of use. |
| Conditions to avoid | : | Light, heat. |
| Incompatible materials | : | Oxidizing substances. |
| Hazardous decomposition products | : | Nitrogen oxides, molybdenum oxides. |

## 11. Toxicological information

| | | |
|---|---|---|
| Acute toxicity (oral) | : | Harmful if swallowed<br>rat LD50=680mg/kg (as anhydrous salt) |
| Acute toxicity (dermal) | : | Classification not possible |
| Acute toxicity (inhalation) | : | No classification (gas)<br>No classification (vapor)<br>Classification not possible (dust, mist) |
| Skin corrosion/irritation | : | Classification not possible |
| Serious eye damage/irritation | : | Causes serious eye irritation<br>From the information that ammonium molybdate is irritating to animal eyes, it was classified into category 2A. |
| Respiratory sensitization | : | Classification not possible |
| Skin sensitization | : | Classification not possible |
| Germ cell mutagenicity | : | Classification not possible |
| Carcinogenicity | : | Suspected of causing cancer<br>ACGIH classifies soluble molybdenum compounds as A3(confirmed animal carcinogen with unknown relevance to humans). |
| Reproductive toxicity | : | Suspected of damaging fertility or the unborn child<br>There is no reproductive effect information on this substance in either humans or experimental animals. However, this substance belongs to a soluble molybdenum compound and the classification based on the toxicity information of sodium molybdate is possible, and it is considered to be appropriate to apply its classification result. Therefore, this substance was classified into category 2 in this hazard class. |

| | | |
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| STOT-single exposure | : | May cause respiratory irritation<br>Because ammonium molybdate is irritating to the respiratory tract, it was classified into category 3 (respiratory tract irritation). |
| STOT-repeated exposure | : | May cause damage to organs (kidney) through prolonged or repeated exposure<br>No human data. As for experimental animals, in a 8-week gavage administration toxicity test using rats, weight gain reduction, decreased absolute kidney weight, increased relative kidney weight, increased urine volume, increased creatinine in urine, decreased creatinine clearance, and increased excretion of urinary deviation enzyme (kallikrein) from distal tubule were observed at 80 mg/kg/day (converted to a 90-day equivalent: about 50 mg/kg/day) within a range of category 2. Due to no organic change but effects on function found in the kidney for ammonium molybdate and an organic change observed for sodium molybdate, an analog substance, this substance was classified into category 2 (kidney). |
| Aspiration hazard | : | Classification not possible |

## 12. Ecological information

### Ecotoxicity

| | | |
|---|---|---|
| Aquatic acute | : | Classification not possible |
| Aquatic chronic | : | Classification not possible |

### Persistence and degradability

Not readily biodegradable

### Bioaccumulative potential

Low bioconcentration
BCF : ≤0.45-0.72 (518μg/L), ≤4.5-5.7 (51.8μg/L)

### Mobility in soil

No additional information available

### Hazardous to the ozone layer

| | | |
|---|---|---|
| Ozone | : | Classification not possible |

## 13. Disposal considerations

| | | |
|---|---|---|
| Ecological waste information | : | Disposal should be made by one of following methods. Or consult approved disposal companies.<br><br>Precipitation method :<br>Dissolve in water and add sodium sulfide solution to precipitate molybdenum sulfide. Filter the precipitation and bury in a landfill site approved for hazardous waste disposal.<br><br>Roasting method :<br>In case of a large amount of the chemical, recover metal Molybdenum by roast reduction method.<br><br><Note><br>In case of disposal by roasting method, it is desirable to entrust to disposal companies. |
| Contaminated container and | : | In case of disposal of empty bottles, dispose bottles after |

| | | |
|---|---|---|
| packaging | | removing the content thoroughly. |

## 14. Transport information

**International Regulations**

**Transport by sea(IMDG)**

| | | |
|---|---|---|
| UN-No. (IMDG) | : | Not applicable |
| Proper Shipping Name (IMDG) | : | Not applicable |
| Packing group (IMDG) | : | Not applicable |
| Transport hazard class(es) (IMDG) | : | Not applicable |

**Air transport(IATA)**

| | | |
|---|---|---|
| UN-No. (IATA) | : | Not applicable |
| Proper Shipping Name (IATA) | : | Not applicable |
| Packing group (IATA) | : | Not applicable |
| Transport hazard class(es) (IATA) | : | Not applicable |
| Marine pollutant | : | Not applicable |

## 15. Regulatory information

Regulatory information with regard to this substance in your country or region should be examined by your own responsibility.

## 16. Other information

Data sources : Encyclopaedia Chimica, Kyoritsu Shuppan Co, Ltd. (1963) .
Dangerous Properties of Industrial Materials,6th ed.
N.I.Sax Van Nostrand Reinhold Company (1984) .
Handbook of 17322 Chemical Products, The Chemical Daily Co. (2022) .
NITE Chemical Risk Information Platform (NITE-CHRIP), National Institute of Technology and Evaluation.

The information contained herein is based on several references and the present state of our knowledge. However the SDS does not always cover all information about the product, handle the product carefully.The information is intended to ordinary usage, in case of particular handlings, conduct appropriate safety measurements.The information herein is only provision of information, and it does not represent a guarantee the properties of the product.The Safety Data Sheet(SDS) is prepared based on JIS Z7253.