

1. Identification of the substance/preparation and of the company/undertaking**1.1 Identification of the product****Product number:** A5072**Name of material:** Ammonium Molybdate Tetrahydrate**CAS No.:** 12054-85-2**1.2 Recommended use and restriction on use**

General use : For experimental, research and industrial use

Restriction on use : Never drink, Not used except for experimental, research and industrial applications.

2. Hazards identification**2.1 GHS Classification**

Carcinogenicity : Category 2

2.2 GHS label elements**Hazard symbols****Signal words**

- Warning

Hazard statements

- H351 Suspected of causing cancer.

Precautionary statements

- P201 Obtain special instructions before use.

- P202 Do not handle until all safety precautions have been read and understood.

- P280 Wear protective gloves/protective clothing/eye protection/face protection.

- P308+P313 If exposed or concerned: Get medical advice/attention.

- P405 Store locked up.

- P501 Dispose of contents/container in accordance with local/regional/national/international regulation.

2.3 Other hazards which do not result in classification: (NFPA Classification)**NFPA grade (0 ~ 4 level)**

- Health : 2 , Flammability : 0, Reactivity : 0

3. Composition/information on ingredients

Chemical Name	Synonyms	CAS No.	Concentration (%)
Molybdate, hexaammonium, tetrahydrate	-	12054-85-2	100

4. First aid measures**4.1 Eye contact**

- Do not rub your eyes.

- Immediately flush eyes with plenty of water for at least 15 minutes and call a doctor/physician.

- Get medical attention immediately.

4.2 Skin contact

- Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

- Wash contaminated clothing thoroughly before re-using.

- Get medical attention immediately.

4.3 Inhalation contact

- When exposed to large amounts of steam and mist, move to fresh air.

- Take specific treatment if needed.

- Get medical attention immediately.

- If breathing is stopped or irregular, give artificial respiration and supply oxygen.

4.4 Ingestion contact

- Please be advised by doctor whether induction of vomit is demanded or not.

- Rinse your mouth with water immediately.

- Get medical attention immediately.

4.5 Delayed and immediate effects and also chronic effects from short and long term exposure

- Not available

4.6 Notes to physician

- Notify medical personnel of contaminated situations and have them take appropriate protective measures.
- If exposed or concerned, get medical attention/advice.

5. Fire-fighting measures**5.1 Suitable (Unsuitable) extinguishing media**

- Dry chemical, carbon dioxide, regular foam extinguishing agent, spray.
- Avoid use of water jet for extinguishing.

5.2 Specific hazards arising from the chemical

- Not available

5.3 Special protective actions for firefighters

- Cool containers with water until well after fire is out.
- Keep unauthorized personnel out.
- Withdraw immediately in case of rising sound from venting safety devices or discoloration of tank.
- Notify your local firestation and inform the location of the fire and characteristics hazard.
- Wear appropriate protective equipment.
- Keep containers cool with water spray.
- Fine powder may cause ignition.

6. Accidental release measures**6.1 Personal precautions, protective equipment and emergency procedures**

- Wear proper personal protective apparatus as indicated in Section 8 and avoid skin contact and inhalation.
- Ventilate closed spaces before entering.
- Move container to safe area from the leak area.
- Handle the damaged containers or spilled material after wearing appropriate protective equipment
- Avoid dust formation.
- Moist with water to prevent dust scattering.
- Cleanup and disposal under expert supervision is advised.
- Keep unauthorized people away, isolate hazard area and deny entry.

6.2 Environmental precautions

- Prevent runoff and contact with waterways, drains or sewers.
- If large amounts have been spilled, inform the relevant authorities.

6.3 Methods and materials for containment and cleaning up

- Large spill : Stay upwind and keep out of low areas. Dike for later disposal.
- Notification to central government, local government. When emissions at least of the standard amount
- Dispose of waste in accordance with local regulation.
- Appropriate container for disposal of spilled material collected.
- Dust spills : Cover dust spills with plastic sheet or waterproof cloth to minimize spreading and avoid contact with water.
- Small liquid state spills: Appropriate container for disposal of spilled material collected.
- Put the spilled material in an appropriate containers and clean the contaminated area.

7. Handling and storage**7.1 Precautions for safe handling**

- Wash thoroughly after handling.
- Avoid direct physical contact.
- Get the manual before use.
- Do not handle until all safety precautions have been read and understood.
- Minimize occurrence of dust and accumulation.
- Contaminated work clothing should not be allowed out of the workplace.

7.2 Conditions for safe storage, including any incompatibilities

- Save in cool, dry and well ventilated place.
- Store according to current laws and regulations.
- Please pay attention to incompatibilities materials and conditions to avoid.
- Keep sealed when not in use.
- No open fire.
- By specifying a storage area for carcinogenic substances.
- Collected them in sealed containers.

8. Exposure controls/personal protection**8.1 Exposure limits****ACGIH TLV**

- Not available

OSHA PEL

- Not available

8.2 Engineering controls

Business owner is recommended to maintain below recommended exposure limits for the working place with general exhaust of gas/vapour/mist/fume.

8.3 Individual protection measures, such as personal protective equipment**Respiratory protection**

- Under conditions of frequent use or heavy exposure, Respiratory protection may be needed.
- Respiratory protection is ranked in order from minimum to maximum.
- Consider warning properties before use.
- Dust, mist, fume-purifying respiratory protection.
- Air-purifying respirator with high-efficiency particulate filtering.
- Any respiratory protection with a electromotion fan(for dust, mist, fume-purifying).
- Self-contained breathing apparatus with a corpuscle filter of high efficiency
- For Unknown Concentration or Immediately Dangerous to Life or Health : Any supplied-air respirator with full facepiece and operated in a pressure-demand or other positive-pressure mode in combination with a separate escape supply.
- Any self-contained breathing apparatus with a full facepiece.

Eye protection

- Wear primary eye protection such as splash resistant safety goggles with a secondary protection face shield.
- Provide an emergency eye wash station and quick drench shower in the immediate work area.

Hand protection

- Wear appropriate glove.

Skin protection

- Wear appropriate clothing.

Others

- Not available

9. Physical and chemical properties

A. Appearance	
- Appearance	Solid (Powder)
- Color	white
B. Odor	odorless
C. Odor threshold	Not available
D. pH	Not available
E. Melting point/Freezing point	697°C
F. Initial Boiling Point/Boiling Ranges	Not available
G. Flash point	Not available
H. Evaporation rate	Not available
I. Flammability (solid, gas)	Not available
J. Upper/Lower Flammability or explosive limits	Not available
K. Vapour pressure	Not available
L. Solubility	400 g/L (20°C)
M. Vapour density	2.5
N. Specific gravity (Relative density)	2.498
O. Partition coefficient of n-octanol/water	Not available
P. Autoignition temperature	Not available
Q. Decomposition temperature	Not available

R. Viscosity	Not available
S. Molecular weight	1235.86

10. Stability and reactivity

10.1 Chemical Stability

- This material is stable under recommended storage and handling conditions.

10.2 Possibility of hazardous reactions

- Hazardous Polymerization will not occur.

10.3 Conditions to avoid

- Avoid contact with incompatible materials and condition.
- Avoid: Accumulation of electrostatic charges, Heating, Flames and hot surfaces

10.4 Incompatible materials

- Not available

10.5 Hazardous decomposition products

- May emit flammable vapour if involved in fire.

11. Toxicological information

11.1 Information on the likely routes of exposure

Respiratory tracts

- Not available

Oral

- Not available

Eye · Skin

- Not available

11.2 Delayed and immediate effects and also chronic effects from short and long term exposure

Acute toxicity

* Oral

- [Molybdate, hexaammonium, tetrahydrate] : LD50 > 2000 mg/kg Rat (OECD TG 401, GLP, Read-across CAS No. 7439-98-7)

* Dermal

- [Molybdate, hexaammonium, tetrahydrate] : LD50 > 20000 mg/kg Rabbit (OECD TG 402, GLP, Read-across CAS No. 27546-07-2)

* Inhalation

- [Molybdate, hexaammonium, tetrahydrate] : Dust LC50 > 1.93 mg/l 4 hr Rat (No DEATHS, OECD TG 403, GLP, Read-across CAS No.7631-95-0)

Skin corrosion/irritation

- Not available

Serious eye damage/irritation

- Causes serious eye irritation

Respiratory sensitization

- Not available

Skin sensitization

- Not available

Carcinogenicity

* IARC

- Not available

* OSHA

- Not available

* ACGIH

- [Molybdate, hexaammonium, tetrahydrate] : A3 (Molybdenum soluble compounds)

* NTP

- Not available

* EU CLP

- Not available

Germ cell mutagenicity

- Not available

Reproductive toxicity

- Not available

STOT-single exposure

- Not available

STOT-repeated exposure

- Not available

Aspiration hazard

- Not available

12. Ecological information**12.1 Ecotoxicity****Fish**

- [Molybdate, hexaammonium, tetrahydrate] : LC50 240 mg/l 96 hr *Oncorhynchus mykiss* (OECD TG 203, GLP, Read-across CAS No. 27546-07-2)

Crustaceans

- [Molybdate, hexaammonium, tetrahydrate] : EC50 79 mg/l 48 hr *Daphnia magna* (OECD TG 202, GLP, Read-across CAS No. 27546-07-2)

Algae

- Not available

12.2 Persistence and degradability**Persistence**

- Not available

Degradability

- Not available

12.3 Bioaccumulative potential**Bioaccumulative potential**

- Not available

Biodegradation

- Not available

12.4 Mobility in soil

Not available

12.5 Other adverse effects

Not available

QRëC

13. Disposal considerations**13.1 Disposal methods**

- Since more than two kinds of designated waste is mixed, it is difficult to treat separately, then can be reduction or stabilization by incineration or similar process.
- If water separation is possible, pre-process with Water separation process.
- Dispose by incineration.

13.2 Special precautions for disposal

- The user of this product must dispose by oneself or entrust it to a waste disposer, a person who recycles other's waste or establishes and operates waste disposal facilities.
- Dispose of waste in accordance with all applicable laws and regulations.

14. Transport information**14.1 UN No. (IMDG CODE/IATA DGR)**

- Not applicable

14.2 Proper shipping name

- Not applicable

14.3 Hazard Class

- Not applicable

14.4 IMDG CODE/IATA DGR Packing group

- Not applicable

14.5 Marine pollutant

- Not applicable

14.6 Special precautions for user related to transport or transportation measures

- Local transport follows in accordance with Dangerous goods Safety Management Law.
- Package and transport follow in accordance with Department of Transportation (DOT) and other regulatory agency requirements.
- EmS FIRE SCHEDULE : Not available

- EmS SPILLAGE SCHEDULE : Not available
- Air transport(IATA): Not subject to IATA regulations.

15. Regulatory information

15.1 National and/or international regulatory information

POPs Management Law

- Not applicable

Information of EU Classification

* Classification

- Not applicable

U.S. Federal regulations

* OSHA PROCESS SAFETY (29CFR1910.119)

- Not applicable

* CERCLA Section 103 (40CFR302.4)

- Not applicable

* EPCRA Section 302 (40CFR355.30)

- Not applicable

* EPCRA Section 304 (40CFR355.40)

- Not applicable

* EPCRA Section 313 (40CFR372.65)

- Not applicable

Rotterdam Convention listed ingredients

- Not applicable

Stockholm Convention listed ingredients

- Not applicable

Montreal Protocol listed ingredients

- Not applicable

16. Other information

Reason for the revision: General update.

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