

---

Please reduce your browser font size for better viewing and printing.

---

**MSDS** **Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865

**M**ALLINCKRODT



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 202-483-7616

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-582-2537) for assistance.

---

## AMMONIUM MOLYBDATE

MSDS Number: A5988 --- Effective Date: 12/08/96

---

### 1. Product Identification

**Synonyms:** Molybdic acid hexammonium salt tetrahydrate; ammonium molybdate tetrahydrate; ammonium heptamolybdate, tetrahydrate

**CAS No.:** 12027-67-7

**Molecular Weight:** 1235.86

**Chemical Formula:** (NH<sub>4</sub>)<sub>6</sub>Mo<sub>7</sub>O<sub>24</sub>·4H<sub>2</sub>O

**Product Codes:** J.T. Baker: 0716, 0722 Mallinckrodt: 3420

---

### 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Hexaammonium Molybdate	12027-67-7	100%	Yes

---

### 3. Hazards Identification

#### Emergency Overview

**WARNING! MAY BE HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS KIDNEYS AND BLOOD.**

J.T. Baker SAF-T-DATA<sup>(tm)</sup> Ratings (Provided here for your convenience)

---

Health Rating: 2 - Moderate  
Flammability Rating: 0 - None  
Reactivity Rating: 1 - Slight  
Contact Rating: 2 - Moderate  
Lab Protective Equip: GOGGLES; LAB COAT; VENT HOOD; PROPER GLOVES  
Storage Color Code: Orange (General Storage)

---

### **Potential Health Effects**

---

#### **Inhalation:**

Irritant for the upper respiratory system. Pungent taste in mouth and throat, coughing, labored breathing. Can be a route of absorption by the body with symptoms like ingestion.

#### **Ingestion:**

Irritant to the digestive system. Symptoms of sore throat, abdominal pain, nausea may occur. May cause anemia, gout, headaches, weight loss, joint pain, and liver or kidney damage.

#### **Skin Contact:**

Causes irritation to skin. Symptoms include redness, itching, and pain.

#### **Eye Contact:**

Causes irritation, redness, and pain.

#### **Chronic Exposure:**

Prolonged or repeated exposure to this product may cause symptoms similar to ingestion.

#### **Aggravation of Pre-existing Conditions:**

Persons with pre-existing skin disorders, blood disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

---

## **4. First Aid Measures**

#### **Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### **Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

#### **Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention. Wash clothing before reuse. Thoroughly clean shoes before reuse.

**Eye Contact:**

Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

## 5. Fire Fighting Measures

**Fire:**

Not considered to be a fire hazard.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Water spray may be used to keep fire exposed containers cool.

---

## 6. Accidental Release Measures

Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust.

---

## 7. Handling and Storage

Keep in a tightly closed container. Protect from physical damage. Store in a cool, dry, ventilated area away from sources of heat, moisture and incompatibilities. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

---

## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL): 5 mg/m<sup>3</sup> for soluble molybdenum compounds as Mo 15 mg/m<sup>3</sup> for insoluble molybdenum compounds as Mo -ACGIH Threshold Limit Value (TLV): 5 mg/m<sup>3</sup> (TWA) for soluble molybdenum compounds as Mo 10 mg/m<sup>3</sup> for insoluble molybdenum compounds as Mo

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH

document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded, a half-face dust/mist respirator may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. A full-face piece dust/mist respirator may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**

Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

---

## 9. Physical and Chemical Properties

**Appearance:**

White to yellow-green crystals

**Odor:**

Odorless.

**Solubility:**

43 g / 100 cc cold water.

**Density:**

2.498

**pH:**

5.0 - 5.5

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

190C (374F) Decomposes.

**Melting Point:**

90C (194F) Loses 1 water @ this temperature.

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Burning may produce ammonia, nitrogen oxides and metal fumes.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Alkali metals

**Conditions to Avoid:**

Incompatibles.

## 11. Toxicological Information

Investigated as a mutagen.

Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Hexaammonium Molybdate (12027-67-7)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

No information found.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

Not regulated.

## 15. Regulatory Information

```

-----\Chemical Inventory Status - Part 1\-----
Ingredient                                     TSCA  EC   Japan  Australia
-----
Hexaammonium Molybdate (12027-67-7)           Yes  Yes  Yes    Yes

```

```

-----\Chemical Inventory Status - Part 2\-----
Ingredient                                     Korea  DSL  NDSL  Phil.
-----
Hexaammonium Molybdate (12027-67-7)           Yes   Yes  No    Yes

```

```

-----\Federal, State & International Regulations - Part 1\-----
Ingredient                                     -SARA 302-  -SARA 313-
RQ  TPQ  List  Chemical Catg.
-----
Hexaammonium Molybdate (12027-67-7)           No   No   No    No

```

```

-----\Federal, State & International Regulations - Part 2\-----
Ingredient                                     -RCRA-  -TSCA-
CERCLA  261.33  8(d)
-----
Hexaammonium Molybdate (12027-67-7)           No      No    No

```

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No  
SARA 311/312: Acute: Yes      Chronic: Yes      Fire: No      Pressure: No  
Reactivity: No      (Mixture / Solid)

**Australian Hazchem Code:** No information found.

**Poison Schedule:** No information found.

### WHMIS:

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

---

## 16. Other Information

**NFPA Ratings: Health: 1 Flammability: 0 Reactivity: 0**

**Label Hazard Warning:**

WARNING! MAY BE HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. AFFECTS KIDNEYS AND BLOOD.

**Label Precautions:**

Avoid contact with eyes, skin and clothing. Avoid breathing dust. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In all cases, get medical attention.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

Mixture. New 16 section MSDS format, all sections have been revised.

**Disclaimer:**

\*\*\*\*\*

**Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.**

\*\*\*\*\*

**Prepared by:** Strategic Services Division

Phone Number: (314) 539-1600 (U.S.A.)