



UNIVAR

Univar USA Inc.
6100 Carillon Point
Kirkland, WA 98033
(425) 889-3400

For Emergency Assistance involving chemicals call - CHEMTREC (800) 424-9300

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The Version Date for this MSDS is : 09/07/2001

PRODUCT NAME:
 AMMONIUM MOLYBDATE

MSDS #: MAA5988

MSDS MATERIAL SAFETY DATA SHEET

CHEMTREC: 800-424-9300 (USA)
 703-527-3887

FROM: MALLINCKRODT BAKER, INC.

(OUTSIDE USA & CANADA

222 RED SCHOOL LANE

CANUTEC: 613-996-6666

PHILLIPSBURG, NJ 08865

NOTE: USE CHEMTREC AND CANUTEC

EMERGENCY TELEPHONE NUMBER: 908-859-2151

PHONE NUMBERS ONLY IN THE EVENT

OF A CHEMICAL EMERGENCY.

ALL NON-EMERGENCY QUESTIONS SHOULD BE DIRECTED TO CUSTOMER SERVICE
 (1-800-582-2537) FOR ASSISTANCE.

M A L L I N C K R O D T

J. T. B A K E R

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AMMONIUM MOLYBDATE

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1. PRODUCT IDENTIFICATION

SYNONYMS: MOLYBDIC ACID HEXAMMONIUM SALT TETRAHYDRATE; AMMONIUM
 MOLYBDATE TETRAHYDRATE; AMMONIUM HEPTAMOLYBDATE,
 TETRAHYDRATE

CAS NO: 12027-67-7 (ANHYDROUS); 12054-85-2 (TETRAHYDRATE)

MOLECULAR WEIGHT: 1235.86

CHEMICAL FORMULA: (NH₄)₆MO₇O₂₄.4H₂O

PRODUCT CODES: J.T. BAKER:

0716, 0722

MALLINCKRODT:

3420

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2. COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENT | CAS NO | PERCENT | HAZARDOU |
|------------------------|------------|---------|----------|
| HEXAAMMONIUM MOLYBDATE | 12027-67-7 | 100% | YES |

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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(TM) 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.

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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.

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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.

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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.

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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.

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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS:

-OSHA PERMISSIBLE EXPOSURE LIMIT (PEL):

5 MG/M3 FOR SOLUBLE MOLYBDENUM COMPOUNDS AS MO

15 MG/M3 FOR INSOLUBLE MOLYBDENUM COMPOUNDS AS MO

-ACGIH THRESHOLD LIMIT VALUE (TLV):

MOLYBDENUM, METAL AND INSOLUBLE COMPOUNDS, INHALABLE FRACTION, AS MO: 10
MG/M3

MOLYBDENUM, METAL AND INSOLUBLE COMPOUNDS, RESPIRABLE FRACTION, AS MO: 3
MG/M3

MOLYBDENUM, SOLUBLE COMPOUNDS, RESPIRABLE FRACTION, AS MO: 0.5 MG/M3, A3 -
CONFIRMED ANIMAL CARCINOGEN WITH UNKNOWN RELEVANCE TO HUMANS

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 AND ENGINEERING CONTROLS ARE NOT
FEASIBLE, A HALF FACEPIECE PARTICULATE RESPIRATOR (NIOSH TYPE N95 OR BETTER
FILTERS) 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 PARTICULATE
RESPIRATOR (NIOSH TYPE N100 FILTERS) 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.
IF OIL PARTICLES (E.G. LUBRICANTS, CUTTING FLUIDS, GLYCERINE, ETC.) ARE
PRESENT, USE A NIOSH TYPE R OR P FILTER. 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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:

WHITE TO YELLOW-GREEN CRYSTALS

BOILING POINT:

190C (374F) DECOMPOSES.

ODOR:

ODORLESS.

MELTING POINT:

90C (194F) LOSES 1 WATER @ THIS

TEMPERATURE.

SOLUBILITY:

43 G / 100 CC COLD WATER.

VAPOR DENSITY (AIR=1):

NO INFORMATION FOUND.

DENSITY:

2.498

VAPOR PRESSURE (MM HG):

NO INFORMATION FOUND.

PH:

5.0 - 5.5

EVAPORATION RATE (BUAC=1):

NO INFORMATION FOUND.

% VOLATILES BY VOLUME @ 21C (70F):

0

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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.

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11. TOXICOLOGICAL INFORMATION

INVESTIGATED AS A MUTAGEN.

-----\CANCER LISTS\-----

---NTP CARCINOGEN---

| INGREDIENT | KNOWN | ANTICIPATED | IARC CATEGOR |
|-------------------------------------|-------|-------------|--------------|
| HEXAAMMONIUM MOLYBDATE (12027-67-7) | NO | NO | NONE |

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12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:

NO INFORMATION FOUND.

ENVIRONMENTAL TOXICITY:

NO INFORMATION FOUND.

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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.

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14. TRANSPORT INFORMATION

NOT REGULATED.

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15. REGULATORY INFORMATION

-----\CHEMICAL INVENTORY STATUS - PART 1\-----
 INGREDIENT TSCA EC JAPAN AUSTRALI

 HEXAAMMONIUM MOLYBDATE (12027-67-7) YES YES YES YES

-----\CHEMICAL INVENTORY STATUS - PART 2\-----
 --CANADA--
 INGREDIENT KOREA DSL NDSL PHIL.

 HEXAAMMONIUM MOLYBDATE (12027-67-7) YES YES NO YES

-----\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 1\-----
 -SARA 302- -----SARA 313-----
 INGREDIENT RQ TPQ LIST CHEMICAL CATG

 HEXAAMMONIUM MOLYBDATE (12027-67-7) NO NO NO NO

-----\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 2\-----
 -RCRA- -TSCA-
 INGREDIENT 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 (PURE / 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.

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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:
MSDS SECTION(S) CHANGED SINCE LAST REVISION OF DOCUMENT INCLUDE: 1, 8.

DISCLAIMER:
PREPARED BY: ENVIRONMENTAL HEALTH & SAFETY
PHONE NUMBER: (314) 654-1600 (U.S.A.)
A5988

For Additional Information:
Contact: MSDS Coordinator - Univar USA
During business hours, Pacific Time - (425) 889-3400

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END OF MSDS