

SUPPLIER



MATERIAL SAFETY DATA SHEET

GENERATED 03/15/2011, **REVISION** 07/26/1994, **DATE CREATED** 08/07/1989

SECTION I - PRODUCT IDENTIFICATION

Holmium metal, powder

PRODUCT NAME: Holmium metal, powder

PRODUCT CODE: H-MSDS0016

REFERENCE #: 7440-60-0

MANUFACTURER INFORMATION

COMPANY NAME: Materion Advanced Chemicals Inc.
1316 W. St. Paul Avenue
Milwaukee, WI 53233

EMERGENCY CONTACT: CHEMTREC (800)424-9300

ALTERNATE EMERGENCY CONTACT: Materion Advanced Chemicals Inc. (414)289-9800

CHEMICAL FAMILY: Metal

CAS NUMBER: 7440-60-0

FORMULA: Ho

MOLECULAR WEIGHT: 164.93

SYNONYMS

Holmium metal

SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Holmium metal, powder

Hazardous Components (Chemical Name)	CAS #	Concentration	OSHA PEL	ACGIH TLV	Other Limits
Holmium metal	7440-60-0	0.0 -100.0 %	NE	NE	NE

SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

Holmium metal, powder

<u>PHYSICAL STATES:</u>	[] Gas	[] Liquid	[X] Solid
<u>MELTING POINT:</u>	1474.00 C		
<u>BOILING POINT:</u>	2695.00 C		
<u>SPECIFIC GRAVITY (WATER = 1):</u>	8.79 gm/cc at 25.0 C		
<u>VAPOR PRESSURE (VS. AIR OR MM HG):</u>	2 mm at 1630.0 C		
<u>VAPOR DENSITY (VS. AIR = 1):</u>	NA		
<u>EVAPORATION RATE (VS BUTYL ACETATE=1):</u>	NA		
<u>SOLUBILITY IN WATER:</u>	insoluble		
<u>SOLUBILITY NOTES</u>			
<u>PERCENT VOLATILE:</u>	N.A.		
<u>APPEARANCE AND ODOR</u>			

Bright metallic powder, no odor.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Holmium metal, powder

<u>FLASH PT:</u>	N.A.	Method Used:	Unknown
<u>EXPLOSIVE LIMITS:</u>	LEL: NE	UEL:	NE
<u>EXTINGUISHING MEDIA</u>			

USE: Class D or other suitable metal extinguishing agent.
DO NOT USE: Water.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Holmium metal may react violently in air and to halogens.
Reacts slowly with water to liberate hydrogen gas.
Stable in dry air; oxidizes rapidly in moist.

HAZARDOUS COMBUSTION PRODUCTS

SECTION V - REACTIVITY DATA Holmium metal, powder

STABILITY: Unstable [] Stable []

CONDITIONS TO AVOID - INSTABILITY

None

INCOMPATIBILITY - MATERIALS TO AVOID

Air, moisture, acids, oxidizing materials, halogens

HAZARDOUS DECOMPOSITION OR BYPRODUCTS

Hydrogen gas

HAZARDOUS POLYMERIZATION: Will occur [] Will not occur []

CONDITIONS TO AVOID - HAZARDOUS POLYMERIZATION

None

SECTION VI - HEALTH HAZARD DATA Holmium metal, powder

HEALTH HAZARDS (ACUTE AND CHRONIC)

To the best of our knowledge the chemical, physical and toxicological properties of holmium metal have not been thoroughly investigated and recorded.

Holmium is considered a rare earth metal. These metals are moderately to highly toxic. The symptoms of toxicity of the rare earth elements include writhing, ataxia, labored respiration, walking on the toes with arched back and sedation. The rare earth elements exhibit low toxicity by ingestion exposure. However, the intraperitoneal route is highly toxic while the subcutaneous route is poison to moderately toxic. The production of skin and lung granulomas after exposure to them requires extensive protection to prevent such exposure. (Sax, Dangerous Properties of Industrial Materials, eighth edition)

INHALATION:

Acute: May cause irritation to the respiratory tract and mucous membrane. Dusts may cause asthma attacks and lung damage such as lung granulomas. Large doses may cause writhing, loss of muscle

coordination, labored respiration, sedation, hypotension and cardiovascular collapse.
Chronic: Prolonged or repeated inhalation may cause writhing, loss of muscle coordination, labored respiration, sedation, hypotension and cardiovascular collapse.

INGESTION:

Acute: May cause gastrointestinal irritation.
Chronic: May affect the coagulation rate of the blood.

SKIN:

Acute: May cause irritation, rashes and skin granulomas.
Chronic: May cause dermatitis, sensitivity to heat, itching and skin lesions.

EYE:

Acute: May cause irritation.
Chronic: No chronic health effects recorded.

TARGET ORGANS: May affect the respiratory system, blood and skin.

CARCINOGENICITY: NTP? No IARC Monographs? No OSHA Regulated? No

RECOMMENDED EXPOSURE LIMITS

See "Section II"

LD 50 / LC 50

No toxicity data recorded

SIGNS AND SYMPTOMS OF EXPOSURE

INHALATION: May cause writhing, ataxia, labored respiration, walking on the toes with arched back and sedation.

INGESTION: May cause nausea, vomiting, diarrhea, abdominal burning and cramp-like pain.

SKIN: May cause redness, itching and burning.

EYE: May cause redness, itching, burning and watering.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

Pre-existing respiratory disorders.

EMERGENCY AND FIRST AID PROCEDURES

INHALATION: Remove victim to fresh air; keep warm and quiet; give oxygen if breathing is difficult and seek medical attention.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

SKIN: Remove contaminated clothing; brush material off skin; wash affected area with mild soap and water; seek medical attention if irritation persists.

EYE: Flush eyes with lukewarm water, lifting upper and lower eyelids, for at least 15 minutes. Seek medical attention if irritation persists.

SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

Holmium metal, powder

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wear appropriate respiratory and protective equipment specified in section VIII-control measures. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust. Use non-sparking tools.

WASTE DISPOSAL METHOD

Dispose of in accordance with local, state and federal regulations.

HAZARD LABEL INFORMATION:

Store in cool, dry area Store in tightly sealed container Wash thoroughly after handling

PRECAUTIONS TO BE TAKEN IN HANDLING

Holmium metal is water and moisture sensitive. Handle and store in a controlled environment and inert gas such as argon.

PRECAUTIONS TO BE TAKEN IN STORING

OTHER PRECAUTIONS

None

SECTION VIII - CONTROL MEASURES

Holmium metal, powder

PROTECTIVE EQUIPMENT SUMMARY - HAZARD LABEL INFORMATION:

NIOSH approved respirator Impervious gloves Safety glasses Clothes to prevent skin contact

RESPIRATORY EQUIPMENT (SPECIFY TYPE)

NIOSH - approved dust respirator

EYE PROTECTION

Safety glasses

PROTECTIVE GLOVES

Rubber gloves

OTHER PROTECTIVE CLOTHING

Protective gear suitable to prevent contamination

VENTILATION

Local Exhaust: To maintain concentration at low exposure levels Special: Handle in a dry, controlled atmosphere

Mechanical (Gen): Not recommended

Other: Handle and store in an inert gas, such as argon

WORK/HYGIENIC/MAINTENANCE PRACTICES

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air.

SECTION IX - ADDITIONAL COMMENTS
Holmium metal, powder

No data available.

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