

# SUPPLIER



## MATERIAL SAFETY DATA SHEET

**GENERATED** 03/15/2011, **REVISION** 04/01/2004, **SUPERCEDES REVISION** 11/02/1995,  
**DATE CREATED** 07/17/1986

### SECTION I - PRODUCT IDENTIFICATION

Thulium metal, powder

**PRODUCT NAME:** Thulium metal, powder  
**PRODUCT CODE:** T-MSDS0110  
**REFERENCE #:** 7440-34-0

#### **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:** 7440-30-4

**FORMULA:** Tm

**MOLECULAR WEIGHT:** 168.94

#### **SYNONYMS**

Thulium metal

### SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Thulium metal, powder

| Hazardous Components<br>(Chemical Name) | CAS # | Concentration | OSHA<br>TWA | ACGIH<br>TWA | Other<br>Limits |
|---|-------|---------------|-------------|--------------|-----------------|
|---|-------|---------------|-------------|--------------|-----------------|

|   |              |                  |                  |                   |                   |
|---|--------------|------------------|------------------|-------------------|-------------------|
| Thulium Metal                                   | 7440-34-0    | 0.0 -100.0 %     | NE               | NE                | NE                |
| <b>Hazardous Components<br/>(Chemical Name)</b> | <b>CAS #</b> | <b>OSHA STEL</b> | <b>OSHA CEIL</b> | <b>ACGIH STEL</b> | <b>ACGIH CEIL</b> |
| Thulium Metal                                   | 7440-34-0    | NE               | NE               | NE                | NE                |

### SECTION III - PHYSICAL/CHEMICAL CHARACTERISTICS

#### Thulium metal, powder

|  |            |            |             |
|--|------------|------------|-------------|
| <b><u>PHYSICAL STATES:</u></b>                       | [ ] Gas    | [ ] Liquid | [ X ] Solid |
| <b><u>MELTING POINT:</u></b>                         | 1545.00 C  |            |             |
| <b><u>BOILING POINT:</u></b>                         | 1727.00 C  |            |             |
| <b><u>SPECIFIC GRAVITY (WATER = 1):</u></b>          | 9.321 g/cc |            |             |
| <b><u>VAPOR PRESSURE (VS. AIR OR MM HG):</u></b>     |            |            |             |
| <b><u>VAPOR DENSITY (VS. AIR = 1):</u></b>           |            |            |             |
| <b><u>EVAPORATION RATE (VS BUTYL ACETATE=1):</u></b> |            |            |             |
| <b><u>SOLUBILITY IN WATER:</u></b>                   | insoluble  |            |             |
| <b><u>SOLUBILITY NOTES</u></b>                       |            |            |             |
| <b><u>PERCENT VOLATILE:</u></b>                      | N.A.       |            |             |
| <b><u>APPEARANCE AND ODOR</u></b>                    |            |            |             |
| Gray, metallic powder, no odor.                      |            |            |             |

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA

#### Thulium metal, powder

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

Flammable and possibly explosive in the form of dust when exposed to heat or flame.  
May have an explosive reaction with air and halogens.  
Thulium metal may react with dilute acids emitting flammable/explosive hydrogen gas.

## **HAZARDOUS COMBUSTION PRODUCTS**

### **SECTION V - REACTIVITY DATA**

#### **Thulium 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**

#### **Thulium metal, powder**

#### **HEALTH HAZARDS (ACUTE AND CHRONIC)**

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

Thulium 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.

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**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 if symptoms persist.

**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 symptoms persist.

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

## **SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

### **Thulium 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**

Thulium metal may be 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**

### **Thulium 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 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** **Thulium metal, powder**

No data available.

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