Thulium

SAFETY DATA SHEET

1 PRODUCT AND SUPPLIER IDENTIFICATION

Product Name: Thulium - pieces, ingot, rod, foil, sheet, target
Formula: Tm

Supplier: Ames Laboratory, US DOE
Materials Preparation Center
121 Metals Development
Ames, IA 50010 USA
Telephone: 515-294-5236
Fax: 515-294-8727
Email: mpc@ameslab.gov
Emergency: Infotrac 800-535-5053 (US) or 352-323-3500 (24 hour)
Recommended Uses: Scientific Research

2 HAZARDS IDENTIFICATION

GHS Classification (29 CFR 1910.1200):
H228 – Flammable Solid
H260 – In contact with water releases flammable gases which may ignite spontaneously

GHS Label Elements:

Signal Word: Danger
Hazard Statements:
H228 – Flammable Solid
H260 – In contact with water releases flammable gases which may ignite spontaneously
Precautionary Statements:
P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P231: Handle under inert gas.
P232: Protect from moisture.
P370+P378 In case of fire: Use Class D dry chemical extinguishing agent for extinction.
P422 Store contents under inert gas.

3 COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient: Thulium
CAS#: 7440-30-4
%: 100
EC#: 231-140-2

4 FIRST AID MEASURES

General Measures: Under normal handling and use, exposure to solid forms of this material present few health hazards. Subsequent operations such as grinding, melting or welding may create dusts or fumes which could be inhaled or contact skin or eyes.
INHALATION: Remove to fresh air, keep warm and quiet, give oxygen if breathing is difficult. Seek medical attention.
INGESTION: Rinse mouth with water. Do not 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 soap and water. Seek medical attention if symptoms persist.
EYES: Flush eyes with lukewarm water, including under upper and lower eyelids, for at least 15 minutes. Seek medical attention if symptoms persist.

Most Important Symptoms/Effects, Acute and Delayed: See section 11 for more information.
Indication of Immediate Medical Attention and Special Treatment: No other relevant information available.

5 FIREFIGHTING MEASURES

Extinguishing Media: Use Class D dry powder extinguishing agent.
Unsuitable Extinguishing Media: Do not use water.
Specific Hazards Arising from the Material: Flammable in the form of dust when exposed to heat, spark or flame. May react with water under fire conditions liberating flammable hydrogen gas. May emit fumes of thulium oxide under fire conditions.
Special Protective Equipment and Precautions for Firefighters: Full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Wear appropriate respiratory and protective equipment specified in section 8. Isolate spill area. Avoid dust formation. Avoid contact with skin and eyes. Avoid breathing dust or fume. Eliminate all sources of ignition.
Methods and Materials for Containment and Cleaning Up: Sweep or scoop spilled product and place in a closed container for further handling and disposal. Use only non-sparking tools and natural bristle brushes.
Environmental Precautions: Do not allow to enter drains or to be released to the environment.

7 HANDLING AND STORAGE

Precautions for Safe Handling: Handle in an enclosed, controlled process, under dry protective gas such as argon when possible. Air and moisture sensitive. Protect from sources of ignition. Protect from water/moisture. Avoid contact with skin and eyes. Wash thoroughly before eating or smoking.
Conditions for Safe Storage, Including Any Incompatibilities: Thulium metal should be stored in tightly-closed containers under argon or mineral oil. Store in a cool, dry area. Protect from water/moisture. See section 10 for more information on incompatible materials.

8 EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits: Thulium
OSHA/PEL: No exposure limit established
ACGIH/TLV: No exposure limit established
Appropriate Engineering Controls: Handle in a humidity controlled atmosphere. Handle in an enclosed, controlled process under dry argon when possible. Ensure adequate ventilation to maintain exposures below occupational limits. Whenever possible the use of local exhaust ventilation or other engineering controls is the preferred method of controlling exposure to airborne dust and fume to meet established occupational exposure limits. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air.
Individual Protection Measures, Such as Personal Protective Equipment:
Respiratory Protection: If permissible levels are exceeded, use NIOSH approved dust respirator.
Eye Protection: Safety glasses
Skin Protection: Wear impermeable gloves, protective work clothing as necessary.

9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Form: Solid in various forms
Color: Silver gray metallic
Odor: Not determined
Odor Threshold: Not determined
pH: N/A
Melting Point: 1545 °C
Boiling Point: 1950 °C
Flash Point: N/A
Evaporation Rate: N/A
Flammability: No data
Upper Flammable Limit: No data
Lower Flammable Limit: No data
Vapor Pressure: No data
Vapor Density: N/A
Relative Density (Specific Gravity): 9.321 g/cc
Solubility in H_2O: Insoluble
Partition Coefficient (n-octanol/water): Not determined
Autoignition Temperature: No data
Decomposition Temperature: No data
Viscosity: N/A

10 STABILITY AND REACTIVITY

Reactivity: No data
Chemical Stability: Stable under recommended storage conditions.
Possibility of Hazardous Reactions: Flammable in the form of dust when exposed to heat, spark or flame. May react with water under fire conditions liberating flammable hydrogen gas. Contact with acids may evolve hydrogen gas.
Conditions to Avoid: Heat, sparks, flame. Dusting conditions.
Incompatible Materials: Air, moisture, acids, acid chlorides, oxidizing agents, halogens.
Hazardous Decomposition Products: Thulium oxides, thulium hydroxides, hydrogen.

11 TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, skin, eyes. Product as shipped does not present an inhalation hazard; however subsequent operations may create dusts or fumes which could be inhaled.
Symptoms of Exposure: May cause irritation.
Acute and Chronic Effects: No data
Acute Toxicity: No data
Carcinogenicity: **NTP**: Not identified as carcinogenic **IARC**: Not identified as carcinogenic
To the best of our knowledge the chemical, physical and toxicological characteristics of the substance are not fully known.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data
Persistence and Degradability: No data
Bioaccumulative Potential: No data
Mobility in Soil: No data
Other Adverse Effects: Do not allow material to be released to the environment. No further relevant information available.

13 DISPOSAL CONSIDERATIONS

Waste Disposal Method:
Product: Dispose of in accordance with Federal, State and Local regulations.
Packaging: Dispose of in accordance with Federal, State and Local regulations.

14 TRANSPORT INFORMATION

DOT/ADR/IATA/IMDG Regulations: Not regulated
UN Number: N/A
UN Proper Shipping Name: N/A

Transport Hazard Class: N/A
Packing Group: N/A
Marine Pollutant: No
Special Precautions: N/A

15 REGULATORY INFORMATION

TSCA Listed: All components are listed.
Regulation (EC) No 1272/2008 (CLP): N/A
Canada WHMIS Classification (CPR, SOR/88-66): N/A
HMIS Ratings: **Health**: 0 **Flammability**: 1 **Physical**: 1
NFPA Ratings: **Health**: 1 **Flammability**: 1 **Reactivity**: 1
Chemical Safety Assessment: A chemical safety assessment has not been carried out.

16 OTHER INFORMATION

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. The Materials Preparation Center, Ames Laboratory, and Iowa State University, shall not be held liable for any damages resulting from handling or from contact with the above product.

Prepared by: The Materials Preparation Center at Ames Laboratory
Revised/Reviewed: April 2015