

MATERIAL SAFETY DATA SHEET

I. PRODUCT IDENTIFICATION

Manufacturer/Supplier:

ESPI Metals
1050 Benson Way, Ashland, OR 97520
Toll Free (800) 638-2581 * Fax (541) 488-8313
E-Mail: sales@espimetals.com

Trade Name: Ytterbium
Formula: Yb
CAS #: 7440-64-4

II. HAZARDOUS INGREDIENTS

Hazardous Component: Ytterbium
%: 0-100
OSHA/PEL: N/E
ACGIH/TLV: N/E

HMIS Ratings (Powder): Health: 2 **Flammability:** 3 **Reactivity:** 2
HMIS Ratings (Solid): Health: 1 **Flammability:** 1 **Reactivity:** 1

III. PHYSICAL DATA

Boiling Point: 1196 °C
Melting Point: 819 °C
Specific Gravity: 6.96 g/cc
Vapor Density: N/A
Vapor Pressure: N/A
% Volatiles: 0
Appearance and Odor: Silver to gray powder or solid, no odor.
Solubility in H₂O: Insoluble

IV. FIRE AND EXPLOSION HAZARDS DATA

Flash Point: N/A
Autoignition Temperature: N/E or N/A
Flammable Limits: Lower: N/A **Upper:** N/A

Extinguishing Media: Dry chemical, Class D Extinguisher. DO NOT USE WATER.

Special Firefighting Procedures: Firefighters must wear full face, self-contained breathing apparatus and full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous.

Unusual Fire and Explosion Hazards: Flammable in the form of dust or powder. May react with halogens. May react slowly with water and dilute acids to liberate hydrogen gas.

V. HEALTH HAZARD INFORMATION

Effects of Exposure:

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

Ytterbium is considered a rare earth metal. These metals are moderately to highly toxic. The symptoms of toxicity of the rare earth metals include writhing, ataxia, labored respiration, walking on the toes with arched back and sedation. The production of lung and skin granulomas after exposure to these metals requires extensive protection to prevent such exposure. (Sax, Dangerous Properties of Industrial Materials)

Acute Effects:

Inhalation: 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.

Ingestion: May cause gastrointestinal irritation.

Skin: May cause irritation, rashes and skin granulomas.

Eye: May cause irritation.

Chronic Effects:

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

Ingestion: May affect the coagulation rate of the blood.

Skin: May cause dermatitis, sensitivity to heat, itching and skin lesions.

Eye: No chronic health effects recorded.

Target Organs: May affect the respiratory system, blood and skin.

Medical Conditions Possibly Aggravated by Overexposure: Pre-existing respiratory disorders.

Carcinogenicity: NTP: No IARC: No OSHA: No ACGIH: No

EMERGENCY AND FIRST AID PROCEDURES:

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

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

SKIN: Remove any contaminated clothing and shoes, brush material off skin, wash affected area with soap and water. Get medical attention if irritation develops or persists.

EYE: Immediately flush eyes with plenty of water for at least 15 minutes using an eyewash fountain. Lift upper and lower lids and rinse well under them. Get medical attention if irritation develops or persists.

VI. REACTIVITY DATA

Stability: Stable

Conditions to Avoid: Air and moisture sensitive.

Incompatibility (Material to avoid): Strong acids, strong oxidizing materials and halogens.

Hazardous Decomposition Products: Hydrogen gas, metal oxide fume.

Hazardous Polymerization: Will not occur.

VII. SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: Wear appropriate respiratory and protective equipment specified in section VIII. Eliminate all sources of ignition. Evacuate area. Sweep into appropriate container. Avoid creating dust. DO NOT use "shop" vacuum as this may cause a fire. Ventilate area. Wash spill area after material pickup is complete.

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

VIII. SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH approved respirator.

Ventilation: Use process enclosures, local exhaust ventilation, or other engineering controls as needed to maintain airborne exposure below control limits. Handle and store in an inert gas such as argon and in a dry, controlled atmosphere. General exhaust

is not recommended.

Protective Gloves: Rubber gloves

Eye Protection: Safety glasses.

Other Protective Clothing or Equipment: Protective gear suitable to prevent contamination.

IX. SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Store in a cool, dry place in tightly closed containers. Air and moisture sensitive. Store away from oxidizers and other materials listed under incompatibility (section VI). STORE UNDER ARGON OR OTHER INERT ENVIRONMENT. Avoid breathing dusts. Avoid direct or prolonged contact with skin and eyes. Do not rub eyes with soiled hands.

Work Practices: Do not store, use, and/or consume foods, beverages, tobacco products, or cosmetics in areas where this material is stored. Wash hands and face carefully before eating, drinking, using tobacco, applying cosmetics, or using the toilet. Wash exposed skin promptly to remove accidentally splashes of contact with this material. Maintain a sink, safety shower and eyewash fountain in the work area. Have oxygen readily available.

WARNING STATEMENTS: Flammable Solid When a Powder or Thin Foil. All Forms Will React with Dilute Acids Emitting Flammable/Explosive Hydrogen Gas.

TSCA Listed: Yes

DOT Regulations:

Solid Forms:

Hazard Class: None

Thin Foil:

Hazard Class: 4.1

Identification Number: UN3178

Packing Group: II

Proper Shipping Name: Flammable solid, inorganic, n.o.s., ytterbium

Powder:

Hazard Class: 4.1

Identification Number: UN3089

Packing Group: II

Proper Shipping Name: Metal powder, flammable, n.o.s.

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks

Date: December 2007