**CHEMICAL IDENTITY**

<table>
<thead>
<tr>
<th>LABEL IDENTITY</th>
<th>CHEMICAL NAME/SYNONYMS</th>
<th>FORMULA</th>
<th>CHEMICAL FAMILY</th>
<th>HAZARDOUS INGREDIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SAMARIUM</td>
<td>Sm</td>
<td>METAL</td>
<td>SAMARIUM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CAS #</th>
<th>%</th>
<th>CAS</th>
<th>OSHA (TWA)</th>
<th>ACGIH (TLV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7440-19-9</td>
<td>&gt;99</td>
<td>7440-19-9</td>
<td>15mg/m3 (TWA)</td>
<td>15mg/m3 total dust</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5mg/m3 restorable</td>
</tr>
</tbody>
</table>

**PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>COLOR, FORM AND ODOR</th>
<th>Silver solid (ingot, chunk, foil powder) /Odorless</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOILING POINT</td>
<td>3256°F</td>
</tr>
<tr>
<td>DENSITY (gm/cc)</td>
<td>NA</td>
</tr>
<tr>
<td>VAPOR PRESSURE @ 20°</td>
<td>NA</td>
</tr>
<tr>
<td>% VOLATILE BY VOLUME (%)</td>
<td>Zero</td>
</tr>
<tr>
<td>REACTION WITH WATER</td>
<td>NA</td>
</tr>
<tr>
<td>EVAPORATION RATE (H2O=1)</td>
<td>NA</td>
</tr>
<tr>
<td>SOLUBILITY IN WATER</td>
<td>Insoluble</td>
</tr>
<tr>
<td>MELTING POINT</td>
<td>1971°F (melting)</td>
</tr>
<tr>
<td>SPECIFIC GRAVITY (H2O=1)</td>
<td>7.52</td>
</tr>
<tr>
<td>OTHER</td>
<td>ND</td>
</tr>
</tbody>
</table>

**FIRE AND EXPLOSION HAZARD DATA**

| FLASH POINT | NA |
| AUTOIGNITION TEMPERATURE (°C) | NA |
| FLAMMABILITY | Flammable solid when powder, thin foil. All forms will react with dilute acids emitting flammable/explosive hydrogen gas. |

| EXTINGUISHING MEDIA | Dry chemical, class D Extinguisher, DO NOT USE WATER |
| SPECIAL FIRE FIGHTING PROCEDURES | Wear NIOSH/MSHA approved self contained breathing apparatus and full protective clothing. |
| UNUSUAL FIRE & EXPLOSION HAZARDS | Avoid creating fine dusts, because as a powder this product is capable of creating a dust explosion. |
SAMARIIUM
MATERIAL SAFETY DATA SHEET

HEALTH HAZARD INFORMATION

ROUTES OF ENTRY
INHALATION, SKIN, INGESTION

THRESHOLD LIMIT VALUE
Inhalation, ingestion, dermal

MEDICAL CONDITIONS AGGRAVATED BY OVEREXPOSURE:
Respiratory Disorders

EFFECTS OF SINGLE OVEREXPOSURE:

INHALATION:  May be harmful if inhaled. Good industrial hygiene practice suggests limiting exposure to all respirable particulates.

DERMAL/EYE:  May cause eye irritation.

SWALLOWING:  Evidence suggests low toxicity potential due to poor absorption by the oral route.

SKIN ABSORPTION:  Evidence suggests low toxicity potential due to poor skin absorption.

SKIN CONTACT:  May cause skin irritation.

OTHER:  Has anticoagulant effect when given intravenously.

CARCINOGENICITY:  No  NTP:  No  IARC MONOGRAPHS:  No  OSHA REGULATE:  No

EMERGENCY FIRST AID PROCEDURES:

EYES:  Flush eyes immediately with plenty of water for at least 15 min using eyewash fountain, lift upper & lower lids and rinse well.

SKIN:  Wash with soap & water for 5 min., remove clothing & shoes and clean them thoroughly before reuse. Sure was to oxide fumes.

INGESTION:  If victim is conscious induce vomiting

INHALATION:  Remove from area, give CPR if not breathing and oxygen if breathing is difficult.

SKIN CONTACT:  Wash affected area with soap and water, seek medical attention

EYE CONTACT:  Flush eyes for at least 15 minutes with lukewarm water, seek medical.

*NOTE TO DOCTOR:  All treatments should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to mat’l other than this may have occurred.

REACTIVITY DATA

STABILITY  Stable

INCOMPATIBILITY (MATERIALS TO AVOID)  Strong acids, strong oxidizing agents and Halogens.

HAZARDOUS DECOMPOSITION PRODUCTS  Not Known

HAZARDOUD POLYMERZATION  Will Not Occur

CONDITIONS TO AVOID  Avoid creating dusts, air and moisture sensitive.
SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:
Eliminate all sources of ignition. Evacuate area. Wear protective gear. Sweep into the appropriate container. Avoid creating dust. DO NOT USE “SHOP” VACUUM, this will cause a fire. Ventilate area. Wash spill after pickup is complete.

WASTE DISPOSAL METHOD:
Dispose of in accordance with local, state and federal regulations.

SPECIAL PROTECTIVE INFORMATION

RESPIRATORY PROTECTION
- NIOSH/MSHA approved dust mask

LOCAL EXHAUST
- NA

MECHANICAL (general)
- NA

PROTECTIVE GLOVES
- Recommended

EYE PROTECTION
- Safety glasses with side shields, chemical workers dust-proof goggles (under dusting conditions)

OTHER PROTECTIVE EQUIPMENT
- Maintain a sink, safety shower & eyewash fountain in the work area. Have oxygen readily available.

SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING/STORAGE:
- Store in cool, dry place in tightly closed containers. Air and moisture sensitive.
- Store away from oxidizers and other materials listed under incompatibility. STORE UNDER ARGON OR OTHER INERT ENVIRONMENT. Avoid breathing dusts. Avoid direct contact with skin and eyes. Wash hands thoroughly after handling. DO NOT rub eyes with soiled hands. Do not eat, drink or smoke in the work area.

TRANSPORTATION STATUS:
- POWDER AND THIN FOIL: Flammable solid, n.o.s. (samarium metal), UN 1325
- INGOT AND CHUNK: Not regulated
- REPORTABLE QUANTITY (RO), under U.S. EPA CERCLA: None listed
- PRECAUTIONARY LABELING: NONE
- WARNING STATEMENTS: NONE

SPECIFICALLY LISTED UNDER SARA TITLE III: Not Listed

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NA= NOT APPLICABLE
ND= NO DATA FOUND