MATERIALS SAFETY DATA SHEET

DATE: 3/5/09

COMMON NAME: Yttrium Silicate Garnet, Yttrium Oxyorthosilicate Monocrystal, YSO, YOS

Chemical Family: Metal Oxide

Manufacturer: Scientific Materials Corporation
31948 East Frontage Road
Bozeman, MT 59715
Phone: (406) 585-3772
Fax: (406) 585-8606

D.O.T. Shipping Name Hazard Class, I.D. Number: Not regulated

SECTION I: MATERIAL DESCRIPTION

Chemical name and formula: Yttrium Silicate, Yttrium Oxyorthosilicate, Y₂SiO₅, [Y₂(Si₄O₁₅)]
Composition: Y₂SiO₅  CAS No: This product is not listed

SECTION II: PHYSICAL AND CHEMICAL DATA

Physical Form: crystal pieces  Appearance and Odor: Transparent to white, odorless
Evaporation Rate: Not Applicable  Boiling Point: Not Applicable
Reactivity: Not Applicable  Melting Point: 1980°C
Water Solubility: Insoluble  Vapor Pressure: Not Applicable
Specific Gravity: 4.44 g/cm³

This product is made from Yttrium Oxide (doped and undoped) and Silicon dioxide

SECTION III: FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not Applicable  Extinguishing Media: Not applicable
Auto-Ignition Temperature: Not Applicable  Special Firefighting Procedure: Not Applicable
Flammable Limits:Lower, Upper  Explosive Potential: Not Applicable
SECTION IV: REACTIVITY DATA

Not reactive with: Air, water, heat oxidizers and non-corrosive.

SECTION V: HEALTH HAZARD AND FIRST AID

Inhalation: Excessive exposure may cause cough, mucus production, shortness of breath. Remove victim to fresh air immediately. Obtain medical attention if breathing difficulty persists beyond 15 minutes.

Ingestion: This material is not expected to be an ingestion hazard; no known human or animal health effects data.

Eye Contact: May cause minor eye irritation. Rinse eyes with clean water for 20-30 minutes, retract eyelids often. Obtain emergency medical attention if pain, blinking tears or redness persists.

Skin Contact: This material is not expected to be a skin irritant; no known human or animal health effects data.

Other Health Hazards: Except for the effects of airborne dust which is irritating to the eyes and mucus membranes, chronic exposure to this material is not expected to have any adverse health hazards.

SECTION VI: SPILL, LEAK AND DISPOSAL PROCEDURES

Handle as a nuisance dust, respirator may be required. Broken pieces have sharp edges. Gloves should be worn when cleaning up broken pieces. Dispose of in accordance with appropriate Federal, State, and local regulations.

SECTION VII: OCCUPATIONAL EXPOSURE LIMITS

<table>
<thead>
<tr>
<th>Substance</th>
<th>Source</th>
<th>Date</th>
<th>Type</th>
<th>Value/Units</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nuisance Dust (Total Dust)</td>
<td>OSHA</td>
<td>1989</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>8 hrs</td>
</tr>
<tr>
<td>Nuisance Dust ( Respirable Fraction)</td>
<td>OSHA</td>
<td>1989</td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>8 hrs</td>
</tr>
<tr>
<td>Nuisance Dust (Total Dust)</td>
<td>ACGIH</td>
<td>1989</td>
<td>TLV</td>
<td>10 mg/m³</td>
<td>8 hrs</td>
</tr>
<tr>
<td>Nuisance Dust ( Respirable Fraction)</td>
<td>ACGIH</td>
<td>1989</td>
<td>TLV</td>
<td>5 mg/m³</td>
<td>8 hrs</td>
</tr>
</tbody>
</table>
SECTION VIII: PROTECTIVE MEASURES AND PRECAUTIONS

Follow safe work practices and procedure. General work gloves are acceptable. If exposure exceeds the PEL/TLV for nuisance particulate, use NIOSH/MSHA approved respiratory protection equipment. Dust service goggles should be worn to prevent eye contact with airborne particles which may be associated with this product. If handling this material results in dust generation, special ventilation may be required to avoid exposure standards for nuisance dust (see Section VII).

The information in this Material Safety Data Sheet was obtained from sources which are believed to be reliable. However, the information is provided without any warranty, express or implied, regarding the correctness.