Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Identification
Product name: KHDS-06
Generic Name: IR-Shielding Dispersion Powder
Type of product: Mixture

Use of the substance or preparation
Plastics additives

Company/Undertaking Identification
Sumitomo Metal Mining Co. Ltd., Material div.
11-3, 5-chome, Shimbashi, Minato-ku, Tokyo, 105 Japan
Tel.: +81-3-3436-7872  Fax: +81-3-3436-7827

Emergency telephone
+81-3-3436-7872

2. SUMMARY OF DANGER AND HAZARD

GHS Classification
Physical and chemical hazard : Out of category
Human health hazard
  Acute toxicity (oral) : Can not classify
  Acute toxicity (dermal) : Out of category
  Acute toxicity (inhalation:vapors) : Can not classify
  Serious eye damage/Eye irritation : Out of category
  Germ cell mutagenicity : Out of category
  Reproductive toxicity : Category 1A
  Specific target organ systemic toxicity (single exposure) : Out of category
  Specific target organ systemic toxicity (repeated exposure) : Out of category
Environmental hazard
  Hazardous to the aquatic environment-acute hazard : Out of category
  Hazardous to the aquatic environment-chronic hazard : Can not classify

Pictogram or symbol

Signal word
Danger

Hazard statement
Harmful if swallowed.
Harmful if inhaled.
Causes skin irritation.
May damage fertility or the unborn child
Emergency overview
Granules with slight odor. Spilled granules may create slipping hazard. Molten product can cause severe thermal burns. When granules are heated or during melt processing, vapors such as toluene gas and acrylic monomers are produced. If product burns in fire, hazardous gases and fumes are released.

Inhalation
Hazardous gases released from product may cause irritation to mouth, throat, stomach and respiratory tract, and in cases of severe over-exposure, may cause dizziness, headache, nausea and vomiting. Try not to inhale the vapors and gases.

Eye and skin contact
Direct contact with eyes may cause irritation. Vapors from heated product may cause eye and skin irritation.

Ingestion
If swallowed, mouth, throat, and stomach are irritated, and cause nausea and vomiting.

3. COMPOSITION / INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Material</th>
<th>Chemical Formula</th>
<th>CAS Number</th>
<th>UN Number</th>
<th>wt%</th>
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</thead>
<tbody>
<tr>
<td>Lanthanum hexaboride</td>
<td>LaB₆</td>
<td>12008-21-8</td>
<td>-</td>
<td>21.5</td>
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<tr>
<td>Zirconium dioxide</td>
<td>ZrO₂</td>
<td>1314-23-4</td>
<td>-</td>
<td>24.0</td>
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<tr>
<td>Toluene</td>
<td>C₆H₅CH₃</td>
<td>108-88-3</td>
<td>-</td>
<td>0.3</td>
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<tr>
<td>2-Butanol</td>
<td>CH₃CH₂CH(OH)CH₃</td>
<td>78-92-2</td>
<td>-</td>
<td>0.9</td>
</tr>
<tr>
<td>Organic dispersing agent</td>
<td>-</td>
<td>Confidential, not hazardous</td>
<td>-</td>
<td>53.3</td>
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</table>

* Every above ingredient, including the organic dispersing agent, is listed in TSCA and EINECS.

4. FIRST AID MEASURES

Inhalation
If symptoms occur, move body to the fresh air environment. For excessive inhalation, get medical attention.

Eye and skin contact
Flash eyes with plenty of clean water. Wash skin with soap and water. Consult a physician if irritation persists.

Ingestion
Give milk or water for diluting the substance. Consult a physician.

Contact with a hot melt
Cool immediately with plenty of water. Seek medical advice immediately for possible burns and a cleaning of the skin.

5. FIRE FIGHTING MEASURES

Extinguishing media
Use dry powder, carbon dioxide, dry sand, form, etc. to extinguish fire.

Explosion Hazards
Spray water for cooling containers to prevent possible auto-ignition or explosion when exposed to extreme heat.

**Protective equipment**
Use self-contained breathing apparatus.

### 6. ACCIDENTAL RELEASE MEASURES

**General Information**
Use proper personal protective equipment as indicated in Section 8.

**Spill Procedure**
In case material is released or spilled, polymer particles may cause slippery floor. Scoop material into container for disposal and sweep floor. Avoid generating dusty conditions. Provide ventilation.

### 7. CAUTIONS OF HANDLING AND STORAGE

**Handling**
Put on gloves and eye glasses to avoid direct contact with eyes and skin. Keep shut a cover of receptacle tightly after use.

**Storage**
Keep in cool and dark place.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Engineering Controls**
Ensure adequate ventilation or exhaust ventilation in the working area. Dust must be removed by effective exhaust ventilation.

**Control parameters**
- **Toluene:**
  - ACGIH(2007): 20ppm(TLV-TWA)
- **2-Butanol:**
  - ACGIH(2002): 100ppm, 303mg/m3(TLV-TWA)

**Personal Protective Equipment**
- Eyes: Wear safety glasses with side shields or chemical goggles.
- Skin: Wear appropriate protective gloves to prevent skin exposure.
- Clothing: Wear appropriate protective clothing to prevent skin exposure.
- Respirators: Use suitable respirator where dust concentration is high. When processing fumes are not adequately controlled, use respirator approved for protection from organic vapors.

### 9. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance**: Granules
- **Color**: Greenish black
- **Odor**: Slight
- **Softening point**: Not determined
- **Melting point**: 80°C
- **Viscosity**: Not applicable

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>Approx. 1.77 (25°C)</td>
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<tr>
<td>PH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>Negligible</td>
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<tr>
<td>Flash point</td>
<td>&gt; 110 °C</td>
</tr>
<tr>
<td>Ignition temperature</td>
<td>Not determined</td>
</tr>
</tbody>
</table>
Vapor pressure: Not applicable

10. STABILITY AND REACTIVITY

Stability
Stable under recommended condition of storage and handling.

Conditions to Avoid
Excessive heat, sparks, or open flames are to be avoided.

Materials to avoid
Strong acids and oxidizing agents.

Thermal Decomposition and byproducts
Thermal decomposition may yield carbon oxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Acute animal toxicity data
Toluene:
rat oral LD50=4800mg/kg (as calculated value)
rat inhalation LC50=4800ppm (as calculated value)
rat skin LD50=12000mg/kg
2-Butanol:
rat oral LD50=6480mg/kg
rat inhalation LC50=6000ppm
rat skin LD50=16000mg/kg

Additional information
The toxicological properties of lanthanum boride have not been thoroughly investigated, to the best of our knowledge.

12. ECOLOGICAL INFORMATION

General
Not expected to present any significant ecological problems.

Bioaccumulation
The substance has low potential for bioaccumulation.

13. DISPOSAL INFORMATION

Waste disposal
Incinerate or bury in accordance with local, state and federal regulations.

14. TRANSPORTATION INFORMATION

Not classified as dangerous for transport.

15. REGULATORY INFORMATION

Every ingredient, including the organic dispersing agent, is listed in TSCA and EINECS.

16. OTHER INFORMATION

The information contained herein is accurate, to the best of our knowledge. However, no liability
whatsoever is assumed for the accuracy or completeness of information contained herein. It is the sole responsibility of the user to determine the suitability of the material.