PRODUCT DATA SHEET

Germanium Dioxide

**GeO_2**

**Introduction**

Germanium dioxide is a white powder that is manufactured in both crystalline and amorphous forms. Germanium dioxide’s refractive index (1.7) and its optical dispersion properties are useful for making wide-angle lenses and optical microscope objective lenses. It is transparent to infrared light.

In addition, Germanium dioxide is used as a catalyst in the production of polyethylene terephthalate (PET) resin and in the production of other germanium compounds, as well as some phosphors and semiconductor materials.

Germanium dioxide is available in two grades—Standard (Type A) and Fine (Type B).

**Synonyms**

Germanium (IV) Oxide, GeO_2

**CAS Number**

1310-53-8

**EC Number**

215-180-8

**RTECS Number**

LY5240000

**Purity**

99.999%

**Appearance/Form**

White powder

**Crystal Structure**

Hexagonal

**Formula Weight**

104.61

**Theoretical Germanium Content**

69.434%

**Apparent Density**

1.3–1.7g/cc

**Melting Point**

1,115°C

**Solubility**

Soluble in alkalis
Slightly soluble in acids
Slightly soluble in water

**Impurities**

<table>
<thead>
<tr>
<th>Impurities</th>
<th>Typical</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloride</td>
<td>&lt;0.05%</td>
<td>0.05%</td>
</tr>
<tr>
<td>Moisture (LOD)</td>
<td>&lt;1.0%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Volatile (LOI)</td>
<td>&lt;3.0%</td>
<td>3.0%</td>
</tr>
</tbody>
</table>

**Typical ppm**

<table>
<thead>
<tr>
<th>Impurities</th>
<th>Typical ppm</th>
<th>Maximum ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (Cu)</td>
<td>&lt;1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Cobalt (Co)</td>
<td>&lt;1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Aluminum (Al)</td>
<td>&lt;1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>&lt;2.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Nickel (Ni)</td>
<td>&lt;1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>&lt;1.0</td>
<td>3.0</td>
</tr>
<tr>
<td>Total Combined Metals</td>
<td>&lt;3.0</td>
<td>10.0</td>
</tr>
</tbody>
</table>

**Product Type**

<table>
<thead>
<tr>
<th>Product Type</th>
<th>PSD D90 (micron)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A: Standard</td>
<td>&lt;60</td>
</tr>
<tr>
<td>Type B: Fine</td>
<td>&lt;20</td>
</tr>
</tbody>
</table>

*Particle size distribution, light scattering analysis

**Packaging**

Germanium dioxide is packaged in a polyethylene bag and packed in a polyethylene container. Contact us for other packaging options.

**Storage and Shelf Life**

Germanium dioxide should be kept in a tightly sealed container and stored at room temperature. It has a minimum shelf life of 12 months after delivery.

**Technical Support**

Indium Corporation sets the industry standard in providing rapid response, onsite technical support for our customers worldwide. Indium Corporation’s team of Technical Support Engineers can provide expertise in all aspects of materials science.

**Safety Data Sheets**

The SDS for this product can be found online at [http://www.indium.com/sds](http://www.indium.com/sds)

This product data sheet is provided for general information only. It is not intended, and shall not be construed, to warrant or guarantee the performance of the products described which are sold subject exclusively to written warranties and limitations thereon included in product packaging and invoices.

All Indium Corporation’s products and solutions are designed to be commercially available unless specifically stated otherwise.

All of Indium Corporation’s solder paste and preform manufacturing facilities are IATF 16949:2016 certified. Indium Corporation is an ISO 9001:2015 registered company.

Contact our engineers: askus@indium.com
Learn more: www.indium.com