DYSPROSIUM OXIDE NANOPOWDER

Dy₂O₃

Purity 99.9%

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Dysprosium Oxide is a sesquioxide compound, basic, highly insoluble and thermally stable rare earth metal. Dysprosium Oxide is also known as Dysprosia with the chemical composition Dy2O3 and its properties are influenced by the synthesis conditions. It is a white, slightly hygroscopic powder. Dysprosia has applications in ceramics, glass, phosphors, lasers and dysprosium metal halide lamps.

There are distinct methods for the preparation of Dysprosia Nanoparticles such as homogenous precipitation and wet chemical methods. Moreover, it exhibits high resistivity, large energy band, as well as high dielectric constant. Dy2O3 sesquioxide shows the face-centered cubic (fcc) arrangement. Dy2O3 shows unique properties and these properties are originating from their 4f electron. This compound shows various applications with other functional materials. For instance, Dy2O3 is also utilized as a photoluminescent and thermoluminescent material.

**Quick Facts**

- **Product**: Dysprosium III Oxide Nanopowder
- **Stock No**: NS6130-12-000789
- **CAS**: 1308-87-8
- **Color**: White
- **Form**: Powder
- **Symbol**: Gd$_2$O$_3$
- **Group**: Dysprosium 3/Oxygen 16

**Electronic Configuration:**
Dysprosium [Xe] 4f10 6s2
Oxygen [He] 2s2 2p4

**ADDITIONAL POWDER CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Purity</th>
<th>APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS6130-12-000789</td>
<td>99.9%</td>
<td>0.5-1µm</td>
</tr>
</tbody>
</table>

**TECHNICAL SPECIFICATION**

<table>
<thead>
<tr>
<th>Molecular Formula</th>
<th>Molecular Weight</th>
<th>Density</th>
<th>Melting Point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dy$_2$O$_3$</td>
<td>373 g/mol</td>
<td>7.81 g/cm$^3$</td>
<td>2408 °C</td>
</tr>
</tbody>
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**CHEMICAL COMPOSITION**

<table>
<thead>
<tr>
<th>Product</th>
<th>Weight Percent (nominal)</th>
</tr>
</thead>
<tbody>
<tr>
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<td>99.9%</td>
</tr>
</tbody>
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**APPLICATIONS**

- Data storage
- Luminescence
- Neutron-based applications
- Material additive
- Used as glass material in laser-based optical devices

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