ALUMINIUM OXIDE NANOPOWDER

Purity 99.9%

Al₂O₃

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Nanoparticle research is an area of strong scientific interest due to the variety of potential applications in optical, biomedical, and electronic fields. Aluminium oxide is responsible for metallic aluminum's resistance to weathering. Metallic aluminium is very reactive with atmospheric oxygen, and a thin passivation layer of alumina quickly forms on any exposed aluminium surface. This layer protects the metal from further oxidation. The thickness and properties of this oxide layer can be enhanced using a process called anodizing.

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**Quick Facts**

- **Product**: ALUMINIUM Oxide Nanopowder
- **Stock No**: NS6130-03-300 to NS6130-03-303
- **CAS**: 7429-90-5
- **Color**: White
- **Form**: Powder
- **Symbol**: Al2O3
- **Group**: 13

**Electronic Configuration:**

\[ \text{[Ne]} \ 3s^2 \ 3p^1 \]

**Additional Powder Characteristics**

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Purity</th>
<th>APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS6130-03-300</td>
<td>99.9%</td>
<td>&lt;100nm</td>
</tr>
<tr>
<td>NS6130-03-301</td>
<td>99.9%</td>
<td>80nm</td>
</tr>
<tr>
<td>NS6130-03-302</td>
<td>99.9%</td>
<td>20nm</td>
</tr>
<tr>
<td>NS6130-03-303</td>
<td>99%</td>
<td>20nm</td>
</tr>
</tbody>
</table>

**Technical Specification**

<table>
<thead>
<tr>
<th>Molecular Formula</th>
<th>Molecular Weight</th>
<th>Density</th>
<th>Melting Point</th>
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</thead>
<tbody>
<tr>
<td>Al₂O₃</td>
<td>101.96 g/mol</td>
<td>2072 g/cm³</td>
<td>2072°C</td>
</tr>
</tbody>
</table>

**Chemical Composition**

<table>
<thead>
<tr>
<th>Product</th>
<th>Weight Percent (nominal)</th>
<th>Other Metal</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALUMINIUM Oxide Nanopowder</td>
<td>99.9%</td>
<td>1000ppm</td>
</tr>
<tr>
<td></td>
<td>99%</td>
<td>10000ppm</td>
</tr>
</tbody>
</table>

**Applications**

- Dispersion-strengthening
- Nanocomposites
- Catalyst support
- Transparent conductive coatings
- Biomaterials
- Heat-transfer fluids [suspensions]
- Drug delivery
- Sources for IC board or package
- Transparent optical coatings
- Wear-resistant additives
- Material surface coatings