ZIRCONIUM OXIDE NANOPOWDER

Purity 99.9%

ZrO₂

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NS6130-03-368
Zirconium Oxide Nanopowder

ZrO₂ (zirconia) is a material of excellent technological significance and it is a white crystalline oxide of zirconium. It has various properties such as fine natural color, high stability, high toughness, high chemical strength, desirable corrosion, chemical, and microbial resistance. ZrO₂ manifests plenty of oxygen vacancies on its surface with wideband gap and it is called as P-type semiconductor. Due to the high ion exchange ability and redox movement make it useful in many catalytic processes as a catalyst. For the future nanoelectronic devices, ZrO₂ has been examined for potential use as an insulator in transistors, which is an important dielectric material and polymorphic compound. The crystal morphology of zirconia is monoclinic, tetragonal, and cubic.

To synthesize ultrafine ceramic powders, various approaches have been followed such as sol-gel, hydrothermal, spray pyrolysis, salt-assisted aerosol decompositions, carbon nanotube template technique and reflux and emulsion precipitation. Zirconia powders utilized in the production of certain forms of artificial jewelry. The material has optical properties so it is also used more broadly in stereo television glasses, light control devices, and other light-sensitive devices. It is used in many different electronic devices, for instance, in high-capacity capacitors, electrodes, piezoelectric elements, ion exchangers, solid dielectrics, and more.

Quick Facts

Product: Zirconium Oxide Nanopowder
Stock No.: NS6130-03-368
CAS: 1314-23-4
Color: White
Form: Powder
Symbol: ZrO₂
Group: Zirconium 4/Oxygen 16

Electronic Configuration:
Zirconium [Kr] 4d² 5s²
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>NS6130-03-368</td>
<td>99.9%</td>
<td>40nm</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>ZrO₂</td>
<td>123.218 g/mol</td>
<td>5.68 g/cm³</td>
<td>2700 °C</td>
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</tbody>
</table>

Chemical Composition

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

Applications

- Used in ceramics industry
- In making artificial jewelry.
- In making abrasive, insulating and fire-retarding materials.
- Used for optical storage
- Utilized in light shutters, and stereo television glasses.
- Used energy storage such as in Fuel, battery
- Utilized for high-temperature and corrosion resisting components