Tin oxide nanoparticles have a high surface area and diamagnetic properties. These are n-type of semiconductors with wide band gap. Tin oxide nanoparticles show unique characteristics such as low cost, low response time, high gas sensing and fast recovery makes it a suitable material for gas sensors. Moreover, these materials have permitted rational structure design and band gap can be controlled by suitable modifications. In addition, it has immense applications in detecting polluted or toxic gases as well as successfully used in optoelectronic devices. These are synthesized by precipitation, hydrothermal, sol-gel, hydrolytic, polymeric precursor method and carbothermal reduction. In addition, magnetic properties can be modified of tin oxide materials according to the needs. Modified magnetic properties of tin oxide nanoparticles are used in magnetic data storage and magnetic resonance imaging.

Quick Facts

Product: Tin Oxide Nanopowder
Stock No: NS6130-03-348
CAS: 18282-10-5
Color: White/Light Gray
Form: Powder
Symbol: \( \text{Gd}_2\text{O}_3 \)
Group: Tin 14/Oxygen 16

Electronic Configuration:
\[ \text{Tin}[\text{Kr}] 4d^{10} 5s^2 5p^2 /\text{Oxygen}[\text{He}] 2s^2 2p^4 \]

Additional Powder Characteristics

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Purity</th>
<th>APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS6130-03-348</td>
<td>99.9%</td>
<td>&lt;100nm</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>( \text{SnO}_2 )</td>
<td>150.71 g/mol</td>
<td>6.95 g/cm³</td>
<td>1800-1900 °C</td>
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</tbody>
</table>

Chemical Composition

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

Applications

- Catalysts
- Transparent heating elements
- Anti-static coatings
- Electrodes and antireflection coatings in solar cells
- Gas sensors
- Energy-conserving coatings
- Optoelectronic devices
- Resistors
- Liquid crystal displays
- Data storage