TITANIUM OXIDE NANOPOWDER (Rutile)

Purity 99.9%

TiO₂
TiO$_2$ is available in the form of nanocrystals or nanodots having a high surface area. They exhibit magnetic properties. Titanium belongs to Block D, Period 4 while oxygen belongs to Block P, Period 2 of the periodic table. Titanium oxide is also known as flamenco, rutile, titanium dioxide and dioxotitanium. In recent years, metal oxide nanoparticles have attracted much attention by their potential application in diverse fields including catalysis, magnetic recording media, microelectronics, and medicine. For example, TiO$_2$ nanoparticles are very important due to their various applications like removing the environmental pollution, sterilization and restraining virus, defending UV, keep the rust away, and de-pigment. Rutile is the most common natural form of TiO$_2$. In the natural rutile may consist of 10% iron and significant amounts of tantalum and niobium. Since the bandgap of rutile titanium dioxide nanoparticles is 3 eV and it has applications in textile fibers or wood preservatives. Therefore, rutile titanium dioxide nanoparticles are commonly studied in photonics and semiconductor technology. It is also used in sunscreens to protect the skin from UV radiation. It can be additive or component of composites to insert photocatalytic activity to composites.

**Titanium Oxide Nanopowder**

**Quick Facts**

**Product**: Titanium Oxide Nanopowder (Rutile)

**Stock No**: NS6130-03-352

**CAS**: 13463-67-7

**Color**: White

**Form**: Powder

**Symbol**: TiO$_2$

**Group**: Titanium 4/Oxygen 16

**Electronic Configuration**:

Titanium [Ar] 3d$^2$ 4s$^2$

Oxygen [He] 2s$^2$ 2p$^4$

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**ADDITIONAL POWDER CHARACTERISTICS**

<table>
<thead>
<tr>
<th>Stock No.</th>
<th>Purity</th>
<th>APS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NS6130-03-352</td>
<td>99.9%</td>
<td>30nm</td>
</tr>
</tbody>
</table>

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**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>TiO$_2$</td>
<td>79.866 g/mol</td>
<td>4.23 g/cm$^3$</td>
<td>1843 °C</td>
</tr>
</tbody>
</table>

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**CHEMICAL COMPOSITION**

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

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**APPLICATIONS**

- Utilized in textile fibers or wood preservatives
- To insert photocatalytic activity to composites
- In paints,
- In plastics,
- In paper technology
- In foods
- Used in sunscreens