



## Performance Enhanced Carbon Nanotube, 50wt% $\text{Al}_2\text{O}_3$ PRODUCT DATA SHEET

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#### Description

Multi-walled carbon nanotubes (MWCNTs) are materials made of multiple layers of carbon nanotubes stacked on top of each other, each layer can be viewed as a single-walled carbon nanotube. This unique structure gives multi-walled carbon nanotubes a range of excellent physical and chemical properties, including high strength, high toughness, good electrical conductivity and chemical stability. MWCNTs are widely used in many fields. In industries such as coatings, rubber, plastics, inks and batteries, multi-walled carbon nanotubes are often used as reinforcement materials due to their excellent mechanical properties and chemical stability. In addition, it is used in electrochemical sensors and fuel cells as a substrate or functionalized material to improve the performance and efficiency of devices. Although multi-walled carbon nanotubes have many advantages, there are also some challenges, such as easy aggregation and difficulty in dispersing. These problems need to be overcome with proper surface treatment and composite material design. In short, multi-walled carbon nanotubes are a kind of nanomaterial with wide application prospect, and their unique structure and properties make them of great value in the field of high-tech. Future studies will further explore its application potential in various fields and address existing technical challenges.

Abvigen offers high quality performance enhanced carbon nanotube, 50wt%  $\text{Al}_2\text{O}_3$ , which can effectively improve the electrical conductivity, mechanical properties, tensile strength, hardness and elastic modulus characteristics. The product has high repeatability between batches, which can meet the needs of various customers for personalized materials such as research and development, testing and production.

For custom sizes, formulations or bulk quantities please contact our customer service department.

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## Characteristics

**Type:** Performance Enhanced Carbon Nanotube, 50wt%  $\text{Al}_2\text{O}_3$

**Size:** 1 g

### 50wt% Alumina ( $\text{Al}_2\text{O}_3$ -alpha/gamma) Nanopowder Parameters:

**$\text{Al}_2\text{O}_3$  - Aluminum Oxide (80% alpha/20% gamma) Nanopowder / Nanoparticles**

**$\text{Al}_2\text{O}_3$  nanopowder / nanoparticles purity:** 99.9%

**$\text{Al}_2\text{O}_3$  nanopowder / nanoparticles APS:** 50 nm

**$\text{Al}_2\text{O}_3$  nanopowder / nanoparticles SSA:** 35-50  $\text{m}^2/\text{g}$

**$\text{Al}_2\text{O}_3$  nanopowder / nanoparticles color:** White

**$\text{Al}_2\text{O}_3$  nanopowder / nanoparticles morphology:** Near spherical

### Carbon Nanotubes Parameters:

**Multi Walled Carbon Nanotubes (MWNTs, MWCNTs)**

**Purity:** > 97% (carbon nanotubes)

**Average outside diameter:** > 55 nm

**Average inside diameter:** 8 nm

**Length:** 10-30  $\mu\text{m}$  (TEM)

**SSA:** > 60  $\text{m}^2/\text{g}$  (BET)

**Color:** Black

**Ash:** <1.5 wt%

**Electrical conductivity:** >100  $\text{s}/\text{cm}$

**Tap density:** 0.12  $\text{g}/\text{cm}^3$

**True density:** ~2.1  $\text{g}/\text{cm}^3$

## Advantages

Effectively improve the electrical conductivity and mechanical properties;

Effectively enhance tensile strength, hardness and elastic modulus characteristics.

## Applications

Screen displays, electric motors, sensing devices, aerospace and automotive devices, body armor and tear-resistant cloth fibers and textiles products, sports equipments. Serve as a conductive metallic or



semiconductor, conductive films in coatings, plastics, certain bioscience applications, solar and electronic applications, additives in polymers, catalysts, electron field emitters for cathode ray lighting elements, flat panel display, gas-discharge tubes in telecom networks, electromagnetic-wave absorption and shielding, energy conversion; lithium-battery anodes, hydrogen storage, nanotube composites (by filling or coating), nanoprobe for STM, AFM, and EFM tips, nanolithography; nanoelectrodes, drug delivery, sensors, reinforcements in composites, supercapacitor.

### **Ordering Information**

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