



## **Double-Walled Carbon Nanotubes, 50 $\mu$ m-COOH-60%**

### **PRODUCT DATA SHEET**

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### **Description**

Double-walled carbon nanotubes (DWNTs) is an innovative material in the field of nanotechnology, whose structure can be imagined as two concentric single-walled carbon nanotubes (SWNTs). It is prepared by catalytic chemical vapor deposition. Not only does the material have a tiny diameter range, but its walls are surprisingly thin, consisting of just a few atomic layers. Its structural characteristics show that the inner tube is about 0.7 to 1.5 nm in diameter, and the outer tube extends to 1.0 to 2.0 nm, with a subtle gap of 1 to 3 lattice distances between the two layers, which is called the "gap layer". DWNT has excellent field emission characteristics and can potentially be used as a field emission display (FED) and field emission transistor (FET). Double-walled carbon nanotubes have shown great application potential in many fields due to their excellent physical and chemical properties. For example, in hydrogen storage, its special structure can significantly improve the adsorption and retention capacity of hydrogen; In battery technology, its excellent conductivity makes it an ideal choice for electronic devices such as batteries and supercapacitors. At the same time, it can also be used as catalyst carrier, showing good stability and high activity. In addition, double-walled carbon nanotubes also have many applications in the biomedical field due to their unique optical and fluorescent properties.

Abvigen offers high quality double-walled carbon nanotubes, 50  $\mu$ m-COOH-60%. 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.

**Website:** [www.abvigen.com](http://www.abvigen.com) **Phone:** +1 929-202-3014 **Email:** [info@abvigenus.com](mailto:info@abvigenus.com)



## Characteristics

**Type:** Double-Walled Carbon Nanotubes, 50  $\mu\text{m}$ -COOH-60%

**Size:** 1 g

**Purity:** Carbon nanotubes > 90 wt%

Double-walled carbon nanotubes >60 wt%

**Content of –COOH:** 2.58 wt%

**OD:** 2-4

**ID:** 1-3 nm

**Length:**  $\sim 50 \mu\text{m}$

**SSA:** > 350  $\text{m}^2/\text{g}$

**Ash:** < 1.5 wt%

**Tap density:** 0.14  $\text{g}/\text{cm}^3$

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

**Electric conductivity:** > 100 S/cm

**Color:** Black

**Manufacturing method:** CVD

## Advantages

Better interfacial bonding strength

Better dispersion

Better biocompatibility

Stronger effect on cell viability

Better flexibility

Better surface activity

Excellent field emission characteristics

Excellent conductivity

Excellent mechanical property

## Applications

(1) additives in polymers; (2) catalysts; (3) electron field emitters for cathode ray lighting elements; (4) flat panel display; (5) gas-discharge tubes in telecom networks; (6) electromagnetic-wave absorption and shielding; (7) energy conversion; (8) lithium-battery anodes; (9) hydrogen storage; (10) nanotube



composites (by filling or coating); (11) nanoprobe for STM, AFM, and EFM tips; (12) nanolithography; (13) nanoelectrodes; (14) drug delivery; (15) sensors; (16) reinforcements in composites; (17) supercapacitor

#### **Ordering Information**

Website: [www.abvigen.com](http://www.abvigen.com)

Phone: +1 929-202-3014

Email: [info@abvigenus.com](mailto:info@abvigenus.com)