



## Single-Walled Carbon Nanotubes, 15-50 $\mu$ m-PVP-Aq-95%

### PRODUCT DATA SHEET

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### Description

Single-walled carbon nanotubes (SWCNTS), made entirely of carbon atoms, can be viewed geometrically as coiled from a single layer of graphene. Single-walled carbon nanotubes have excellent electronic, mechanical and mechanical properties, and the change of atomic scale can lead to the change of properties of single-walled carbon nanotubes. The resulting diversity of properties of single-walled carbon nanotubes makes them potentially useful in many fields, including high-mobility transistors, logic circuits, conductive films, field emission sources, infrared emitters, sensors, scanning probe tips, mechanical strength enhancement, solar cells, and catalyst carriers. In particular, it has extremely high mobility for electrons and holes.

The product is formed by catalytic decomposition of methane on a co-base catalyst and then oxidation by deep air. There is almost no amorphous carbon in the product. High ignition temperature, 610 ~ 620°C. It can be used to make transparent conductive films and other research and industrial applications. This transparent conductive film based on single-walled carbon nanotubes can achieve a sheet resistance of less than 200 ohms/square, and transparency of more than 80%. The product is an ideal manufacturing material for transparent conductive films of carbon nanotubes for the touch screen, flat panel display, OLED and thin film solar industries. Compared with the traditional indium tin oxide (ITO) coating, the transparent conductive film based on carbon nanotubes has obvious advantages: (1) stronger mechanical robustness and longer service life; (2) Wider light transmittance, more neutral color; (3) Achieve a higher level of sheet resistance without losing uniformity; (4) Lower cost.

Abvigen offers high quality single-walled carbon nanotubes, 15-50  $\mu$ m-PVP-Aq-95%. 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:** Single-Walled Carbon Nanotubes, 15-50  $\mu\text{m}$ -PVP-Aq-95%

**Size:** 1 g

**Purity:** Carbon nanotubes > 96 wt%

Single-walled nanotubes > 95 wt%

**Outside diameter:** 1-2 nm

**Inside diameter:** 0.8-1.6 nm

**Average diameter:** 1.1 nm

**Length:** 15-50  $\mu\text{m}$  (TEM)

**Coating:** PVP

**Buffer:** Aqueous liquids

**SSA:** > 580  $\text{m}^2/\text{g}$  (BET)

**Ash:** < 3.0 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

**Thermal conductivity:** 50-200 W/m.K

**Color:** Black

**Ignited temperature:** 610°C

**I<sub>g</sub>/I<sub>d</sub>:** > 20 (Raman)

**Manufacturing method:** CVD

## Advantages

Excellent electronic property

Excellent mechanical property

Excellent mechanical property

## Applications

High-mobility transistors

Logic circuits

Conductive films

Field emission sources



Infrared emitters

Sensors

Scanning probe tips

Mechanical strength enhancement

Solar cells

Catalyst carriers

### **Ordering Information**

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