

# Specification Sheet

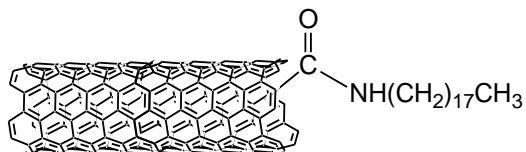


Carbon Solutions, Inc.  
1200 Columbia Ave  
Riverside, CA 92507

Tel: +1(951) 682-5620  
Fax: +1(951) 682-5627  
sales@carbonsolution.com

## P5-SWNT

**Product Description:** Octadecylamine (ODA) functionalized SWNTs. P3-SWNT derivatized with (ODA) to give solubility in organic solvents.



<b>Weight Content of SWNT:</b>	65% ± 15 wt%
<b>Weight Content of ODA:</b>	35% ± 15wt%
<b>Carbonaceous Purity *:</b>	> 90%
<b>Metal Content **:</b>	4 – 6%
<b>Typical Bundle length:</b>	500 nm – 1 μm
<b>Typical Bundle Diameter:</b>	2 – 8 nm
<b>Typical Diameter of Individual SWNT:</b>	1.55 ± 0.1 nm

**Dispersibility\*\*\*:** P5-SWNT has substantial solubility in THF, chloroform, dichloromethane, aromatic solvents (benzene, toluene, 1,2-dichlorobenzene), and CS<sub>2</sub>. The solubilities of P5-SWNT in THF, 1,2-dichlorobenzene and CS<sub>2</sub> are larger than 1mg/mL.

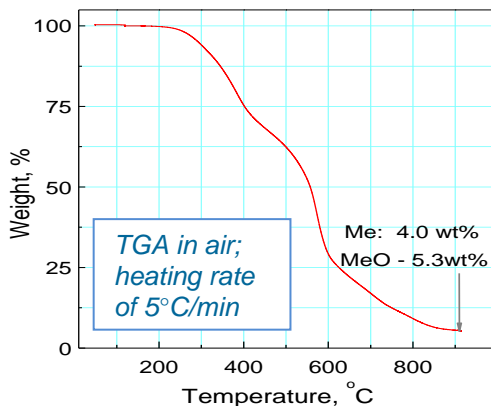
\* The purity refers to the P3-SWNT material used for the functionalization and determined according to procedure described in *Nano Lett.* **2003**, 3, 309-314; and the NIST Recommended Practice Guide "Measurement Issues in Single Wall Carbon Nanotubes":

[http://www.nist.gov/customcf/get\\_pdf.cfm?pub\\_id=852726](http://www.nist.gov/customcf/get_pdf.cfm?pub_id=852726)

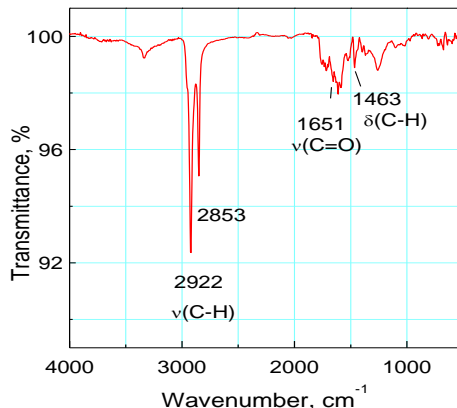
\*\* Weight % estimated from the residual of the thermal gravimetric analysis (TGA) in air at 900°C, corrected for metal oxide.

\*\*\* From solution phase NIR spectroscopy

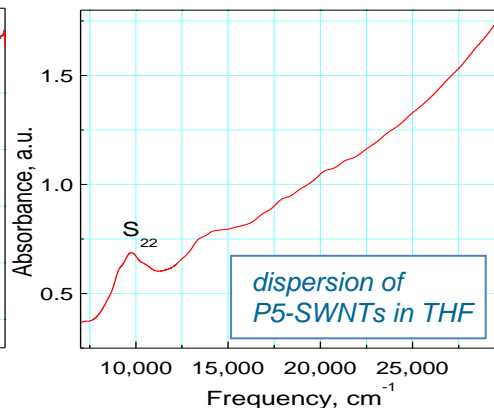
### Thermogravimetric Analysis



### Mid IR Spectroscopy



### Near Infrared Spectroscopy



### Areas of applications:

- Sensors
- Nanocomposites

### Selected References:

Niyogi, S.; Hamon, M. A.; Hu, H.; Zhao, B.; Bhowmic, P.; Sen, R.; Itkis, M. E.; Haddon, R. C. Chemistry of Single-Walled Carbon Nanotubes. *Acc. Chem. Res.* **2002**, 35, 1105.

Yu, G.; Li, X.; Lieber C. M.; Caoiona, A. Nanomaterial-Incorporated Blown Bubble Films for Large-Area, Aligned Nanostructures. *J. Mater. Chem.* **2008**, 18, 728.

Donovan, K.J., Scott, K., Anomalous Effective Hydrodynamic Radius of Octadecylamine Functionalised Single Walled Carbon Nanotubes, *Carbon* **2012**, 50, 3807.