



THE CARBON NANOTUBE SPECIALIST

NANO-ENGINEER YOUR FUTURE

PLASTICYL

Ref: PLASTICYL™ PC1501 – 5 November 2009 – V07

PLASTICYL™ PC1501 / Product Data Sheet

General Information

Description

PLASTICYL™ is a family of Multi-Wall Carbon Nanotube (MWNT) thermoplastic concentrates for applications requiring superior electrical conductivity and electrostatic discharge (ESD) properties. PLASTICYL™ PC1501 is a conductive masterbatch based on polycarbonate. Because of its low viscosity and high flow formulation, PLASTICYL™ PC1501 is ideal for standard injection molding and extrusion processes.

Key Applications

- E&E, automotive and packaging Industries
- HDD (hard disk drive) internal components
- HDD and IC handling trays

Benefits

- Excellent electrical conductivity at low loading
- Excellent surface cleanliness
- Retention of key mechanical properties
- Ease of processing

Main Characteristics

CARBON NANOTUBES LOADING (% _{WT})	REAL DENSITY (G/L) ISO 1183	MFI (G/10 MIN) NON-STANDARD TEST : 300°C ; 20 KG ; 4 MM
15 ± 1,0	1175	≤ 5,6

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Typical Performance after Injection Molding

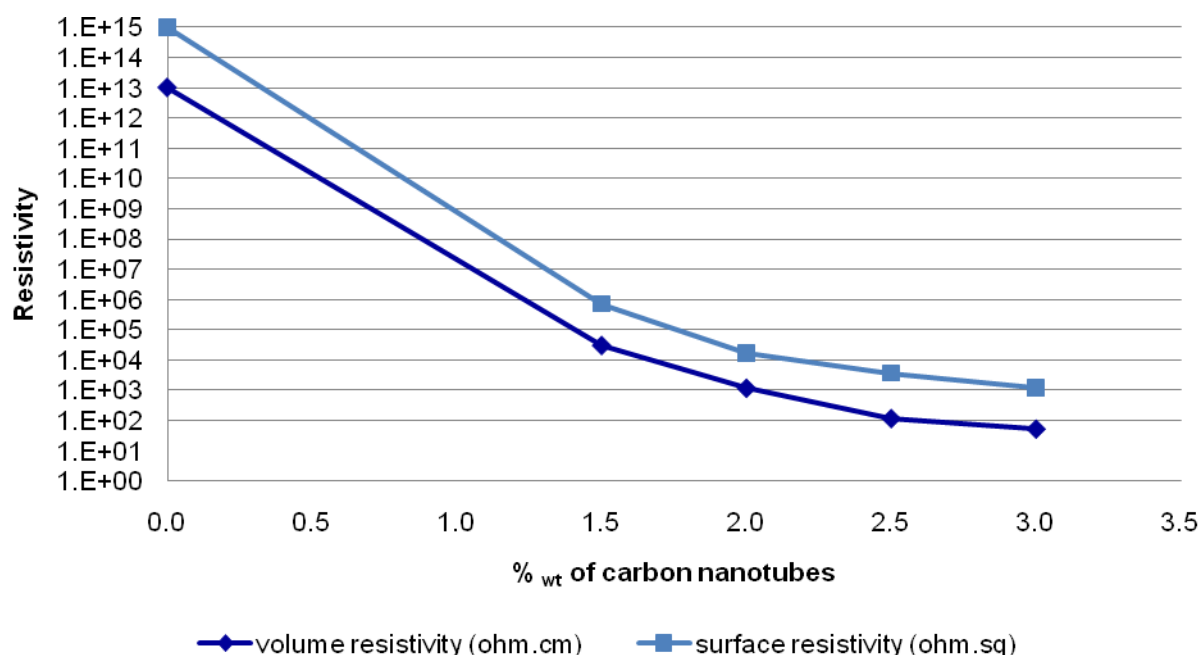
PROPERTIES	STANDARD	UNITS	NEAT POLYCARBONATE (MAKROLON® 2205)	DILUTION TO 2% _{WT} OF CNT	DILUTION TO 3 % _{WT} OF CNT
<i>Volume resistivity</i>	CTM E043	Ohm.cm	1.10^{13}	$1,2.10^3$	$5.40.10^1$
<i>Surface resistivity</i>	CTM E042	Ohm.sq	1.10^{15}	$1,70.10^4$	$1,2.10^3$
<i>Young's Modulus</i>	ISO 527-1,2	MPa	2141	2584	2683
<i>Tensile strength at break</i>	ISO 527-1,2	MPa	46	23	16
<i>Charpy notched impact strength</i>	ISO 180	kJ/m ²	31	10	6
<i>Melt flow index (300 °C ; 1,2 kg)</i>	ISO 1133:1997	g/10 min	38,6	16,9	0,9
<i>Burning behavior</i>	UL 94	Class	-	-	-

N.B.: Compounds were processed using an L/D ratio and a 48 twin-screw extruder under proprietary conditions.
Specimens were molded by injection, according to the processing parameters below.

General Processing Guide for Injection Molding

INJECTION SPEED	MOLD TEMPERATURE	MATERIAL TEMPERATURE	PLASTICIZING SPEED	BACK PRESSURE	HOLDING PRESSURE	HOLDING TIME
<i>cm³/s</i>	<i>°C</i>	<i>°C</i>	<i>m/s</i>	<i>bars</i>	<i>bars</i>	<i>s</i>
30	120	300	0,4	40	450	8

Percolation Curves for Volume and Surface Resistivity



N.B.: Electrical resistivity measurement in accordance to CTM E043 and CTM E402 (Cabot Testing Method), on standard injection molded IZOD specimens, processed according to parameters provided before (General Processing Guide for Injection Molding).

Disclaimer

This information is intended to be used only as a guideline for designers and users of modified thermoplastics. All information is believed to be accurate but is given without acceptance of liability. Users should make their own assessment of the suitability of the product for the purposes required. Properties may be materially affected by extrusion and molding parameters as well as by the shape and size of the part. No information supplied by Nanocyl constitutes a warranty regarding the product performance.

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