



THE CARBON NANOTUBE SPECIALIST

NANO-ENGINEER YOUR FUTURE

PLASTICYL

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PLASTICYL™ PC1501 Technical Data Sheet

General Information

Description

PLASTICYL™ is a family of Multi-Wall Carbon Nanotubes (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, PLASTICYL™ PC1501 is ideal for injection molding and extrusion processes.

Key Applications

- Electrical and Electronics (E&E), automotive and packaging industries
- Hard Disk Drive (HDD) internal components and handling trays
- Automotive conductive parts

Benefits

- Excellent electrical conductivity at low loading
- Excellent surface cleanliness (ionic contamination, liquid particle count, outgassing)
- Retention of key mechanical properties
- Ease of processing

Technical Data

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
Volume resistivity	CTM E043	Ohm.cm	1.10 ¹³	1,2.10 ³	5.40.10 ¹
Surface resistivity	CTM E042	Ohm.sq	1.10 ¹⁵	1,70.10 ⁴	1,2.10 ³
Young's Modulus	ISO 527-1,2	MPa	2141	2584	2683
Tensile strength at break	ISO 527-1,2	MPa	46	23	16
Charpy notched impact strength	ISO 180	kJ/m ²	31	10	6
Melt flow index (300°C ; 1,2 kg)	ISO 1133:1997	g/10 min	38,6	16,9	0,9
Burning behavior	UL 94	Class	-	-	-
Color	-	-	Transparent	Black	Black

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 Guidelines for Injection Molding

INJECTION SPEED	MOLD TEMPERATURE	MATERIAL TEMPERATURE	PLASTICIZING SPEED	BACK PRESSURE	HOLDING PRESSURE	HOLDING TIME
cm ³ /s	°C	°C	m/s	bars	bars	s
30	120	300	0,4	40	450	8

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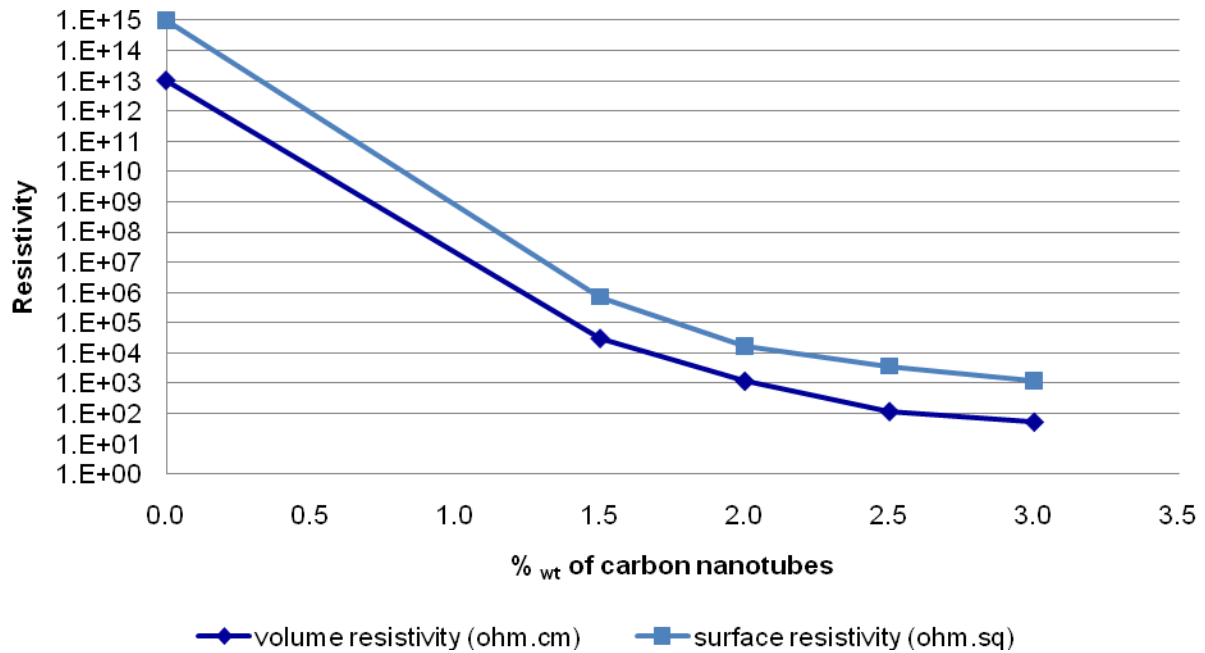
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Percolation Curves for Volume and Surface Resistivity



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).

In order to get well-dispersed CNT aggregates, Nanocyl recommends the use of polymers with a high Melt Flow Index (MFI).

Commercial/Safety Information

Packaging

- 5 kg boxes.
- 25 kg sealed bags.
- 600 kg octabins.

Minimum Order Quantity

Nanocyl's minimum order quantity for PLASTICYL™ PC1501 is 5 kg.

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Custom Grades

Besides the commercial grades, Nanocyl is able to toll-compound any type of PC masterbatches to meet its clients' needs.

Health and Safety

A Material Safety Data Sheets (MSDS) is available to provide both workers and emergency personnel with the proper procedures for handling or working with the PLASTICYL™ PC1501. This MSDS includes information such as physical data (form and color, melting point, etc.), handling and storage recommendations, first aid measures and ecological information. The Safety Data Sheet is provided with any order and should be observed.

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.

For technical assistance, sales or further information, please contact us :

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