



THE CARBON NANOTUBE SPECIALIST

NANO-ENGINEER YOUR FUTURE

PLASTICYL

PLASTICYL™ PA1501 / 5 November 2009 / V08 - Page 1 of 4

PLASTICYL™ PA1501 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™ PA1501 is a conductive masterbatch based on polyamide 66. Because of its high flow, PLASTICYL™ PA1501 is ideal for injection molding and extrusion processes.

Key Applications

- Electrostatic Discharge (ESD) and electrically conductive parts
- Electrical and Electronics (E&E) and industrial
- Injection molding, extrusion
- Automotive fuel filters and connectors

Benefits

- Excellent electrical conductivity at low loading
- Retention of key mechanical properties
- Ease of processing
- Meets SAE J1645 automotive standards

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	MELTING POINT (°C) ISO 11357-1,-3
15 ± 1,0	1165	0,88	263

Nanocyl S.A.

Rue de l'Essor 4 Tel +32 71 750 380
 B-5060 Sambreville Fax +32 71 750 390
 BELGIUM sales@nanocyl.com

US contact

info-us@nanocyl.com



www.nanocyl.com

Typical Performance after Injection Molding

PROPERTIES	STANDARD	UNITS	NEAT POLYAMIDE 66	DILUTION TO 2% _{WT} OF CNT	DILUTION TO 3% _{WT} OF CNT
Volume resistivity	CTM E043	Ohm.cm	1,00.10 ¹⁴	6,78.10 ⁸	1,12.10 ³
Young's Modulus	ISO 527-1,2	MPa	3375	3205	3466
Tensile strength at break	ISO 527-1,2	MPa	81,80	71,88	69,18
Strain at break	ISO 527-1,2	%	18,46	2,56	2,21
Charpy notched impact strength	ISO 180	kJ/m ²	3,30	5,00	2,85
Melt flow index (300°C; 1,2 kg)	ISO 1133:1997	g/10 min	-	29,18	13,22
Melting point	ISO 11357-1,-3	°C	-	-	-
Burning behavior	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 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
70	80	300	0,4	0	250	25

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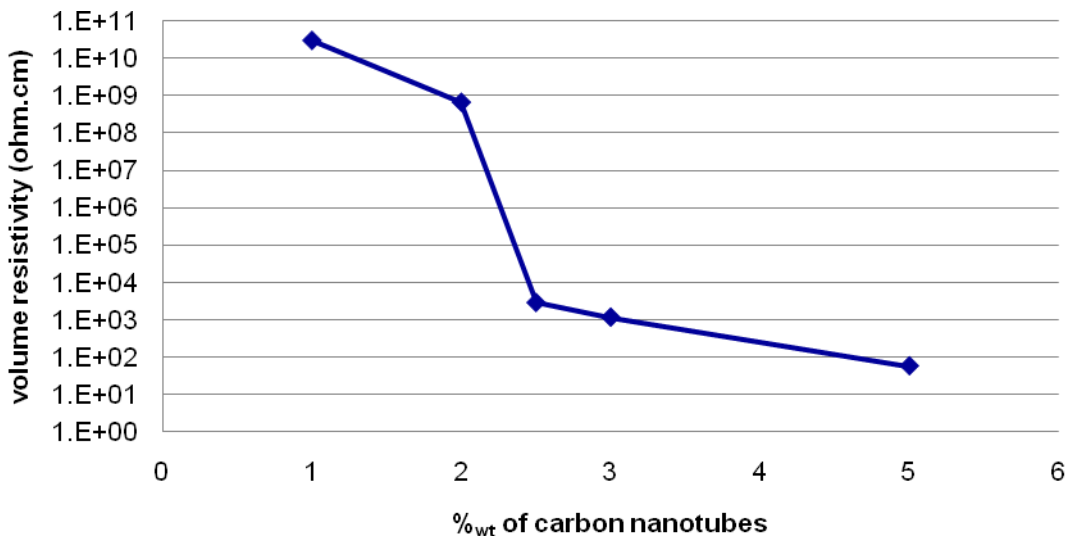
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Percolation Curve for Volume Resistivity



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™ PA1501 is 5 kg.

Custom Grades

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

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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™ PA1501. 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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