

PLASTICYL™

CNT thermoplastic concentrates

PLASTICYL™ ABS1501

ABS – carbon nanotubes masterbatches

General Information

Description

PLASTICYL™ is a family of multiwall carbon nanotubes (MWCNTs) thermoplastic concentrates for applications requiring superior electrical conductivity and electrostatic discharge (ESD) properties.

PLASTICYL™ ABS1501 is a conductive masterbatch based on ABS resin loaded with 15% of Nanocyl's MWCNTs (NC7000™). Because of its high flow, PLASTICYL™ ABS1501 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
- Electrostatic-painting of automotive parts

Benefits

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

Technical Data

Main Characteristics

CARBON NANOTUBES LOADING (% _{WT})	REAL DENSITY (G/L) ISO 1183	MVR (cm ³ /10 MIN) NON-STANDARD TEST : 250°C; 21,6 kg; 4 mm	MELTING POINT (°C) ISO 11357-1,-3
15 ± 1,0	1639	8,6 ± 4	135

Typical Performance after Injection Molding

PROPERTIES	STANDARD	UNITS	NEAT ABS	DILUTION TO 2% _{WT} OF CNT	DILUTION TO 4 % _{WT} OF CNT	DILUTION TO 6 % _{WT} OF CNT
Volume resistivity	ASTM D4496	Ohm.cm	> 1,00.10 ¹²	2,25.10 ⁶	4,64.10 ²	4,13.10 ²
Surface resistivity	IEC 167	Ohm/sq	> 1,00.10 ¹²	> 1,00.10 ¹²	4,83.10 ⁴	1,93.10 ³
Young's Modulus	ISO 527-1,2	MPa	2055	2066	2276	2533
Tensile strength at break	ISO 527-1,2	MPa	33	34	36	41
Strain at break	ISO 527-1,2	%	48	26,8	17,2	7,8
Charpy notched impact strength	Internal method	kJ/m ²	15	10	9	6
Melt flow - MVR (220°C; 10 kg; 2 mm)	ISO 1133:1997	cm ³ /10 min	34	6	4	1
Color	-	-	White	Black	Black	Black

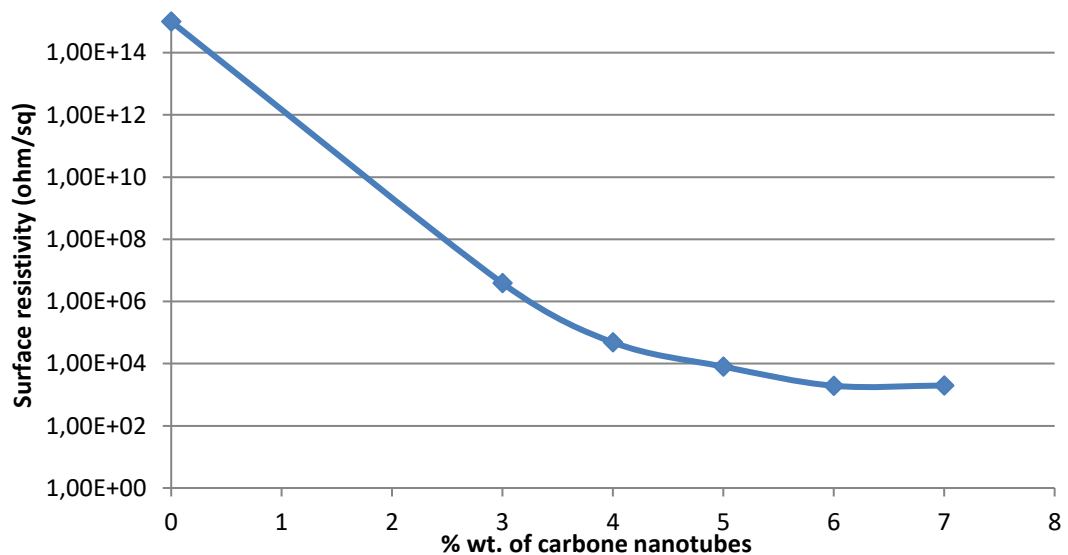
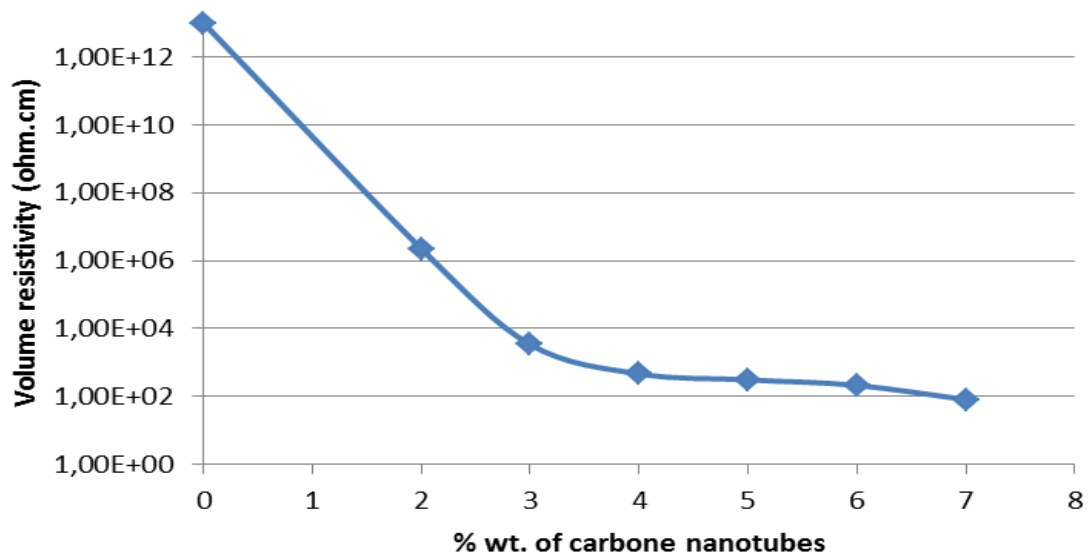
Compounds were processed using an L/D ratio and a 48 twin-screw extruder under proprietary conditions. Specimens were molded by injection, according to the processing parameters below.

In order to get well-dispersed CNT aggregates, Nanocyl recommends the use of polymers with a high Melt Flow Index (MFI). Surface Resistivity results can be significantly influenced by molding/extrusion conditions.

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
10	60	280	0,6	80	650	10

Electrical percolation curve for volume and surface resistivity



Electrical resistivity measurement in accordance with Nanocyl standard method based on standard injection molded IZOD specimens, processed according to parameters provided before (General Processing Guide for Injection Molding).

Commercial/Safety Information

Packaging

PLASTICYL™ ABS1501 masterbatches (pellets) are available in different packaging:

- 20 kg sealed white plastic bags,
- 600 kg cardboard octabins.

Minimum Order Quantity

Nanocyl's minimum order quantity for PLASTICYL™ ABS1501 is 20 kg.

Custom Grades

Besides the commercial grades, Nanocyl is able to toll-compound any type of ABS 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™ ABS1501. 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

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