

PLASTICYL™

CNT thermoplastic concentrates

PLASTICYL™ PEEK1001

Poly Ether Ether Ketone – 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™ PEEK1001 is a conductive masterbatch based on Poly Ether Ether Ketone (PEEK) loaded with 10% of Nanocyl's MWCNTs (NC7000™). Because of its low viscosity and high flow, PLASTICYL™ PEEK1001 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
- HDD handling trays
- Semiconductor wafer carrier

Benefits

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

Technical Data

Main Characteristics

CARBON NANOTUBES LOADING (% _{WT})	REAL DENSITY (G/L) ISO 1183	MFI (G/10 MIN) NON-STANDARD TEST : 380°C ; 10 kg ; 4 mm
10± 1,0	1,274	5,4

Typical Performance after Injection Molding

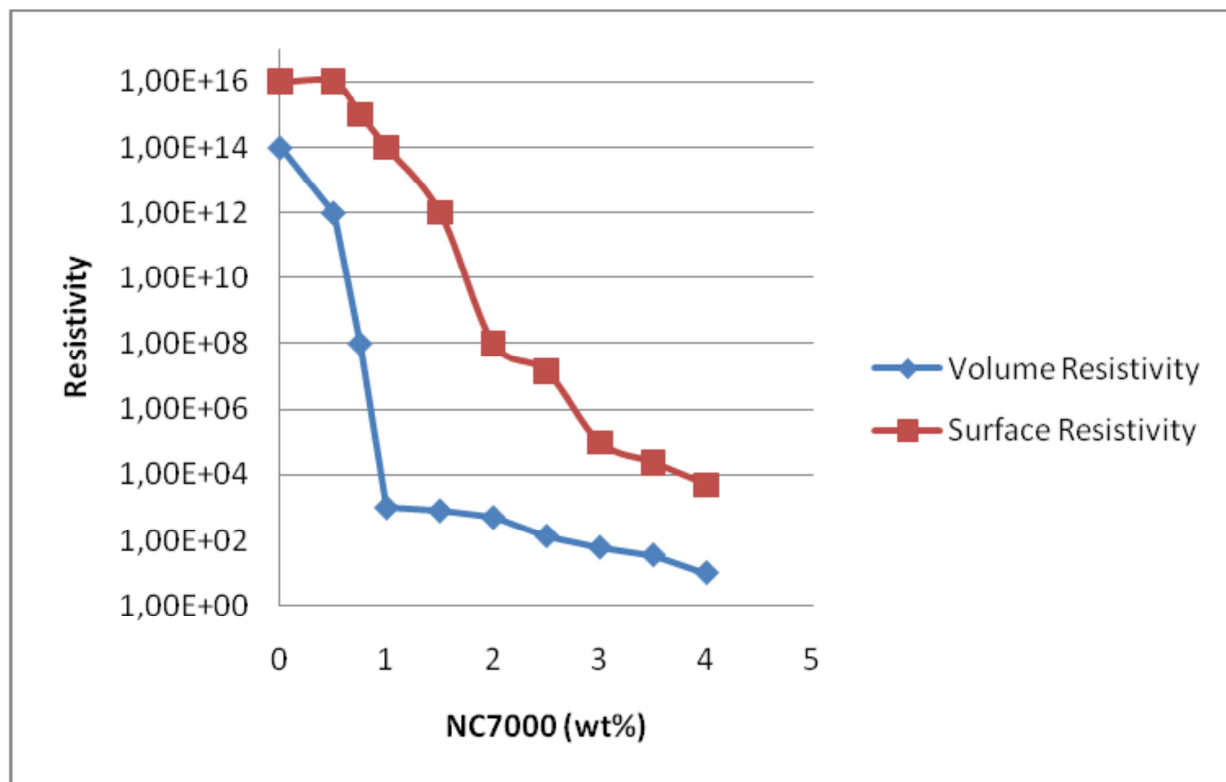
PROPERTIES	STANDARD	UNITS	NEAT POLYMER	1 wt% NC7000	1,5 wt% NC7000	2 wt% NC7000	3 wt% NC7000	4 wt% NC7000
Volume resistivity	ASTM D4496	Ohm.cm	10 ¹⁵	1350	865	250	65	10
Surface resistivity	IEC 167	Ohm/sq	10 ¹⁶	10 ¹⁴	10 ¹²	10 ⁸	10 ⁴	10 ³
Melt flow index (400°C ; 2,16 kg)	ISO 1133:1997	g/10 min	-	24,9	16,1	12,1	6,1	1,4

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	160	370	0,4	40	1200	5

Percolation Curves for Volume and Surface Resistivity



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. Electrical resistivity measurement in accordance to Nanocyl standard 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). Surface Resistivity results can be significantly influenced by molding/extrusion conditions.

Commercial/Safety Information

Packaging

PLASTICYL™ PEEK1001 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™ PEEK1001 is 20 kg.

Custom Grades

Besides the commercial grades, Nanocyl is able to toll-compound any type of PEEK 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™ PEEK1001. 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

The information contained in this TDS is believed to be accurate to the best of Nanocyl's knowledge and belief at the time of the TDS publication. The information is intended to be used as a guideline and for informational purpose only. Consequently Nanocyl DOES NOT WARRANT that the information or the related products are fit for any particular purpose or use by User and it is for User to check for itself the fitness of the information and/or the related products, including regarding the non-infringement of third parties intellectual property right whether related products are used alone or in combination with other products. Nanocyl shall NOT BE LIABLE, whether contractually or in tort, for damages caused through the use or the reliance on this information and/or the related products.

4/4

www.nanocyl.com

info@nanocyl.com
+32 (0)71 75 03 80

Nanocyl SA

Rue de l'Essor N°4
B-5060 Sambreville
Belgium