



Technical Data Sheet

ABC-SC-PA66-101- Polyamide 66 – carbon nanotubes masterbatches

General Information

ABC-SC-PA66-101 (PA66) Masterbatch is a conductive masterbatch based on PA66 resin, designed to provide exceptional electrical conductivity and electrostatic discharge (ESD) properties. This material is well-suited for demanding applications in automotive, aerospace, and industrial sectors where static control and durability are critical. Its high thermal stability and mechanical strength make it ideal for injection molding and extrusion, offering excellent processability. The masterbatch is engineered for uniform dispersion of carbon nanotubes, ensuring consistent electrical performance while preserving the inherent toughness, wear resistance, and chemical resilience of the PA66 base polymer.

Key Applications:

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

Features & Benefits

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

Available Sizes:

See website for details.

Quality

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, ABC3D recommends the use of polymers with a high Melt Flow Index (MFI). Surface Resistivity results can be significantly influenced by molding/extrusion conditions.

Main Characteristics

CARBON NANOTUBES LOADING (%WT)	Real Density (G/L) ISO 1183	MVR (cm ³ /10 MIN) NON-STANDARD TEST: 275°C; 10 kg; 4 mm	MELTING POINT (°C) ISO 11357-1,-3
15 ± 1,0	1149	21	252

General Processing Guidelines for Injection Molding

Injection Speed	Mold Temp.	Material Temp.	Plasticizing Speed	Back Pressure	Holding Pressure	Holding Time
cm ³ /s	°C	°C	m/s	bar	bar	s
50	70	300	0,2	40	650	10

Typical Performance after Injection Molding

Properties	Standard	Unit	Neat Polyamide 66	EMI/RFI Shielding Polyamide 66
Young's Modulus	ISO 527-1,2	MPa	2910	2982
Tensile strength at break	ISO 527-1,2	MPa	59	62
Strain at break	ISO 527-1,2	%	37	2,6
Charpy notched impact strength	Internal method	kJ/m ²	4	6
Melt flow -MVR (270°C; 5 kg; 2mm)	ISO 1133:1997	cm ³ /10 min	172	37
Color	-	-	White	Black

Volume Resistivity Index

Volume Resistivity (Ω -CM)

Insulative →	1×10^{14}		Unfilled Plastics
	1×10^{12}		
Antistatic →	1×10^{10}		Antistatic Compounds
	1×10^8		
Dissipative →	1×10^6		ESD Compounds
	1×10^4		
	1×10^2		EMI/RFI Shielding Compounds
	1×10^0		
Conductive →	1×10^{-2}		
	1×10^{-4}		Metals

Note: Electrical resistivity measurement in accordance with ABC3D standard method based on standard injection molded IZOD specimens, processed according to parameters provided before (General Processing Guidelines for Injection Molding).

Commercial/Safety Information

Minimum Order Quantity:

Minimum order quantity for ABC-SC-PA66-101 is 20 kg.

Custom Grades:

Besides the commercial grades, ABC3D is able to toll-compound any type of Polyamide 66 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 ABC-SC-PA66-101. 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 technical data contained on this data sheet is furnished without charge or obligation and accepted at the recipient's sole risk. This data should not be used to establish specifications limits or used alone as the basis of design. The data provided is not intended to substitute any testing that may be required to determine fitness for any specific use.