



Technical Data Sheet

ABC-SC-PP-101 - Polypropylene – carbon nanotubes (CNT) masterbatches

General Information

ABC-SC-PP-101 is a conductive masterbatch based on polypropylene (PP), formulated to provide exceptional electrical conductivity and electrostatic discharge (ESD) properties. It is designed for applications where precise static control is required, including electronics packaging, automotive components, and industrial equipment. The low viscosity and high flow characteristics of ABC-SC-PP-101 make it ideal for injection molding and extrusion processes. Its optimized dispersion of conductive fillers ensures consistent and reliable performance across various applications without compromising the mechanical properties of polypropylene.

Key Applications:

- Electrostatic Discharge (ESD) and electrically conductive parts
- Electrical and Electronics (E&E), automotive and industrial
- Injection molding, extrusion, films
- Conductive chemical packaging

Features & Benefits

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

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	MELT FLOW INDEX (G/10 MIN)	MELTING POINT (°C) ISO 11357-1-3
20 ± 1,0	872	Not measurable	165

Typical Performance after Injection Molding

Properties	Standard	Unit	Neat PP	Antistatic PP	ESD PP	EMI/RFI Shielding PP
Young's Modulus	ISO 527-1,2	MPa	1280	1625	1728	1795
Tensile strength at break	ISO 527-1,2	MPa	28,2	33,2	35,5	36,8
Strain at break	ISO 527-1,2	%	520	436	154	64
Charpy notched impact strength	Internal method	kJ/m²	2,4	3,0	3,2	3,0
Melt flow index	ISO 1133:1997	g/10 min	12,0	9,8	5,6	3,2
Melting point	ISO 11357 -1,-3	°C	-	-	-	-
Burning behavior	UL 94	Class	-	-	-	-

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		
	1×10^{-2}		
Conductive →	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-PP-101 is 20 kg.

Custom Grades:

Besides the commercial grades, ABC3D is able to toll-compound any type of PP 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-PP-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.