Technical Data Sheet

ABC-AM-PC-101 - Polycarbonate – carbon nanotubes (CNT) masterbatches

General Information

ABC-AM-PC-101, Polycarbonate (PC) – Carbon Nanotubes Masterbatch is a conductive masterbatch formulated with polycarbonate resin to deliver superior electrical conductivity and electrostatic discharge (ESD) properties. This material is ideal for high-performance applications in electronics, automotive, and industrial sectors where static control, impact resistance, and optical clarity are essential. Its excellent thermal stability and mechanical strength make it highly processable in injection molding and extrusion. The masterbatch is engineered for uniform dispersion of carbon nanotubes, ensuring consistent electrical performance while maintaining the inherent toughness, heat resistance, and dimensional stability of the polycarbonate base polymer.

Key Applications:

- Electrical and Electronics (E&E), automotive and packaging industries
- Hard Disk Drive (HDD) internal components and handling trays
- Automotive conductive parts

Features & Benefits

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

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)
15 ± 1,0	1175	≤ 5,6

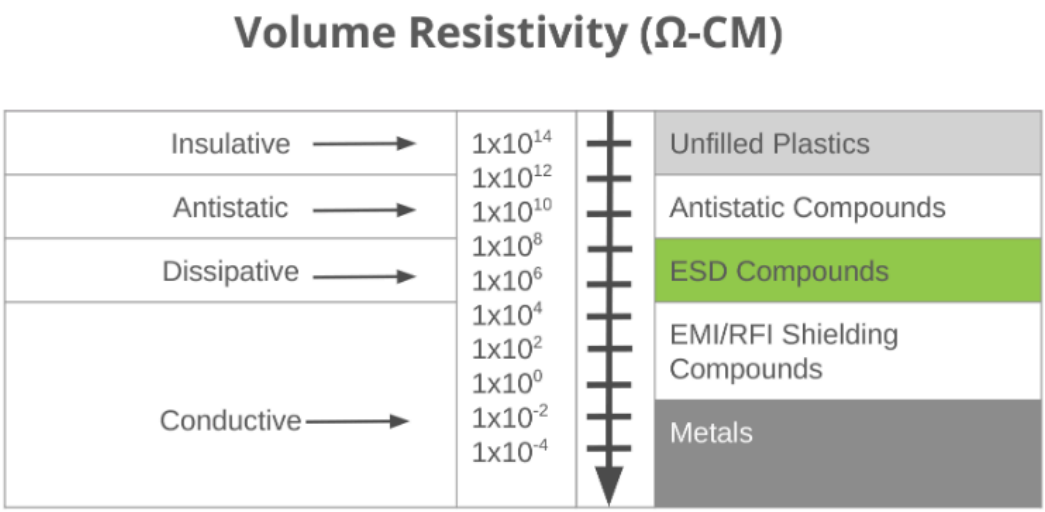
General Processing Guidelines for Injection Molding

Injection Speed	Mold Temp.	Material Temp.	Plasticizing Speed	Back Pressure	Holding Pressure	Holding Time
cm^3/s	°C	°C	m/s	bars	bars	s
30	120	300	0,4	40	450	8

Typical Performance after Injection Molding

Properties	Standard	Unit	Neat PC	EMI/RFI Shielding PC
Young's Modulus	ISO 527-1,2	MPa	2141	2584
Tensile strength at break	ISO 527-1,2	MPa	46	23
Charpy notched impact strength	Internal method	kJ/m²	31	10
Melt flow index (300°C ; 1,2 kg)	ISO 1133:1997	g/10 min	38,6	16,9
Burning behavior	UL 94	Class	-	-
Color	-	-	Transparent	Black
Volume resistivity	ASTM D4496	Ohm.cm	$1,10^{13}$	$1,2.10^3$

Volume Resistivity Index



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-AM-PC-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-AM-PC-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