

CABELEC[®] CA3178 Conductive Compound



Conductive Polyamide Compound for Injection Moulding

CABELEC CA3178 electrically conductive compound is made from conductive carbon black dispersed in polyamide 6. Its electrical and mechanical properties are not impacted by normal atmospheric conditions. It has been developed for injection moulding applications.

Applications

CABELEC CA3178 conductive compound is suitable for use in products for packaging and handling of electronic products where it is desirable to mitigate the hazard of electrostatic discharge. Typical areas of application are explosives, electronic components and pigments.

Processing

Pre-drying

As with most compounds made from polyamide, predrying of CABELEC CA3178 conductive compound is necessary to avoid surface blemishes and to achieve optimal physical properties. This can best be achieved by drying at 80°C, the time required depends on the conditions under which the material is stored.

Injection Moulding

CABELEC CA3178 conductive compound can be processed on most types of injection moulding machinery. Low shear conditions are nevertheless required in order to achieve good electrical conductivity. The precise processing conditions depend on the machinery, output rate and complexity of the injected part under manufacture. As general guidance, the following injection moulding temperatures have been used successfully: barrel/nozzle: 220-275°C, mould: 60°C.

Mould design: Generous gates are helpful for the moulding of filled CABELEC compounds as for other highly filled thermoplastics.

The processing information provided in this section should be used for guidance only, as different equipment could require different processing parameters.

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Physical Properties

Typical values for CABELEC CA3178 conductive compound are presented in the following table.

PROPERTY	TEST METHOD	UNIT	VALUE
Density @ 23°C	CTM E023*	kg/m ³	1196
Hardness (15 second value)	ASTM D2240	Shore D	78
Heat Distortion Temperature @ 1.80 MPa	ISO 75	° C	66
Vicat Softening Point @ 10 N	ISO 306	° C	215
Melt Flow Index (275°C/10 kg)	ISO 1133	g/10 mins	10
Mould Shrinkage	ASTM D955	%	1.5 - 2.0
Volume Resistivity	CTM E043B*	Ohm.cm	100
Surface Resistivity	CTM E042E*	Ohm/sq	10 ³
Flexural Modulus	ISO 178	MPa	2700
Flexural Strength	ISO 178	MPa	89
Tensile Strength at Break	ISO 527	MPa	45
Tensile Strength at Yield	ISO 527	MPa	55
Elongation at Break	ISO 527	%	15
Izod Notched Impact Strength @ 23°C	ISO 180	KJ/m ²	15
Charpy Notched Impact Strength @ 23°C	ISO 179	KJ/m ²	12
Charpy Notched Impact Strength @ -30°C	ISO 179	KJ/m ²	7
Flammability classification (3mm)	UL94	rating	HB 40

*Tests are performed according to Cabot Test Methods (CTM).

The data in the table above are typical test values intended as guidance only, and are not product specifications. Product specifications are available from your Cabot representative.

Packaging

CABELEC compounds are supplied in regular pellet form packed in 25 kg bags and should be stored in a dry place. Larger quantities can be packaged to suit customer's specific requirements. Storage life: up to 6 months provided it is stored as directed.



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