

CABELEC[®] CC6135 Conductive Concentrate



Conductive Polystyrene Concentrate for Extrusion

CABELEC CC6135 conductive concentrate is an electrically conductive concentrate made from conductive carbon black dispersed in a modified styrenic resin. Its electrical and mechanical properties are not dependent on atmospheric conditions. However, these properties can vary depending on the type and level of dilution resin used and the processing conditions.

Unlike standard conductive compounds, which have very limited dilution potential, CABELEC CC6135 conductive concentrate can be diluted with a high quantity of natural resin (see graph below). This allows users of CABELEC CC6135 conductive concentrate to benefit from the versatility of this concentrate and from enhanced physical properties due to higher levels of dilution resin.

Applications

CABELEC CC6135 conductive concentrate (after dilution) can reduce the hazards of electrostatic discharge in applications such as packaging and handling of electronic components, explosive powders and pigments.

Processing

Pre-drying (moisture)

CABELEC CC6135 conductive concentrate absorbs moisture under normal storage conditions and this can result in surface blemishes. It is therefore advisable to dry the concentrate prior to use. Usually 2-4 hrs in a hopper drier at 80°C is sufficient time to reduce the moisture content to an acceptable level.

Dilute CABELEC CC6135 conductive concentrate uniformly by tumble or high-speed blending with extrusion-grade high impact polystyrene before use. The blending ratio may vary, depending on the customer's requirements (a 50/50 blend is generally suitable). Pre-drying of the diluent high impact polystyrene may also be needed, in the event that it is wet or has been stored under high relative humidity conditions.

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Extrusion

Diluted CABELEC CC6135 conductive concentrate can be processed on conventional extrusion equipment. The blend should be processed under low shear conditions. To promote good electrical and mechanical properties of the material it is suggested that high shear mixing elements be avoided.

As a general guide, extrusion temperatures of 170-210°C have been used successfully on extrusion lines. Temperatures in excess of 230°C should be avoided. Actual extrusion temperatures should be adapted according to the nature of the equipment and the manufactured article to give optimum extrusion quality.

The information given in this section should be used as a guide only as different equipment could require different conditions.

Physical Properties

Typical values for CABELEC CC6135 conductive concentrate are presented in the following tables.

As a concentrate:

PROPERTY	TEST METHOD*	UNIT	VALUE
Density @ 23°C	CTM E023	kg/m ³	1200
Melt Flow Index (21.6Kg/230°C)	ISO1133	g/10 min.	4

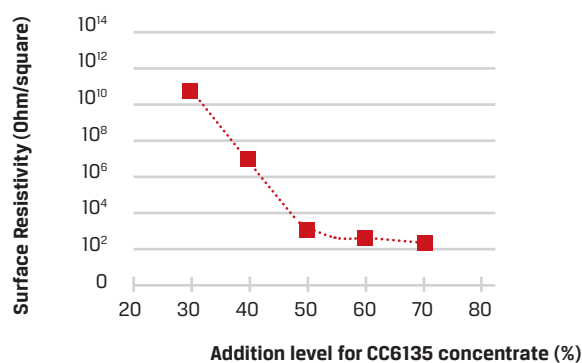
*Tests are performed according to Cabot Test Methods (CTM).

The data in the table above are typical test values intended as guidance only, and are not product specifications.

Diluted with a commercially available extrusion grade high impact polystyrene (HIPS)

Surface Resistivity measured on 400µm thick extruded tape at various dilution rates for CABELEC CC6135 conductive concentrate (Cabot test method CTM E042):

Effect of Dilution on CC6135 Conductive Concentrate



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Mechanical properties measured on 400µm thick extruded tape made from CABELEC CC6135 conductive concentrate used at 50% dilution rate:

PROPERTY	TEST METHOD	UNIT	VALUE
Tensile Strength at Break (machine direction)	ISO 527	MPa	24
Tensile Elongation at Break (machine direction)	ISO 527	%	70
Notched Izod Impact @ 23°C (injection moulded from pieces of extruded tape)	ISO 180	kJ/m ²	10.8
Elmendorf Tear Resistance (machine direction)	ASTM D1922	cN/µm	0.66
Elmendorf Tear Resistance (transverse direction)	ASTM D1922	cN/µm	0.87

The data in the table above are typical test values intended as guidance only, and are not product specifications.

Note: Results obtained can depend on the grade of diluent resin used and may vary.

Packaging

CABELEC CC6135 conductive concentrate is supplied in regular pellet form packed in 25 kg bags and should be stored in a dry place.

Storage life: up to 6 months provided it is stored as directed.



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