

CABELEC[®] CONDUCTIVE COMPOUNDS AND CONCENTRATES

PRODUCT SELECTION GUIDE





Performance and leadership in black plastics

Cabot Corporation is a global performance materials company and we strive to be our customers' commercial partner of choice. We have been a leading manufacturer of carbon black and other specialty chemicals for more than 135 years, and we have supplied additives to the plastics industry since its inception.

Our global reach enables us to work closely with customers to meet the highest standards for performance, quality and service. Our global production network and three applications development facilities provide our customers with global service capabilities as well as the latest technical innovations.

Global reach

We support customers around the world in our global production and applications development centers

◆ North America Canada Mexico United States	◆ Europe, Middle East & Africa Belgium Czech Republic France Germany Italy Latvia Norway Switzerland The Netherlands United Arab Emirates United Kingdom	◆ Asia Pacific China India Indonesia Japan Korea Malaysia Singapore
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With approximately 4,500 employees worldwide, we continue to create a diverse environment rooted in values and sustainability.

We operate 45 manufacturing sites in 21 countries, all with local management teams. We have a global footprint in order to serve our customers throughout the world.

Product performance and applications

CABELEC® conductive compounds are manufactured to exacting specifications to ensure reliable performance. They offer numerous advantages over metals. CABELEC conductive compounds are:

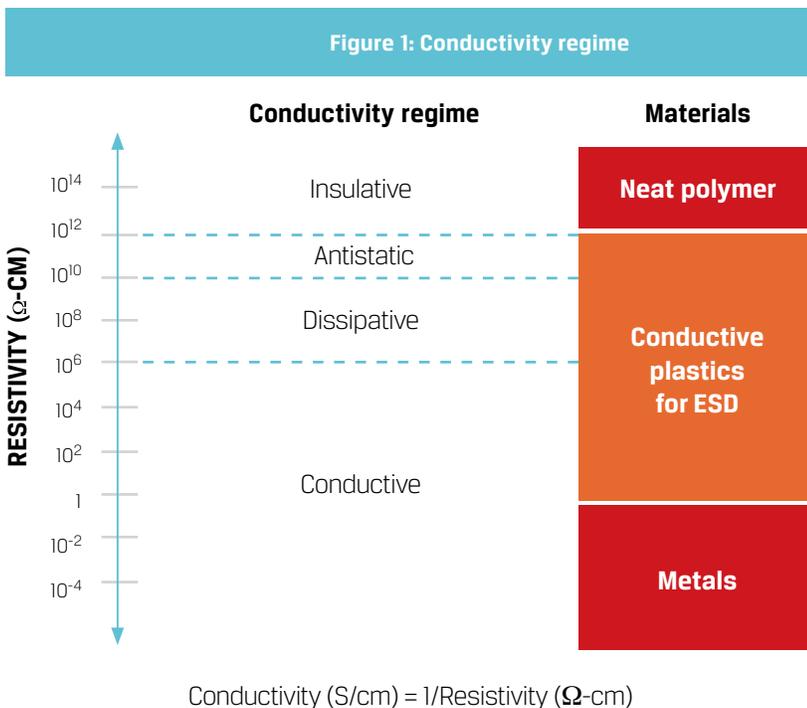
- ◆ Lightweight
- ◆ Easy-to-handle and process
- ◆ Recyclable
- ◆ Corrosion-resistant

The primary application for plastics is the dissipation of static charge to protect against electrical damage, and the application range spans the ESD conductivity regime shown in Figure 1. The end uses include:

- ◆ Electrical and electronics (E&E)
- ◆ Industrial
- ◆ Automotive

Processability

CABELEC conductive compounds can be processed directly on conventional plastics processing equipment without the need for dilution.



CABELEC® conductive compounds

Conductive compound products			
INDUSTRY / APPLICATION	KEY PERFORMANCE REQUIREMENTS	AVAILABLE CABELEC PRODUCTS	BASE POLYMER
ELECTRONICS PACKAGING			
Crate	Conductivity Mechanical performance Dispersability Chemical cleanliness	CA3842	PP
		XS6748A	PP
		CA6410	PP
Film		XS6736A	LLDPE
Sheet		XS6744A	PP
		XS6740A	PS
Foam		CA4676	LDPE
INDUSTRIAL APPLICATIONS			
Pipes and tubing	Conductivity Mechanical performance Dispersability Chemical cleanliness	XS6744A	PP
Film		XS6736A	LLDPE
Container		XS6739A	HDPE
Industrial and consumer molding		CA6397	TPU
		CA6141	PC
	XS6741A	POM	
	CA3178	PA6	
	XS6749A	PPC FR	
AUTOMOTIVE			
Fuel system	Conductivity Mechanical performance Fuel resistance	CA3178	PA6
		CA6114	HDPE
		CA6115	HDPE GF
		XS6739A	HDPE
		XS6741A	POM

Our conductive concentrates

We also offer conductive concentrates, which can be used to design a unique compound.

Optimal performance

Our conductive concentrates help meet the critical needs of compounders and processors that must deliver conductivity for electrostatic discharge and other critical conductive applications.

CABELEC conductive concentrates offer:

- ◆ Flexibility in designing conductive parts to the required performance level
- ◆ A single concentrate for different polymer types, process types and applications
- ◆ Multiple dilutions of the concentrate possible, depending on conductivity level required
- ◆ Additional saving potential in overall raw material costs

Expanded portfolio

CABELEC conductive concentrates are made to provide processors with a broad portfolio for designing and molding conductive plastics. As with all our CABELEC products, they are manufactured to meet the quality and reliability requirements of processors and compounders.

Cabelec concentrate product	Polymer	Target application
CC6720	PP	PP sheet and PP tape extrusion
CC6135	PS	Styrenic sheets and thermoformed articles
CC6277	PE	Monofilament
CC6296	PS	Styrenic sheets and thermoformed articles
XS6325A	PA	Polyamide compounding
CA6495	PS	Styrenic sheets and thermoformed articles
XS6742A	PE	Sheet extrusion

Processing

CABELEC conductive concentrates can be processed on conventional extrusion and injection molding equipment, typically at low shear conditions. Actual processing temperatures should be adapted according to the nature of the equipment and the manufactured article to give optimal quality. More detailed information on processing conditions can be obtained from individual product data sheets.

Technical data

CABELEC® product	Base polymer	Typical processing methods and applications	Density	Hardness	Heat distortion temperature	Vicat softening point	Melt flow index		Volume resistivity	Surface resistivity	Flexural modulus	Tensile strength at break	Tensile strength at yield	Elongation at break	Notched izod impact
			kg/m ³ ISO 1183	Shore D ISO 868	@ 1.80 MPa in °C ISO 75	@ 10 N in °C ISO 306	g/10 min ISO 1133	Test condition	Ohm.cm IEC 61340-2-3	Ohm/sq IEC 61340-2-3	MPa ISO 178	MPa ISO 527	MPa ISO 527	% ISO 527	kJ/m ² ISO 180A
CA4676	LDPE	Foam	990	50	-	-	29 5 0.9	(190°C/21.6 kg) (190°C/10 kg) (190°C/5 kg)	< 10 ⁴ (b)	< 10 ¹ (a)	-	13 (a)	11 (a)	385 (a)	-
XS6736A	LLDPE	Blown film	970	53	-	-	6 1	(190°C/10 kg) (190°C/5 kg)	-	< 10 ⁵ (b)	340	16 (b)	9 (b)	830 (b)	-
CA6114	HDPE	Injection molding	1064	61	40	119	16 5 1	(190°C/21.6 kg) (190°C/10 kg) (190°C/5 kg)	< 10 ²	< 10 ³	740	18	22	150	20
CA6115	HDPE GF ⁽¹⁾	Injection molding	1218	66	92	120	11 2	(190°C/21.6 kg) (190°C/10 kg)	< 10 ²	< 10 ³	2960	36	39	5	15
XS6739A	HDPE	Blow molding	970	65	41	126	3.0 0.5	(190°C/21.6 kg) (190°C/10 kg)	< 10 ³ (a)	< 10 ³ (a)	760	22	24	650	64
CA6410	PP	Injection molding	1027	-	-	-	6	(230°C/2.16 kg)		< 10 ⁴	1450				13
XS6749A	PPC FR ⁽²⁾	Extrusion	1220	70	48	129	8	(230°C/10 kg)	< 10 ²	< 10 ³	1240	14	24	100	6
XS6744A	PP	Extrusion	1060	65	50	155	10 2	(230°C/10 kg) (230°C/5 kg)	< 10 ³	< 10 ⁴ (c)	1200	18	27	58	70
CA3842	PP	Injection molding	1090	66	46	148	22 5 0.4	(230°C/10 kg) (230°C/5 kg) (230°C/2.16 kg)	< 10 ²	< 10 ⁴	1500	16	21	20	31
XS6748A	PP	Injection molding	1060	64	50	148	86 22 3.7	(230°C/10 kg) (230°C/5 kg) (230°C/2.16 kg)	< 10 ⁶	< 10 ⁸	1290	16	22	130	44
XS6740A	PS	Extrusion	1060	74	71	100	38 3.5 0.6	(200°C/21.6 kg) (200°C/10 kg) (200°C/5 kg)	< 10 ³	< 10 ⁴	1520	20	25	32	14
CA3178	PAG	Injection molding	1196	78	66	215	10	(275°C/10 kg)	< 10 ³	< 10 ⁴	2700	45	55	15	15
CA6141	PC	Injection molding	1200	80	121	149	12 4 0.6	(260°C/10 kg) (260°C/5 kg) (260°C/2.16 kg)	< 10 ⁴	< 10 ⁶	2168	47	54	24	22
XS6741A	POM	Injection molding	1430	80	78	165	30 11 4	(190°C/10 kg) (190°C/5 kg) (190°C/2.16 kg)	< 10 ³	< 10 ⁴	2180	46	48	26	11
CA6397	TPU	Injection molding, extrusion	1140	46	32	84	30	(190°C/21.6 kg)	< 10 ²	< 10 ³	83	23	-	377	-

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.

⁽¹⁾: Glass fiber filled ⁽²⁾: Flame retardant

Typical values for CABELEC compounds are measured on injection molded samples, except:
 (a) values measured on compression molded samples
 (b) values measured on blown film (100 µm)
 (c) values measured on extruded tape (400 µm)

Additional references

This CABELEC[®] Conductive Compounds and Concentrates Product Selection Guide provides high-level information about our CABELEC conductive compound and concentrate offerings. For application-specific products, please refer to respective Cabot literature or contact your Cabot representative.

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R08 03/2022