

EV Charger Cable Jacket Material Solution

TPU/TPO/EVC





Application Advantages

TPU

- **Fully support EV cable to pass EN 50620 GB/T33594 Standard Test (TPU category).**
- **High Secure**
 - >> Passed the high and low temperature cyclic winding experiment at - 50°C ~105 °C, product can function securely in severe cold and continuous high temperature conditions.
 - >> Passed hydrolysis resistance test 2000 Hrs (85°C&85%) , product can function securely with the resistance of winds and rains.
 - >> The special formulation Design of anti-mildew guaranteed that, even if in the condition of heating and humidity grass area, it can also effectively avoid of large-scale mildew on the surface of the cables.
- **Longer life length**
 - >> Excellent elastic recovery characteristics at high temperature can effectively avoid the permanent deformation of heavy current EV cable caused by cable heating in the long-term use process, thus preventing the conductor from breaking at the modification part and extend the service life length impressively.
 - >> passed over 50000 wear-resisting tests, effectively prevent EV cable from wearing and cracking caused by repeated dragging under cement and sand conditions for a long time.
- **More cosy user experience**
 - >> The introduction of polystyrene (SEBS/SEPS) and polyolefin (TPO) elastomers into the blending modification provides obvious softness, comfortable rubber touch and fast resilience ability in the application of cable sheath, which makes it easier for terminal users to tow cables while charging, and effectively avoids repeated dragging and straightening under twisted and knotted .
 - >> Better stain resistance features, easy-to-wipe surface.
- **Up-graded appearance**
 - Glossy and frosted (fog) surface for options, which endows cable delicate, comfortable and high-grade texture, perfectly matches the high-grade new energy vehicles as charging cable materials.

TPO

- **Fully support EV cable to pass GB/T33594 Standard Test (TPEs category).**
- **Cracking resistance:** Exclusive patented technology, without PPS (polyphenylene ether), effectively prevent the common stress cracking problem for TPEs sheath in large diameter cable.
- **Softer and more wear-resistant:** The introduction of rubber functional groups provides a more comfortable and soft rubber touch and wear resistance than conventional flame retardant TPEs materials on the market.

EV C (PVC Elastomer)

- **Fully support EV cable to pass GB/T33594 Standard Test (TPEs category).**
- **Low temperature resistance:** Product showed better low temperature flexibility under the test conditions of -40 °C/8Hrs by comparing with conventional PVC materials: Obvious slower harden in low temperature.
- **Softer:** Under normal temperature conditions, it presents a very soft (70A - 75A) and smooth touch, greatly improving the stiffness of common EV cables;
- **Wear resistance:** Compared with TPEs material, it has better wear resistance.
- **Easy to process:** High extruding processing efficiency and yield rate achieves the significant reduce of cost.
- **High-class appearance:** The unique frosted (fog) surface leads to higher grade texture, has now become the best high cost-effective solution of the EV cable sheath in the southern region.

Properties Datasheet

					Model	Model	Model	Model	Model
General characteristics	Material properties	Testing standard	Test condition	Units	1190D-EN	1185D-EM	1175D-EM	2880E	6075B
	Material category	-	-	-	TPU Polyether	TPU Polyether	TPU Polyeth	TPO	EVC
	Appearance (light/Semi-matte/Frosted)	-	-	-	Frosted	Semi-matte	Semi-matte	Semi-matte	Frosted
	Extrusion/injection	-	-	-	Extrusion	Extrusion	Extrusion	Extrusion	Extrusion
Physical characteristics									
	Hardness	DIN 53505	155	Shore A	90	86	75	81	75
	Proportion	DIN 53479	-	g/cm ³	1.17	1.16	1.15	0.96	1.22
	Melt index	DIN 53735	230°C/5kg	g/10min	2	2	2	5	0.1
	Brittle temperature	ISO 812	-	°C	-60	-60	-60	-50	-40
Mechanical properties									
	Elongation	DIN 53504	200mm/min	%	600	600	600	600	380
	Tensile Strength	DIN 53504	200mm/min	Mpa	26	30	24	12	16
	Tearing strength	DIN 53515	500mm/min	KN/m	60	70	55	35	32
Hot air aging									
	Elongation retention rate	DIN 53504	158°C/168h	%	≥75 (113°C)	≥75 (113°C)	≥75 (113°C)	≥75 (135°C)	≥75 (135°C)
	Tensile strength retention	DIN 53504	158°C/168h	%	≥75 (113°C)	≥75 (113°C)	≥75 (113°C)	≥75 (135°C)	≥75 (135°C)
Electrical performance									
	Volume resistivity	ASTM D257	-	Ohm-cm	≥1.0E+11	≥1.0E+11	≥1.0E+11	≥1.0E+15	≥1.0E+11
Combustion performance									
	Vertical burning test	UL 94	3.0/6.0mm	-	V2(3.0mm)	V2(3.0mm)	V2(3.0mm)	HB(3.0mm)	V0(3.0mm)
Feature									
					Charging pile/robot cable through IEC 60331-1-2	Charging pile/robot cable through IEC 60331-1-2	Super soft flame retardant TPU product, charging pile/robot cable through IEC 60331-1-2	Flame retardant TPE charging pile without PPO component, in accordance with IEC 60331-1-2	The most cost-effective charging pile products, in accordance with IEC 60331-1-2



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