



High Voltage Cable Jacket Material Solution

For Vehicle (TPU/TPO/LSZH)

Application Advantages

TPU

- **High temperature resistance:**

Fully support the high voltage wiring harness in the vehicle; passed the ISO 6722 125°C temperature resistance, flame retardant test; (secondary extrusion, insulation material is cross-linked polyolefin or silica gel, the outer sheath is TPU);

- **High Secure:**

Passed hydrolysis resistance test 2000 Hours (85°C&85%), the outstanding mechanical ability and resilience of TPU material , fully guaranteed the safety and reliability of high-voltage wire harness under long-term bending angle installation and operation.

- **Low Cost:**

High Voltage Wire Harness does not need Casing Bellows, which directly leads to the easier installation and less procedures, contributed to leads a cost-reduce on manufacturing and operating.

TPO

The unique chemical cross-linking technology makes TPO material have the following obvious advantages in the application of sheath of high voltage wire harness:

- **Fully compliant to the standards of high-voltage wire products passing ISO6722 125°C temperature resistance and flame retardant test, no irradiation needed.**

- **Softer:**

Hardness $\leq 80a$, while fully meeting the performance requirements of high-voltage wire harness, it is more flexible than the cross-linking product and easier to install in narrow space.

- **Low Cost:**

Reduce manufacturing costs, only once extruding needed, without re-irradiation.

LSZH

low smoke zero halogen cross-linked polyolefins

- **Fully meet the requirements of temperature resistance, flame retardant and other indicators of high-voltage wire harness passing ISO 6722 125 °C ISO6722 125 °C test.**

- **Fully support in-car high-voltage wire harness through 3000Hours copper aging test;**

- **Softer:**

Compared with the conventional cross-linking polyolefin materials used in high-voltage wire harness sheath on the market, it is more flexible ($\leq 85A$), which is convenient for installation in narrow space.

Properties Datasheet

					Model	Model	Model
General characteristics	Material properties	Testing standard	Test condition	Units	1185D-EM	2885E	5851E-JSS-0003S
	Material category	-	-	-	TPU Polyether	TPO	LSZH
	Appearance (light/Semi-matte/Frosted)	-	-	-	Semi-matte	Semi-matte	
	Extrusion/injection	-	-	-	Extrusion	Extrusion	
Physical characteristics	Hardness	DIN 53505	155	Shore A	86	86	92
	Proportion	DIN 53479	-	g/cm ³	1.16	0.96	1.36
	Melt index	DIN 53735	230°C/5kg	g/10min	2	3	
	Brittle temperature	ISO 812	-	°C	-60	-50	-40
Mechanical properties	Elongation	DIN 53504	200mm/min	%	600	600	280
	Tensile Strength	DIN 53504	200mm/min	Mpa	30	15	11
	Tearing strength	DIN 53515	500mm/min	KN/m	70	40	
Hot air aging	Elongation retention rate	DIN 53504	158°C/168h	%	≥75 (113°C)	125°C temperature resistance	Elongation retention rate:110 Hot air aging : 135°C×168H
	Tensile strength retention	DIN 53504	158°C/168h	%	≥75 (113°C)		Tensile strength retention:90 Hot air aging : 135°C×168H
Electrical performance	Volume resistivity	ASTM D257	-	Ohm-cm	≥1.0E+11	≥1.0E+15	3.9×10 ¹²
Combustion performance	Vertical burning test	UL 94	3.0/6.0mm	-	V2(3.0mm)	HB(3.0mm)	
Feature					Charging pile/robot cable through IEC 60331-1-2	Flame retardant TPE high voltage wire without PPO component, in accordance with IEC 60331-1-2	Irradiated cross-linked low smoke halogen free flame retardant polyolefin insulation for charging piles



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