

Lubrizol



**ESTANE®
EV TPU FOR
ELECTRIC
VEHICLE
CHARGING
SYSTEM CABLES**

**LUBRIZOL
ENGINEERED
POLYMERS**

**ADVANCING MATERIALS.
ELEVATING PERFORMANCE.**



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ENGINEERED
POLYMERS

ADVANCING MATERIALS. ELEVATING PERFORMANCE.

Lubrizol's thermoplastic polyurethane (TPU) materials are based on decades of continuous polymer technology innovation. It is driven by our commitment to finding high-performing sustainable solutions. With the growth of the electric vehicle (EV) market, and the focus on finding safer, regulatory-compliant, and more sustainable alternatives, Lubrizol's scientists and application lab experts have identified ESTANE® TPU as a solution that improves quality and efficiencies while supporting our customers on their sustainability journey.

ESTANE® EV polymers are designed by Lubrizol Engineered Polymers to provide a range of polymer solutions for EV charging system cables. These new, non-halogenated flame-retardant (NHFR) specialties complement our full portfolio of NHFR materials for wire and cable producers, including automation and robotic applications.

Boost your EV charging cables by using ESTANE® EV TPU




**LOW TOXICITY AND LOW
VOLATILES**

VERY LOW OR NO ODOR

**COMPLIANCE WITH IEC 62893
AND EN 50620 STANDARDS**

EASY PROCESSABILITY

VERY GOOD AESTHETICS

The image features a silver electric car, likely a Tesla Model S, shown from a side-front perspective. The car is parked outdoors, with a blurred background of greenery and a blue sky. A white molecular structure graphic, consisting of interconnected nodes and lines, is overlaid on the left side of the image, extending from the top left towards the center. The text is positioned in a dark grey rectangular box on the right side of the image.

Lubrizol TPU provides premium quality to finished products because of its high abrasion resistance, good mechanicals, recyclability and plasticizer free chemistry. These high performance ESTANE EV materials also provide design flexibility through easy coloring, eliminating the requirement for cables to be solid black. ESTANE EV polymers cater to highly aesthetic outdoor cables with a durable, long-lasting effect even in light or pastel-colors, without the risk of blooming or whitening.

ESTANE EV PORTFOLIO

Our current ESTANE EV portfolio is based on differentiated, NHFR technology with low toxicity/smoke and showing an advantage in conductivity (<35 $\mu\text{S}/\text{mm}$). An overview of the top properties of the resins in the EV portfolio follows:



Physical Property	Unit	ESTANE® EV 90AT2	ESTANE® EV 89AT9	ESTANE® EV 85AT8	ESTANE® ZHF 58370
Feature		Halogen-free FR	Differentiated Halogen-free FR	Halogen-free FR	Differentiated Halogen-free FR
Hardness	Shore A	90	89	85	86
Specific gravity	g/cm^3	1.19	1.23	1.16	1.20
Tensile at break	MPa	29	35	51	31
Elongation at break	%	523	567	530	653
Abrasion resistance	mm^3	46	54	40	91
Vertical burn test	Rating	V-2 @ 1.9 mm	V-2 @ 1.9 mm	V-2 @ 1.9 mm	V-2 @ 1.9 mm
pH value		8.5	9.0	6.2	7.3
Gas conductivity	$\mu\text{S}/\text{mm}$	<40	<35	<10	<10
IEC 60332-1-2	/	PASS	PASS	PASS*	PASS*
IEC62893/EN50620 compliance		EN 50620	IEC 62893/ EN 50620	IEC 62893/ EN 50620	IEC 62893/ EN 50620

*Dependent on cable construction

There are other NHFR products available, please consult us.

To learn more, visit www.lubrizol.com/engineered-polymers.

LOCALLY PRESENT GLOBALLY NETWORKED

With local sales and technical support, R&D and manufacturing centers of excellence in each region, and a well-networked global supply chain, we offer a convenient, single source of reliable solutions for customers across the world.

Americas

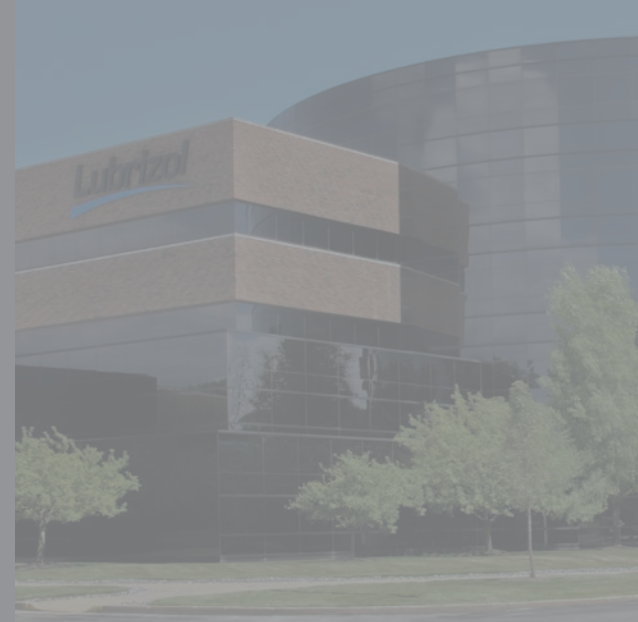
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