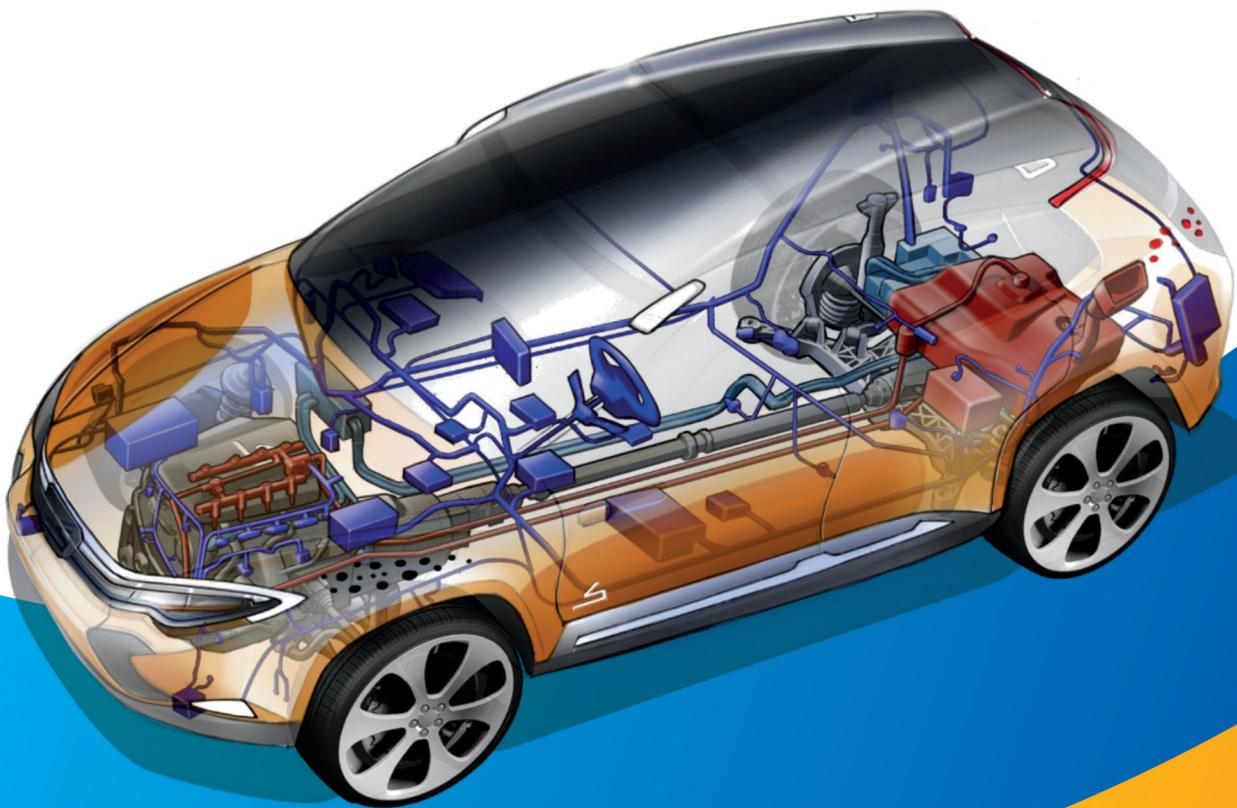


FLEX NORLYL™ RESIN: DRIVING TOWARDS THE REDUCED SIZE AND WEIGHT OF YOUR WIRING HARNESSSES

The automobile has evolved from a mechanism of transportation into an experience that delivers comfort, safety and security – thanks to recent innovations in ADAS (Advanced Driving Assistance Systems) and IVI (in-vehicle infotainment).

Today's automobile includes over one mile of wire that can weigh in excess of 150 lbs. (68 kg). With the advent of V2V (vehicle-to-vehicle) and V2X (vehicle-to-everything) connections, this number could increase significantly in order to support the increased electric componentry functionality needed to empower autonomous capabilities and safety features of the future.



FLEX NORYL™ resin can offer several benefits vs. traditionally used, commodity grade polymers (polypropylene, PVC, and polyethylene) to enhance wiring systems within the automobile

	Class A/B (T1/T2) Interior — Up to 100° C			
	PVC	FR-PP	FR-PE	FLEX NORYL™ resin
Scrape Abrasion	+	-	--	++
Non-halogenated FR	--	+	+	++
UTW Capable	+	--	--	++
Processability	++	--	-	++
Specific Gravity	1.33	1.30	1.45	1.03
Electrical Properties (DC)	+	+	+	++
Recycle	+	+	-	++
System cost	++	-	-	+

Now more than ever, material selection for data transfer wiring systems will be a critical factor to address industry performance requirements. The broad materials portfolio of SABIC's Specialties business includes **FLEX NORYL™ resin** which offers:

- Potential reduction in insulation thickness and downgauging of signal wires, leading to smaller bundle sizes, easier routing and weight reduction without compromising manufacturability of wire harnesses
- Material properties superior to FR-PP and FR-PE during the assembly process
- Elimination of the softness and durability issues that can occur with a PVC solution
- Non-halogenated FR properties and potential for recyclability

FEATURE	BENEFIT
Ultra thin wall capable	<ul style="list-style-type: none"> • Up to 15% diameter reduction / 45% area reduction versus ISO thin-wall coating • Column strength integrity in ultra small wire sizes
Mass savings vs. traditional products	<ul style="list-style-type: none"> • Up to 50% insulation weight reduction vs. PVC thin-wall coating • Up to 30% mass reduction vs. PVC ultra thin-wall coating
Single-step extrusion	<ul style="list-style-type: none"> • Potential cost savings through faster production rates • No cross-linking required
Improved scrape abrasion	<ul style="list-style-type: none"> • Improved performance vs. PVC & XLPE • Elimination of secondary protection • Potential for lower manufacturer warranty cost
Improved pinch abrasion	<ul style="list-style-type: none"> • Potential for lower manufacturer warranty cost via: • Improved performance • Elimination of secondary protection
Non-halogenated FR	<ul style="list-style-type: none"> • Non-halogenated FR properties, Potential for Recyclability
Use of existing equipment	<ul style="list-style-type: none"> • Same extrusion lines • Similar processing parameters as PVC
Material Classes	<ul style="list-style-type: none"> • Simplification & single supply

CONTACT INFORMATION



AMERICAS

SABIC Americas
2500 City West Boulevard
Suite 100
Houston, TX 77042
USA
E productinquiries@sabic.com
T +1-800-845-0600

ASIA PACIFIC

SABIC Shanghai
2550 Xiupu Road, Pudong
Shanghai 201319
China
E asiaproductinquiries@sabic.com
T +86-21-2037-8188

EUROPE

SABIC Bergen op Zoom
Plasticslaan 1
4612 PX Bergen op Zoom
The Netherlands
E webinquiries@sabic.com
T +31 164 292 911



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