

NORYL™ WCD891B resin

Polyphenylene Ether + TPE

SABIC Innovative Plastics

Message:

Non-halogenated flame retardant, flexible NORYL resin intended for evaluation in wire and cable applications. Strong flame retardant performance capable of meeting VW-1 and 80°C end use temperature requirements as defined by UL 1581. 89 Shore A hardness. Good processing by using standard extrusion equipment. UL1581 tests conducted on 2.0 mm wire with 0.12 mm x 20 stranded copper conductor.

General Information			
UL YellowCard	E207780-100045800		
Features	Good flexibility		
	Halogen-free		
	Flame retardancy		
Uses	Wire and cable applications		
Processing Method	Extrusion coating		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.10	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (250°C/5.0 kg)	20	g/10 min	ASTM D1238
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore A, 30 sec)	89		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength			
Fracture	18.0	MPa	UL 1581
Fracture ¹	16.0	MPa	ASTM D638
Fracture, 113°C ²	21.0	MPa	UL 1581
Fracture	15.0	MPa	ISO 527-2/50
Tensile Strain			
Yield	140	%	ISO 527-2/50
Fracture	220	%	UL 1581
Fracture ³	170	%	ASTM D638
Fracture, 113°C ⁴	160	%	UL 1581
Flexural Modulus ⁵			
100mm span	160	MPa	ASTM D790
--	140	MPa	ISO 178
Films	Nominal Value	Unit	Test Method
Trouser Tear Resistance	7.00	N/mm	ISO 6383-1
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -40.0	°C	ASTM D746
UL Temperature Rating	80	°C	UL 1581
Heat Deformation ⁶ (100°C)	9.0	%	UL 1581

VW-1	Pass	UL 1581	
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	5.1E+15	ohms	ASTM D257
Volume Resistivity	1.5E+15	ohms·cm	ASTM D257
Dielectric Strength (2.00 mm, in Oil)	24	kV/mm	IEC 60243-1
Relative Permittivity (1 MHz)	2.90		IEC 60250
Dissipation Factor (1 MHz)	4.0E-3		IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating (4.00 mm, Testing by SABIC)	V-0		UL 94
Glow Wire Flammability Index (3.00 mm)	850	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (3.00 mm)	750	°C	IEC 60695-2-13
Oxygen Index	27	%	ISO 4589-2
Extrusion	Nominal Value	Unit	
Drying Temperature	75.0 - 85.0	°C	
Drying Time	5.0 - 7.0	hr	
Suggested Max Moisture	0.020	%	
Cylinder Zone 1 Temp.	180 - 220	°C	
Cylinder Zone 3 Temp.	220 - 250	°C	
Cylinder Zone 5 Temp.	220 - 250	°C	
Melt Temperature	220 - 250	°C	
Die Temperature	220 - 250	°C	
Extrusion instructions			
Conductor Pre-heat Temperature: 25 - 120 °CCooling Water Air Gap: 100 - 200 mmCross-head Temperature: 220 - 250 °CDrying Time (Cumulative): 12 hrsExtruder Length/Diameter Ratio (L/D): 22:1 to 26:1Neck Temperature: 220 - 250 °CScreen Pack: 150 - 100Screw Speed: 15 - 85 rpmWater Bath Temperature: 15 - 60 °C			
NOTE			
1.	Type 1, 50mm/min		
2.	After 7 days		
3.	Type 1, 50mm/min		
4.	After 7 days		
5.	13 mm/min		
6.	250 g		

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