FLEX NORYL™ RESIN WCD891A

REGION AMERICAS

DESCRIPTION

FLEX NORYL™ WCD891A resin is a flexible, non-reinforced extrudable blend of Polyphenylene Ether (PPE) + Thermoplastic Elastomer (TPE). This material contains non-halogenated flame retardant and performance capable of meeting UL VW-1 requirements, 80C end use temperature rating, and heat deformation performance as defined by UL 1581. FLEX NORYL WCD891A resin is intended for evaluation in wire insulation and cable jacket applications in dark colors. It has a Shore A Hardness reading of 89 and exhibits superior thermal stability, very low water absorption, good electric properties, and low specific gravity. Processing is typically conducted on standard extrusion equipment, and UL 1581 testing is conducted on 2.0mm wire with 0.12mm X 20 stranded copper conductor.

TYPICAL PROPERTY VALUES

Revision 20190108

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, brk, Type I, 50 mm/min	12	MPa	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	239	%	ASTM D 638
Flexural Modulus, 12.5 mm/min, 100 mm span	210	MPa	ASTM D 790
Hardness, Shore A, 30S reading	89	-	ASTM D 2240
Tensile Stress, break, 50 mm/min	11	MPa	ISO 527
Tensile Strain, break, 50 mm/min	219	%	ISO 527
Flexural Modulus, 12.5 mm/min	320	MPa	ISO 178
Tear strength	12	N/mm	ISO 6383
IMPACT			
Brittleness Temperature	<-40	°C	ASTM D 746
PHYSICAL			
Specific Gravity	1.08	-	ASTM D 792
Water Absorption, 23°C/48hrs	0.16	%	ASTM D 570
Melt Flow Rate, 250°C/2.16 kgf	6.9	g/10 min	ASTM D 1238
ELECTRICAL			
Volume Resistivity	5.3E+15	Ohm-cm	IEC 60093
Dielectric strength in oil, 2.0mm	25	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	3.1	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.026	-	IEC 60250
Dissipation Factor, 1 MHz	0.017	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Relative Permittivity, 50/60 Hz	3.6	-	IEC 60250
FLAME CHARACTERISTICS			
Smoke Density on 0.5mm plaque, Non-flame, Ds, max	69	-	ASTM E 662
Smoke Density on 0.5mm plaque, Flame, Ds, max	117	-	ASTM E 662
Glow Wire Flammability Index 850°C, passes at	3	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 3.0 mm	850	°C	IEC 60695-2-13
Oxygen Index (LOI)	26	%	ISO 4589
WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER			
Tensile strength @ break	18	MPa	UL 1581
Tensile elongation @ break	250	%	UL 1581

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile strength @ break after 7days @113°C	19	MPa	UL 1581
Tensile elongation @ break after 7days @113°C	235	%	UL 1581
UL temperature rating	80	°C	UL 1581
Heat Deformation at 100°C/250g	22	%	UL 1581
VW-1	Pass	-	UL 1581
WIRE COATING EXTRUSION			
Drying Temperature	60 – 80	°C	
Drying Time	4 – 6	hrs	
Drying Time (Cumulative)	12	hrs	
Maximum Moisture Content	0.02	%	
Extruder Length/Diameter Ratio (L/D)	22:1 to 26:1	-	
Screw Speed	15 – 40	rpm	
Feed Zone Temperature	200 – 240	°C	
Middle Zone Temperatures	220 – 260	°C	
Head Zone Temperature	240 – 260	°C	
Neck Temperature	240 – 260	°C	
Cross-head Temperature	240 – 260	°C	
Die Temperature	240 – 260	°C	
Melt Temperature	240 – 260	°C	
Conductor Pre-heat Temperature	80 – 150	°C	
Screen Pack	150 – 100	-	
Cooling Water Air Gap	100 – 200	mm	
Water Bath Temperature	15 – 80	°C	

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