FLEX NORYL™ RESIN WCV072

REGION ASIA

DESCRIPTION

FLEX NORYL™ WCV072 resin is a flexible, non-reinforced extrudable blend of Polyphenylene Ether (PPE) + Thermoplastic Elastomer (TPE). This material contains non-halogenated flame retardant and carries UL VW-1 and UL94 V0 ratings along with a Shore D Hardness reading of 72. FLEX NORYL WCV072 resin was developed for evaluation in automotive wire + cable applications requiring ISO6722 Class A or B. It exhibits ultra thin-wall capability, Good scratch abrasion and pinch resistance, High dimensional stability, low shrinkage and warpage. Very low water absorption, chemical resistance, and good dieletrcic strength. 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 20190925

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	43	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	41	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	15	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	83	%	ASTM D 638
Tensile Modulus, 50 mm/min	1710	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	53	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	1550	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	44	MPa	ISO 527
Tensile Stress, break, 50 mm/min	42	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	11	%	ISO 527
Tensile Strain, break, 50 mm/min	46	%	ISO 527
Tensile Modulus, 1 mm/min	1750	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	59	MPa	ISO 178
Flexural Modulus, 2 mm/min	1740	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	309	J/m	ASTM D 256
Izod Impact, notched, -30°C	67	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	45	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	36	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	33	kJ/m²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	114	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	92	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.5E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	1.05E-04	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	8.4E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	1.11E-04	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	114	°C	ISO 306
Vicat Softening Temp, Rate B/120	117	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	98	°C	ISO 75/Af

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
PHYSICAL			
Specific Gravity	1.03	-	ASTM D 792
Melt Flow Rate, 280°C/5.0 kgf	13.8	g/10 min	ASTM D 1238
Density	1.03	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.12	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	13	cm³/10 min	ISO 1133
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	210 – 260	°C	
Middle Zone Temperatures	230 – 285	°C	
Head Zone Temperature	250 – 285	°C	
Neck Temperature	250 – 285	°C	
Cross-head Temperature	250 – 285	°C	
Die Temperature	250 – 285	°C	
Melt Temperature	250 – 285	°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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