FLEX NORYL™ RESIN WCV072

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 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 dielectric 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.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Hydrolytic Stability, Low Warpage, Thin Wall, Flexible, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Creep resistant, Dimensional stability, Impact resistant, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + TPE (PPE+TPE)
Processing Techniques	Wire Coating Extrusion

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Under the Hood
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20240419

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	43	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	41	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	15	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	83	%	ASTM D638
Tensile Modulus, 50 mm/min	1710	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	53	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	1550	MPa	ASTM D790
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 [1]			
Izod Impact, notched, 23°C	309	J/m	ASTM D256
Izod Impact, notched, -30°C	67	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	45	J	ASTM D3763
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

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	33	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	114	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	92	°C	ASTM D648
CTE, -40°C to 40°C, flow	8.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	1.05E-04	1/°C	ASTM E831
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
PHYSICAL [1]			
Specific Gravity	1.03	-	ASTM D792
Melt Flow Rate, 280°C/5.0 kgf	13.8	g/10 min	ASTM D1238
Density	1.03	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.12	%	ISO 62-1
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
FLAME CHARACTERISTICS [1]			
Oxygen Index (LOI)	27.75	%	ISO 4589
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	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

ADDITIONAL PRODUCT NOTES

No PFAS intentionally added: The grade listed in this document does not contain PFAS intentionally added during Seller's manufacturing process and is not expected to contain unintentional PFAS impurities. Each user is responsible for evaluating the presence of unintentional PFAS impurities.

DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.