FLEX NORYL™ RESIN WCA105

REGION AMERICAS

DESCRIPTION

FLEX NORYL™ WCA105 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, 105C end use temperature rating, and heat deformation performance as defined by UL 1581. FLEX NORYL WCA105 resin is intended for evaluation in wire insulation applications in dark colors. It has a Shore D Hardness reading of 56 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	23	MPa	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	85	%	ASTM D 638
Flexural Modulus, 12.5 mm/min, 100 mm span	650	MPa	ASTM D 790
Tensile Stress, break, 50 mm/min	23	MPa	ISO 527
Tensile Strain, break, 50 mm/min	90	%	ISO 527
Flexural Modulus, 12.5 mm/min	720	MPa	ISO 178
Hardness, Shore D	56	-	ISO 868
Tear strength	25	N/mm	ISO 6383
IMPACT			
Brittleness Temperature	<-40	°C	ASTM D 746
THERMAL			
HDT, 0.45 MPa, 6.4 mm, unannealed	85	°C	ASTM D 648
Vicat Softening Temp, Rate A/50	102	°C	ISO 306
PHYSICAL			
Specific Gravity	1.03	-	ASTM D 792
Water Absorption, 23°C/48hrs	0.1	%	ASTM D 570
Melt Flow Rate, 250°C/10.0 kgf	5.1	g/10 min	ASTM D 1238
ELECTRICAL			
Volume Resistivity	3.9E+16	Ohm-cm	IEC 60093
Dielectric strength in oil, 2.0mm	26	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.5	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.024	-	IEC 60250
Dissipation Factor, 1 MHz	0.0038	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
Relative Permittivity, 50/60 Hz	2.6	-	IEC 60250
FLAME CHARACTERISTICS			
Smoke Density on 0.5mm plaque, Non-flame, Ds, max	75	-	ASTM E 662
Smoke Density on 0.5mm plaque, Flame, Ds, max	150	-	ASTM E 662
Glow Wire Flammability Index 960°C, passes at	3	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 3.0 mm	750	°C	IEC 60695-2-13
Oxygen Index (LOI)	25	%	ISO 4589

© 2019 Copyright by SABIC. All rights reserved

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
WIRE AND CABLE - UL 1581 TESTED ON 2.0MM WIRE WITH 0.12MMX20 STRANDED COPPER			
Tensile strength @ break	33	MPa	UL 1581
Tensile elongation @ break	197	%	UL 1581
Tensile strength @ break after 7days @136°C	36	MPa	UL 1581
Tensile elongation @ break after 7days @136°C	156	%	UL 1581
UL temperature rating	105	°C	UL 1581
Heat Deformation at 121°C/250g	26	%	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	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	

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.

© 2019 Copyright by SABIC. All rights reserved