

Noryl* Resin WCA105

Americas: COMMERCIAL

Flexible, non-halogenated FR mPPE extrusion grade ideal for evaluation in applications such as wire insulation. Flame retardant performance capable of meeting VW1 and 105C temperature rating requirements as defined by UL 1581. 56 Shore D hardness. Excellent processing using standard extrusion equipment. UL 1581 tests conducted on 2.0 mm wire with 0.12 mm x 20 stranded copper conductor.

Property

TYPICAL PROPERTIES ⁽¹⁾			
MECHANICAL			
	Value	Unit	Standard
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			
	Value	Unit	Standard
Brittleness Temperature	<-40	°C	ASTM D 746
THERMAL			
	Value	Unit	Standard
HDT, 0.45 MPa, 6.4 mm, unannealed	85	°C	ASTM D 648
Vicat Softening Temp, Rate A/50	102	°C	ISO 306
PHYSICAL			
	Value	Unit	Standard
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			
	Value	Unit	Standard
Volume Resistivity	3.9E+16	Ohm-cm	IEC 60093
Dielectric strength in oil, 2.0mm	26	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	2.6	-	IEC 60250
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
FLAME CHARACTERISTICS			
	Value	Unit	Standard
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
WIRE AND CABLE - UL 1581 tested on 2.0mm wire with 0.12mmx20 stranded copper	Value	Unit	Standard

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

Source GMD, last updated:07/11/2005

Processing

Parameter	Value	Unit
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

Source GMD, last updated:07/11/2005

- NOTE: Recommended Drying Parameters are based on usage of Dehumidify Drying / Drying Oven.

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

Disclaimer : THE MATERIALS AND PRODUCTS OF THE BUSINESSES MAKING UP THE SABIC INNOVATIVE PLASTICS COMPANY, ITS SUBSIDIARIES AND AFFILIATES ("SABIC IP"), ARE SOLD SUBJECT TO SABIC IP' S STANDARD CONDITIONS OF SALE, WHICH ARE INCLUDED IN THE APPLICABLE DISTRIBUTOR OR OTHER SALES AGREEMENT, PRINTED ON THE BACK OF ORDER ACKNOWLEDGMENTS AND INVOICES, AND AVAILABLE UPON REQUEST. ALTHOUGH ANY INFORMATION, RECOMMENDATIONS, OR ADVICE CONTAINED HEREIN IS GIVEN IN GOOD FAITH, SABIC IP MAKES NO WARRANTY OR GUARANTEE, EXPRESS OR IMPLIED, (I) THAT THE RESULTS DESCRIBED HEREIN WILL BE OBTAINED UNDER END-USE CONDITIONS, OR (II) AS TO THE EFFECTIVENESS OR SAFETY OF ANY DESIGN INCORPORATING SABIC IP MATERIALS, PRODUCTS, RECOMMENDATIONS OR ADVICE. EXCEPT AS PROVIDED IN SABIC IP' S STANDARD CONDITIONS OF SALE, SABIC IP AND ITS REPRESENTATIVES SHALL IN NO EVENT BE RESPONSIBLE FOR ANY LOSS RESULTING FROM ANY USE OF ITS MATERIALS OR PRODUCTS DESCRIBED HEREIN. Each user bears full responsibility for making its own determination as to the suitability of SABIC IP' s materials, products, recommendations, or advice for its own particular use. Each user must identify and perform all tests and analyses necessary to assure that its finished parts incorporating SABIC IP materials or

products will be safe and suitable for use under end-use conditions. Nothing in this or any other document, nor any oral recommendation or advice, shall be deemed to alter, vary, supersede, or waive any provision of SABIC IP' s Standard Conditions of Sale or this Disclaimer, unless any such modification is specifically agreed to in a writing signed by SABIC IP. No statement contained herein concerning a possible or suggested use of any material, product or design is intended, or should be construed, to grant any license under any patent or other intellectual property right of SABIC Innovative Plastics Company or any of its subsidiaries or affiliates covering such use or design, or as a recommendation for the use of such material, product or design in the infringement of any patent or other intellectual property right

* Noryl is a trademark of the SABIC Innovative Plastics Company

© 1997-2008 SABIC Innovative Plastics Company.All rights reserved