

## Noryl\* Resin WCD861A

## Americas: COMMERCIAL

Flexible, migration-improved, halogen free extrusion grade intended for evaluation in applications such as wire insulation and cable jacket. Flame performance capable of meeting UL VW1 requirements. 80C end use temperature rating and good heat deformation performance as defined by UL 1581. 86 Shore A hardness. Processing typically conducted on standard extrusion equipment. UL 1581 tests conducted on 2.0 mm wire with 0.12 mm x 20 stranded copper conductor.

### Property

TYPICAL PROPERTIES <sup>(1)</sup>			
<b>MECHANICAL</b>			
	Value	Unit	Standard
Tensile Stress, brk, Type I, 50 mm/min	15	MPa	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	100	%	ASTM D 638
Flexural Modulus, 12.5 mm/min, 100 mm span	150	MPa	ASTM D 790
Hardness, Shore A, 30S reading	86	-	ASTM D 2240
Tensile Stress, break, 50 mm/min	14	MPa	ISO 527
Tensile Strain, break, 50 mm/min	95	%	ISO 527
Flexural Modulus, 12.5 mm/min	190	MPa	ISO 178
Tear strength	7	N/mm	ISO 6383
<b>IMPACT</b>			
	Value	Unit	Standard
Brittleness Temperature	<-40	°C	ASTM D 746
<b>PHYSICAL</b>			
	Value	Unit	Standard
Specific Gravity	1.1	-	ASTM D 792
Melt Flow Rate, 250°C/5.0 kgf	10	g/10 min	ASTM D 1238
<b>ELECTRICAL</b>			
	Value	Unit	Standard
Volume Resistivity	5.5E+15	Ohm-cm	IEC 60093
Dielectric strength in oil, 2.0mm	23	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	2.9	-	IEC 60250
Relative Permittivity, 1 MHz	2.8	-	IEC 60250
Dissipation Factor, 50/60 Hz	0.03	-	IEC 60250
Dissipation Factor, 1 MHz	0.004	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
<b>FLAME CHARACTERISTICS</b>			
	Value	Unit	Standard
UL Recognized, 94V-0 Flame Class Rating (3)	4	mm	UL 94
Smoke Density on 0.5mm plaque, Non-flame, Ds, max	101	-	ASTM E 662
Smoke Density on 0.5mm plaque, Flame, Ds, max	119	-	ASTM E 662
Glow Wire Flammability Index 850°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)	27	%	ISO 4589
<b>WIRE AND CABLE - UL 1581 tested on 2.0mm wire with 0.12mmx20 stranded copper</b>			
	Value	Unit	Standard
Tensile strength @ break	18	MPa	UL 1581
Tensile elongation @ break	195	%	UL 1581

Tensile strength @ break after 7days @113°C	19	MPa	UL 1581
Tensile elongation @ break after 7days @113°C	135	%	UL 1581
UL temperature rating	80	°C	UL 1581
Heat Deformation at 100°C/250g	12	%	UL 1581
VW-1	pass	-	UL 1581

Source GMD, last updated:01/12/2006

## Processing

Parameter	Value	Unit
Wire Coating Extrusion		
Drying Temperature	75 - 85	°C
Drying Time	5 - 7	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 - 85	rpm
Feed Zone Temperature	180 - 230	°C
Middle Zone Temperatures	230 - 260	°C
Head Zone Temperature	230 - 260	°C
Neck Temperature	230 - 260	°C
Cross-head Temperature	230 - 260	°C
Die Temperature	230 - 260	°C
Melt Temperature	230 - 260	°C
Conductor Pre-heat Temperature	25 - 120	°C
Screen Pack	150 - 100	-
Cooling Water Air Gap	100 - 200	mm
Water Bath Temperature	15 - 60	°C

Source GMD, last updated:01/12/2006

- 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