



## NORYL™ Resin RN0712

### Americas: COMMERCIAL

Noryl RN0712 is an unfilled Post Consumer recycle (PCR) based injection moldable modified polyphenylene ether resin comprising at least 37% PCR styrenic series resin content. Designed for good dimensional stability and high flow, this resin also uses non-chlorinated, non-brominated FR additives with a specific density of 1.1 g/cm<sup>3</sup>. Noryl RN0712 may be an excellent material candidate for flat panel TV enclosure applications requiring good rheological properties, heat resistance, hydrolysis resistance and low density.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 50 mm/min	520	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	500	kgf/cm <sup>2</sup>	ASTM D 638
Tensile Strain, break	10	%	SABIC - Japan Method
Tensile Strain, yld, Type I, 50 mm/min	3.5	%	ASTM D 638
Tensile Modulus, 50 mm/min	25100	kgf/cm <sup>2</sup>	ASTM D 638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	830	kgf/cm <sup>2</sup>	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	23400	kgf/cm <sup>2</sup>	ASTM D 790
Tensile Stress, yield, 50 mm/min	47	MPa	ISO 527
Tensile Stress, break, 50 mm/min	49	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	3	%	ISO 527
Tensile Strain, break, 50 mm/min	7	%	ISO 527
Tensile Modulus, 1 mm/min	2300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	77	MPa	ISO 178
Flexural Modulus, 2 mm/min	2250	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C, 6.4mm	4	cm-kgf/cm	ASTM D 256
Izod Impact, notched 80*10*4 +23°C	5	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	4	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	5	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	3	kJ/m <sup>2</sup>	ISO 179/1eA
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	110	°C	ASTM D 1525
CTE, -40°C to 40°C, flow	7.2E-05	1/°C	ASTM E 831

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(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.

(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>THERMAL</b>			
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	7.2E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	110	°C	ISO 306
Vicat Softening Temp, Rate B/120	112	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	87	°C	ISO 75/Af
<b>PHYSICAL</b>			
Density	1.11	g/cm <sup>3</sup>	ISO 1183
Melt Volume Rate, MVR at 280°C/1.2 kg	12	cm <sup>3</sup> /10 min	ISO 1133
Melt Volume Rate, MVR at 280°C/2.16 kg	22	cm <sup>3</sup> /10 min	ISO 1133
Melt Viscosity, 280°C, 1500 sec-1	95	Pa-s	ISO 11443
<b>ELECTRICAL</b>			
Volume Resistivity	1.E+16	Ohm-cm	ASTM D 257
Dielectric Constant, 1 MHz	2.91	-	ASTM D 150
Relative Permittivity, 1 MHz	2.91	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0032	-	ASTM D 150
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Volume Resistivity	1.E+16	Ohm-cm	IEC 60093
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Dissipation Factor, 1 MHz	0.003	-	IEC 60250
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94V-1 Flame Class Rating (3)	1.5	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	725	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	725	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	725	°C	IEC 60695-2-13

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TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	Unit	Standard
<b>FLAME CHARACTERISTICS</b>			
Oxygen Index (LOI)	34	%	ISO 4589

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
<b>Injection Molding</b>		
Drying Temperature	75 - 85	°C
Drying Time	2 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	220 - 250	°C
Nozzle Temperature	220 - 240	°C
Front - Zone 3 Temperature	230 - 250	°C
Middle - Zone 2 Temperature	220 - 240	°C
Rear - Zone 1 Temperature	210 - 230	°C
Mold Temperature	40 - 80	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	60	rpm
Shot to Cylinder Size	50 - 70	%
Vent Depth	0.038 - 0.051	mm

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