



NORYL™ Resin NH7111E

Americas: COMMERCIAL

NORYL EXNL0280 is a glass fiber reinforced, injection moldable modified polyphenylene ether resin. Designed for good dimensional stability and low warpage, this resin also uses non-halogenated FR additives to achieve a V1 UL94 rating at 1.6 mm and V0 UL94 at 3.00mm with a CTI value of 400 V. NORYL EXNL0280 may be an excellent material candidate for application requiring electrically insulating properties, low moisture absorption, low warpage and thin wall flame resistance. Available in limited light grey colors

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	700	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	670	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3.2	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	4.5	%	ASTM D 638
Tensile Modulus, 5 mm/min	36700	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1220	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	36400	kgf/cm ²	ASTM D 790
Tensile Stress, yield, 5 mm/min	76	MPa	ISO 527
Tensile Stress, break, 5 mm/min	75	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3.4	%	ISO 527
Tensile Strain, break, 5 mm/min	3.6	%	ISO 527
Tensile Modulus, 1 mm/min	3790	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	127	MPa	ISO 178
Flexural Modulus, 2 mm/min	3620	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	4	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	108	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	7	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	26	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	149	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	140	°C	ASTM D 648
CTE, -40°C to 40°C, flow	4.35E-05	1/°C	ASTM E 831



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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
THERMAL			
CTE, -40°C to 40°C, xflow	7.09E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	4.35E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.09E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/120	155	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	140	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.24	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 300°C/5.0 kgf	18	g/10 min	ASTM D 1238
Density	1.24	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.23	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	15	cm ³ /10 min	ISO 1133
ELECTRICAL			
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Volume Resistivity	1.4E+01 - 1.6E+01	Ohm-cm	IEC 60093
Surface Resistivity, ROA	3.E+13 - 5.E+13	Ohm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	27.3	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Comparative Tracking Index	400	V	IEC 60112
FLAME CHARACTERISTICS			
UL Compliant, 94V-1 Flame Class Rating (3)(4)	1	mm	UL 94 by SABIC-IP
UL Compliant, 94V-0 Flame Class Rating (3)(4)	3	mm	UL 94 by SABIC-IP
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13



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FLAME CHARACTERISTICS			
Glow Wire Ignitability Temperature, 2.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13



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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	100 - 120	°C
Drying Time	2 - 3	hrs
Melt Temperature	280 - 300	°C
Nozzle Temperature	260 - 280	°C
Front - Zone 3 Temperature	280 - 300	°C
Middle - Zone 2 Temperature	260 - 280	°C
Rear - Zone 1 Temperature	240 - 260	°C
Hopper Temperature	60 - 80	°C
Mold Temperature	80 - 120	°C