

Noryl* Resin SE1X

Americas: COMMERCIAL

PPE+PS blend. Unfilled. Non-brominated, non-chlorinated FR system. UL94 V1, UL746C F1. Dielectric strength. Suitable for E/E market indoor/outdoor applications.

Property

TYPICAL PROPERTIES ⁽¹⁾			
	Value	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	65	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	53	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	15	%	ASTM D 638
Tensile Modulus, 50 mm/min	2500	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	100	MPa	ASTM D 790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	98	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2700	MPa	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	2400	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	61	MPa	ISO 527
Tensile Stress, break, 50 mm/min	50	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.3	%	ISO 527
Tensile Strain, break, 50 mm/min	20.7	%	ISO 527
Tensile Modulus, 1 mm/min	2670	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	99	MPa	ISO 178
Flexural Modulus, 2 mm/min	2560	MPa	ISO 178
IMPACT			
	Value	Unit	Standard
Izod Impact, unnotched, 23°C	2600	J/m	ASTM D 4812
Izod Impact, notched, 23°C	180	J/m	ASTM D 256
Izod Impact, notched, -30°C	106	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	49	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	14	kJ/m ²	ISO 180/1A
THERMAL			
	Value	Unit	Standard
HDT, 0.45 MPa, 3.2 mm, unannealed	126	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	112	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	129	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	118	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.04E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	8.81E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	132	°C	ISO 306
Vicat Softening Temp, Rate B/120	135	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	129	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	115	°C	ISO 75/Ae
Relative Temp Index, Elec	110	°C	UL 746B
Relative Temp Index, Mech w/impact	105	°C	UL 746B
Relative Temp Index, Mech w/o impact	110	°C	UL 746B
PHYSICAL			
	Value	Unit	Standard
Specific Gravity	1.09	-	ASTM D 792

Water Absorption, 24 hours	0.06	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	SABIC Method
Mold Shrinkage on Tensile Bar, xflow (2)	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 280°C/5.0 kgf	8.5	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 280°C/5.0 kg	8	cm ³ /10 min	ISO 1133
ELECTRICAL	Value	Unit	Standard
Volume Resistivity	2.3E+16	Ohm-cm	ASTM D 257
Surface Resistivity	>1.E+15	Ohm	ASTM D 257
Dielectric Strength, in oil, 3.2 mm	18.1	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	2.52	-	ASTM D 150
Relative Permittivity, 1 MHz	2.46	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0034	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0021	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	1	PLC Code	UL 746A
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Recognized, 94V-1 Flame Class Rating (3)	1.47	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating (3)	5.99	mm	UL 94
Radiant Panel Listing	RP100	-	UL Tested
UV-light, water exposure/immersion	F1	-	UL 746C

Source GMD, last updated:05/11/2004

Processing

Parameter	Value	Unit
Injection Molding		
Drying Temperature	105 - 110	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	280 - 310	°C
Nozzle Temperature	280 - 310	°C
Front - Zone 3 Temperature	270 - 310	°C
Middle - Zone 2 Temperature	260 - 305	°C
Rear - Zone 1 Temperature	250 - 300	°C
Mold Temperature	75 - 105	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%

Source GMD, last updated:05/11/2004

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.

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