

Noryl* Resin HS1000X

Americas: COMMERCIAL

PPE+PS blend. 13% Mineral reinforced. Non-brominated, non-chlorinated FR system. UL94 V0 and 5VA listing. UL 746C f1. Radiant Panel listing. Dielectric strength. Dimensional stability. Suitable for E/E applications.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	660	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	520	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	7.6	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	30	%	ASTM D 638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	1050	kgf/cm ²	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	29500	kgf/cm ²	ASTM D 790
Hardness, Rockwell R	121	-	ASTM D 785
IMPACT			
Izod Impact, unnotched, 23°C	154	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	13	cm-kgf/cm	ASTM D 256
Instrumented Impact Energy @ peak, 23°C	254	cm-kgf	ASTM D 3763
THERMAL			
Vicat Softening Temp, Rate B/50	125	°C	ASTM D 1525
HDT, 0.45 MPa, 6.4 mm, unannealed	98	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	93	°C	ASTM D 648
Relative Temp Index, Elec	100	°C	UL 746B
Relative Temp Index, Mech w/impact	85	°C	UL 746B
Relative Temp Index, Mech w/o impact	100	°C	UL 746B
PHYSICAL			
Specific Gravity	1.23	-	ASTM D 792
Water Absorption, 24 hours	0.07	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm (5)	0.5 - 0.7	%	SABIC Method
ELECTRICAL			
Volume Resistivity	1.6E+16	Ohm-cm	ASTM D 257
Surface Resistivity	>1.E+16	Ohm	ASTM D 257

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.
3) This rating is not intended to reflect hazards presented this or any other material under actual fire conditions.
4) Own measurement according to UL.
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.

Source, GMD, Last Update:

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	UNIT	STANDARD
ELECTRICAL			
Dielectric Strength, in oil, 3.2 mm	17.7	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	3.03	-	ASTM D 150
Relative Permittivity, 1 MHz	2.83	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.027	-	ASTM D 150
Dissipation Factor, 1 MHz	0.007	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	2	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	1.01	mm	UL 94
UL Recognized, 94-5VA Rating (3)	2.48	mm	UL 94
Radiant Panel Listing	YES	-	UL Tested
UV-light, water exposure/immersion	F1	-	UL 746C

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
Injection Molding		
Drying Temperature	90 - 95	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	255 - 280	°C
Nozzle Temperature	255 - 280	°C
Front - Zone 3 Temperature	245 - 280	°C
Middle - Zone 2 Temperature	230 - 275	°C
Rear - Zone 1 Temperature	220 - 270	°C
Mold Temperature	65 - 90	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%
Vent Depth	0.038 - 0.051	mm

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