

NORYL™ RESIN HS2000X

REGION AMERICAS

DESCRIPTION

PPE+PS blend. 17% Mineral reinforced. Non-brominated, non-chlorinated FR system. UL94 VO and 5VA listing. UL746C f1. Radiant panel listing. Dielectric strength. Dimensional stability. Suitable for E/E market indoor/outdoor applications including electrical ceiling boxes and smoke detectors.

TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	74	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	60	MPa	ASTM D 638
Tensile Strain, yield	3.8	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	8.4	%	ASTM D 638
Tensile Modulus, 5 mm/min	3650	MPa	ASTM D 638
Flexural Stress, brk, 1.3 mm/min, 50 mm span	117	MPa	ASTM D 790
Flexural Stress, yld, 2.6 mm/min, 100 mm span	117	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3670	MPa	ASTM D 790
Flexural Modulus, 2.6 mm/min, 100 mm span	3550	MPa	ASTM D 790
Tensile Stress, yield	71	MPa	ISO 527
Tensile Stress, break	57	MPa	ISO 527
Tensile Strain, yield	3.7	%	ISO 527
Tensile Strain, break	10.5	%	ISO 527
Tensile Modulus, 1 mm/min	4000	MPa	ISO 527
Flexural Stress	117	MPa	ISO 178
Flexural Modulus	3800	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	2230	J/m	ASTM D 4812
Izod Impact, notched, 23°C	131	J/m	ASTM D 256
Izod Impact, Reverse Notched, 3.2 mm	811	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	443	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	9	kJ/m ²	ISO 180/1A
Charpy Impact, notched, 23°C	10	kJ/m ²	ISO 179/2C
THERMAL			
HDT, 0.45 MPa, 3.2 mm, unannealed	117	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	108	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	128	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	116	°C	ASTM D 648
CTE, -40°C to 40°C, flow	7.06E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.76E-05	1/°C	ASTM E 831
Vicat Softening Temp, Rate B/50	132	°C	ISO 306
Vicat Softening Temp, Rate B/120	136	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	126	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	111	°C	ISO 75/Ae

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	1.25	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	7.6	g/10 min	ASTM D 1238
Melt Flow Rate, 300°C/5.0 kgf	7.6	g/10 min	ASTM D 1238
Melt Volume Rate, MVR at 280°C/5.0 kg	6	cm ³ /10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	6	cm ³ /10 min	ISO 1133
ELECTRICAL			
Volume Resistivity	1.2E+16	Ohm-cm	ASTM D 257
Surface Resistivity	>1.E+16	Ohm	ASTM D 257
Dielectric Strength, in oil, 3.2 mm	17.3	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	2.89	-	ASTM D 150
Relative Permittivity, 1 MHz	2.7	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.017	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0044	-	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}	3	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	2	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating	1.47	mm	UL 94
UL Recognized, 94-5VA Rating	2	mm	UL 94
Radiant Panel Listing	☑	-	UL Tested
UV-light, water exposure/immersion	F1	-	UL 746C
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	%	



DISCLAIMER

Any sale by SABIC, its subsidiaries and affiliates (each a "seller"), is made exclusively under seller's standard conditions of sale (available upon request) unless agreed otherwise in writing and signed on behalf of the seller. While the information contained herein is given in good faith, SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY AND NONINFRINGEMENT OF INTELLECTUAL PROPERTY, NOR ASSUMES ANY LIABILITY, DIRECT OR INDIRECT, WITH RESPECT TO THE PERFORMANCE, SUITABILITY OR FITNESS FOR INTENDED USE OR PURPOSE OF THESE PRODUCTS IN ANY APPLICATION. Each customer must determine the suitability of seller materials for the customer's particular use through appropriate testing and analysis. No statement by seller concerning a possible use of any product, service or design is intended, or should be construed, to grant any license under any patent or other intellectual property right.