

NORYL™ RESIN NH5020

REGION ASIA

DESCRIPTION

NORYL NH5020 Resin is an unreinforced blend of Polyphenylene Ether(PPE) + Polystyrene resin. The material offers a good balance of heat, flow, hydrolytic stability, and non-halogenated flame retardant. The material is suitable for injection molding and is available in custom colors.

TYPICAL PROPERTY VALUES

Revision 20180905

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	79	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	62	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	15	%	ASTM D 638
Tensile Modulus, 50 mm/min	2720	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	122	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3000	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	80	MPa	ISO 527
Tensile Stress, break, 50 mm/min	77	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.7	%	ISO 527
Tensile Strain, break, 50 mm/min	5.6	%	ISO 527
Tensile Modulus, 1 mm/min	3050	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	126	MPa	ISO 178
Flexural Modulus, 2 mm/min	2980	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	91	J/m	ASTM D 256
Izod Impact, notched, -30°C	59	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	19	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	8	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	137	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	122	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	117	°C	ASTM D 648
HDT, 0.45 MPa, 6.4 mm, unannealed	133	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	122	°C	ASTM D 648
CTE, -40°C to 40°C, flow	6.12E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.84E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	6.12E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.84E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	138	°C	ISO 306
Vicat Softening Temp, Rate B/120	139	°C	ISO 306

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	119	°C	ISO 75 /Af
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			
Specific Gravity	1.11	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	9.8	g/10 min	ASTM D 1238
Density	1.11	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.25	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	10	cm ³ /10 min	ISO 1133
ELECTRICAL			
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	0	PLC Code	UL 746A
High Voltage Arc Resistance {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	0	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
Dielectric Strength, in oil, 3.2 mm	49	kV/mm	IEC 60243-1
FLAME CHARACTERISTICS			
UL Recognized, 94V-2 Flame Class Rating	0.4	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	0.75	mm	UL 94
UL Recognized, 94-5VA Rating	2.5	mm	UL 94
INJECTION MOLDING			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	hrs	
Drying Time (Cumulative)	8	hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	275 – 305	°C	
Nozzle Temperature	275 – 305	°C	
Front - Zone 3 Temperature	265 – 305	°C	
Middle - Zone 2 Temperature	255 – 300	°C	
Rear - Zone 1 Temperature	245 – 295	°C	
Mold Temperature	70 – 100	°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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