NORYL™ RESIN LPN130HG

DESCRIPTION

NORYL™ LPN130HG resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS) designed for high gloss, low density, low outgassing and good dimensional stability performance. This extrusion and injection moldable grade has good processibility with density of 1.07 g/cm3, being capable for physical vapor deposition with good light distribution and high reflection rate. LPN130HG is targeted for automotive heads-up-display (HUD) reflector, headlamp reflector, bezel, light shielding and other high surface quality demanded components.

GENERAL INFORMATION	
Features	High Flow, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Dimensional stability, High temperature resistance, High gloss, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding, Extrusion

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Lighting
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Energy Management, Electronic Components, Mobile Phone - Computer - Tablets

TYPICAL PROPERTY VALUES

Revision 20240919

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 5 mm/min	78	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	60	MPa	ASTM D638
Tensile Strain, yld, Type I, 5 mm/min	4.4	%	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	6.8	%	ASTM D638
Tensile Modulus, 5 mm/min	3100	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	134	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3113	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	78	MPa	ISO 527
Tensile Stress, break, 5 mm/min	74	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	2.6	%	ISO 527
Tensile Strain, break, 5 mm/min	7.2	%	ISO 527
Tensile Modulus, 1 mm/min	3080	MPa	ISO 527
Flexural Strength, 2 mm/min	131	MPa	ISO 178
Flexural Modulus, 2 mm/min	3120	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	30	J/m	ASTM D256
Izod Impact, notched, -30°C	26	J/m	ASTM D256
Izod Impact, unnotched, 23°C	338	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	320	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	3.8	kJ/m²	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 -30°C	3.8	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*4 +23°C	19.9	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	20.7	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	2.7	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	2.7	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	24	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	26	kJ/m²	ISO 179/1eU
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	132	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	119	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	132	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	120	°C	ISO 75/Af
CTE			
-40°C to 40°C, flow	7.8E-05	1/°C	ASTM E831
-40°C to 40°C, xflow	7.7E-05	1/°C	ASTM E831
-40°C to 85°C, flow	7.7E-05	1/°C	ASTM E831
-40°C to 85°C, xflow	7.9E-05	1/°C	ASTM E831
-40°C to 40°C, flow	7.4E-05	1/°C	ISO 11359-2
-40°C to 40°C, xflow	7.5E-05	1/°C	ISO 11359-2
-40°C to 85°C, flow	7.7E-05	1/°C	ISO 11359-2
-40°C to 85°C, xflow	7.9E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	144	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	138	°C	ASTM D1525
Vicat Softening Temp, Rate A/50	144	°C	ISO 306
Vicat Softening Temp, Rate B/50	138	°C	ISO 306
PHYSICAL [1]			
Specific Gravity	1.07	-	ASTM D792
Density	1.07	g/cm³	ISO 1183
Melt Flow Rate, 280°C/5.0 kgf	18	g/10 min	ASTM D1238
Melt Flow Rate, 300°C/5.0 kgf	40	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 280°C/5.0 kg	16	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	38	cm³/10 min	ISO 1133
Water Absorption, (23°C/24hrs)	0.07	%	ISO 62-1
Mold Shrinkage, flow, 3.2 mm [2]	0.76	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.92	%	SABIC method
ELECTRICAL [1]			
Surface Resistivity	1.2E+17	Ω	ASTM D257
Volume Resistivity	8.1E+16	Ω.cm	ASTM D257
OPTICAL PROPERTIES [1]			
Gloss (60°)	153	‰	ASTM D2457
INJECTION MOLDING [3]			
Drying Temperature	100 – 120	°C	
Drying Time	3 – 6	Hrs	
Melt Temperature	240 – 300	°C	
Nozzle Temperature	240 – 300	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Front - Zone 3 Temperature	240 – 300	°C	
Middle - Zone 2 Temperature	240 – 300	°C	
Rear - Zone 1 Temperature	240 – 300	°C	
Mold Temperature	90 – 155	°C	
Screw Speed	20 – 100	rpm	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) 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.

(3) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

DISCLAIMER