NORYL™ Resin NH4050

(PPE+PS) Saudi Basic Industries Corporation (SABIC)

Product Texts

NORYL™ NH4050 resin is a non-reinforced blend of polyphenylene ether (PPE) + high impact polystyrene (HIPS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of V0 at 1.5mm along with UL746C Outdoor Suitability rating of F2. This material also exhibits chemical resistance to battery acids, hydrolytic stability, high impact and heat resistance, and low specific gravity for light-weight parts. NORYL NH4050 resin may be an excellent candidate for lead acid battery housings, covers, and enclosure applications.

UL Yellow Card Link E121562-101362812

Processing/Physical Characteristics	Value	Unit	Test Standard
ISO Data			
Melt volume-flow rate, MVR	**32**	cm³/10min	ISO 1133
Temperature	**280**	°C	-
Load	**5**	kg	-
ASTM Data			
Melt Flow Index, MFI	**25.4**	g/10min	ASTM D 1238
Temperature	**280**	°C	-
Load	**5**	kg	-

Mechanical properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	**2640**	MPa	ISO 527
Yield stress	**67**	MPa	ISO 527
Yield strain	**4.3**	%	ISO 527
Stress at break	**51**	MPa	ISO 527
Strain at break	**10**	%	ISO 527
Flexural modulus	**2560**	MPa	ISO 178
Charpy notched impact strength, +23°C	**16**	kJ/m²	ISO 179/1eA
Izod notched impact strength, +23°C, 4mm	**14**	kJ/m²	ISO 180/1A
Izod notched impact strength, -30°C, 4mm	**9**	kJ/m²	ISO 180/1A
Izod notched impact strength, +23°C	**14**	kJ/m²	ISO 180/1A
Izod notched impact strength	**9**	kJ/m²	ISO 180/1A
Temperature	**-30**	°C	-
ASTM Data			
Tensile Modulus	**2670**	MPa	ASTM D 638
Tensile Strength at Yield	**67**	MPa	ASTM D 638
Tensile Strength at Break	**52**	MPa	ASTM D 638
Elongation at Yield	**4.4**	%	ASTM D 638
Elongation at Break	**19**	%	ASTM D 638
Flexural Modulus	**2820**	MPa	ASTM D 790
Izod Impact notched, 1/8 in	**157**	J/m	ASTM D 256

Thermal properties	Value	Unit	Test Standard
ISO Data			
Temp. of deflection under load, 1.80 MPa	**101**	°C	ISO 75-1/-2
Vicat softening temperature, B	**120**	°C	ISO 306
Vicat softening temperature, 120°C/h 50N	**120**	°C	ISO 306
Coeff. of linear therm. expansion, parallel	**80**	E-6/K	ISO 11359-1/-2
Coeff. of linear therm. expansion, normal	**82**	E-6/K	ISO 11359-1/-2
Burning behav. at 1.5 mm nom. thickn.	**V-0**	class	IEC 60695-11-10
Thickness tested	**1.5**	mm	-
Yellow Card available	**yes**	-	-
Glow Wire Flammability Index (GWFI)	**960**	°C	IEC 60695-2-12
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Glow Wire Ignition Temperature (GWIT)	**725**	°C	IEC 60695-2-13
GWIT - thickness tested (2)	**2**	mm	-
Glow Wire Ignition Temperature (GWIT)	**875**	°C	IEC 60695-2-13
GWIT - thickness tested (3)	**3**	mm	-
ASTM Data			
Coefficient of Thermal Expansion, MD	**80**	E-6/K	ASTM D 696

Coefficient of Thermal Expansion, TD	**82**	E-6/K	ASTM D 696
DTUL @ 264 psi	**94**	°C	ASTM D 648
Vicat Temperature	**118**	°C	ASTM D 1525

Electrical properties	**Value**	**Unit**	**Test Standard**
ASTM Data			
Arc Resistance	**90**	s	ASTM D 495

Other properties	**Value**	**Unit**	**Test Standard**
Water absorption	**0.1**	%	Sim. to ISO 62
Humidity absorption	**0.06**	%	Sim. to ISO 62
Density	**1110**	kg/m³	ISO 1183
Density	**1110**	kg/m³	ASTM D 792

Processing Recommendation Injection Molding	**Value**	**Unit**	**Test Standard**
Pre-drying - Temperature	**95 - 100**	°C	-
Pre-drying - Time	**3 - 4**	h	-
Processing humidity	**≤0.02**	%	-
Melt temperature	**260 - 290**	°C	-
Mold temperature	**70 - 95**	°C	-
Zone 1	**225 - 275**	°C	-
Zone 2	**240 - 280**	°C	-
Zone 3	**250 - 290**	°C	-
Screw speed	**20 - 100**	rpm	-
Back pressure	**0.3 - 0.7**	MPa	-

Characteristics

Processing
Injection Molding

Additives
Flame retarding agent

Special Characteristics
Flame retardant, Halogen-free, High impact or impact modified, Heat stabilized or stable to heat

Chemical Resistance
General Chemical Resistance, Hydrolytically Stable

Regional Availability
North America, Europe, Asia Pacific, South and Central America