NORYL™ Resin FNH2160

REGION EUROPE

DESCRIPTION

NORYL FNH2160 resin is a foamable blend of polyphenylene ether (PPE) + polystyrene (PS) and offers 20% weight reduction at 6.35mm (0.250") wall. This material contains non-brominated, non-chlorinated flame retardant with a UL94 flame rating of 5VA at 3.9 mm and V1 at 3mm. NORYL FNH2160 resin offers fast cycle time, improved processing, and exhibits good dimensional stability and low moisture absorption. The unique combination of properties in this structural foam material allows for designing optimum wall thickness in computer and business machine applications, electrical enclosures/housings, medical equipment, and hospital bed rails and components.

GENERAL INFORMATION	
Features	Flame Retardant, Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Non Cl/Br flame retardant, Non halogenated flame retardant, Dimensional stability, High stiffness/Strength
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Structural Foam Molding

INDUSTRY	SUB INDUSTRY
Electrical and Electronics	Mobile Phone - Computer - Tablets
Hygiene and Healthcare	General Healthcare, Patient Testing

TYPICAL PROPERTY VALUES

Revision 20260904

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Modulus, 50 mm/min	2680	MPa	ASTM D638
Tensile Stress, yield, 50 mm/min	55	MPa	ASTM D638
Tensile Strain, yield, 50 mm/min	3.04	%	ASTM D638
Tensile Stress, yield, 6.35 mm	36	MPa	ASTM D638
Tensile Stress, break, 6.35 mm	34	MPa	ASTM D638
Tensile Strain, break, 6.35 mm	12	%	ASTM D638
Flexural Stress, yield, 6.4 mm	70	MPa	ASTM D790
Flexural Modulus, 6.4 mm	2250	MPa	ASTM D790
FOAM - MECHANICAL 6.4 mm Wt Reduction	20	%	-
IMPACT [1]			
Izod Impact, Unnotched			
23°C, 6.4mm	362	J/m	ASTM D4812
Instrumented Dart Impact Energy @ peak, 23°C	29	J	ASTM D3763
FOAM - IMPACT 6.4 mm Wt Reduction	20	%	-
THERMAL [1]			
FOAM - THERMAL 6.4mm Wt Reduction	20	%	-
HDT, 0.45 MPa, 6.4 mm, unannealed	93	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	82	°C	ASTM D648
Relative Temp Index, Elec [2]	65	°C	UL 746B

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Relative Temp Index, Mech w/impact [2]	65	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	65	°C	UL 746B
PHYSICAL [1]			
FOAM - PHYSICAL 6.4mm Wt Reduction	20	%	-
Specific Gravity	1.12	-	ASTM D792
Specific Gravity, foam molded	0.88	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.07	%	ASTM D570
Mold Shrinkage, flow, 6.4 mm [3]	0.5 – 0.8	%	SABIC method
Melt Volume Rate, MVR at 280°C/5.0 kg	36	cm³/10 min	ISO 1133
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E121562-101920328	-	-
FOAM - Flame Class Minimum Density	0.85	g/cm³	-
UL Recognized, 94-5VA Flame Class Rating	≥3.9	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥6	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥3	mm	UL 94
STRUCTURAL FOAM MOLDING			
Blowing Agent, Physical System	Nitrogen Gas	-	
Concentration Range (Blowing Agent)	1 – 3	%	
Recommended Concentration (Blowing Agent)	2	%	
Drying Temperature (Resin)	70 – 80	°C	
Drying Time (Resin)	2 – 4	Hrs	
Drying Time (Resin, Cumulative)	8	Hrs	
Melt Temperature	270 – 310	°C	
Nozzle Temperature	270 – 305	°C	
Front Temperature	270 – 305	°C	
Middle Temperature	270 – 305	°C	
Rear Temperature	230 – 260	°C	
Mold Temperature	25 – 55	°C	

(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) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses, colors and regions. For details, please see the UL Yellow Card.

(3) 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.

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