NORYL™ Resin LTA6020

REGION EUROPE

DESCRIPTION

NORYL LTA6020 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of 5VA at 2.5mm, 5VB at 2mm, and V0 at 1.5mm along with a UL746C Outdoor Suitability rating of F1. NORYL LTA6020 exhibits good dimensional stability over a wide temperature range, high heat performance, low moisture uptake, and offers long-term aging / retention of mechanical properties. It is an excellent candidate for solar / photovoltaic (PV) junction boxes and outdoor electrical enclosures.

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
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Building and Construction	Building Component
Electrical and Electronics	Energy Management, Electronic Components
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20261103

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	72	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D638
Flexural Stress, yld, 2.6 mm/min, 100 mm span	105	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2580	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	71	MPa	ISO 527
Tensile Stress, break, 50 mm/min	57	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4	%	ISO 527
Tensile Strain, break, 50 mm/min	8	%	ISO 527
Tensile Modulus, 1 mm/min	2680	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	105	MPa	ISO 178
Flexural Modulus, 2 mm/min	2600	MPa	ISO 178
IMPACT [1]			
Charpy Impact, unnotched, 23°C	18	kJ/m²	ISO 179/2C
Izod impact, notched			
23°C	220	J/m	ASTM D256
80*10*4 +23°C	16	kJ/m²	ISO 180/1A
80*10*4 0°C	12	kJ/m²	ISO 180/1A
80*10*4 -10°C	11	kJ/m²	ISO 180/1A

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
80*10*4 -20°C	10	kJ/m²	ISO 180/1A
80*10*4 -30°C	8	kJ/m²	ISO 180/1A
80*10*4 -40°C	8	kJ/m²	ISO 180/1A
THERMAL [1]			
HDT, 1.82 MPa, 6.4 mm, unannealed	126	°C	ASTM D648
CTE, -40°C to 40°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ISO 11359-2
Ball Pressure Test			
125°C +/- 2°C	125	-	IEC 60695-10-2
approximate maximum	135	°C	IEC 60695-10-2
Vicat Softening Temp, Rate A/120	155	°C	ISO 306
Vicat Softening Temp, Rate B/120	144	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	136	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	123	°C	ISO 75/Af
Relative Temp Index, Elec [2]	125	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	125	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	125	°C	UL 746B
PHYSICAL [1]			
Mold Shrinkage, flow	0.5 – 0.7	%	SABIC method
Specific Gravity	1.13	-	ASTM D792
Melt Flow Rate, 250°C/10.0 kgf	4	g/10 min	ASTM D1238
Density	1.13	g/cm³	ISO 1183
Melt Volume Rate, MVR at 280°C/5.0 kg	8	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	20	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Comparative Tracking Index (UL) {PLC}	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 1	≥1	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥1	mm	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E45329-100960629	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥2	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥1	mm	UL 94
Glow Wire Flammability Index, 1.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	825	°C	IEC 60695-2-13
UV-light, water exposure/immersion	F1	-	UL 746C

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
INJECTION MOLDING [3]			
Drying Temperature	105	°C	
Drying Time	3 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 300	°C	
Nozzle Temperature	270 – 300	°C	
Front - Zone 3 Temperature	270 – 290	°C	
Middle - Zone 2 Temperature	280 – 300	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Hopper Temperature	60 – 80	°C	
Mold Temperature	80 – 100	°C	
PROFILE EXTRUSION			
Drying Temperature	100 – 110	°C	
Drying Time	3 – 4	Hrs	
Melt Temperature	240 – 270	°C	
Barrel - Zone 1 Temperature	200 – 230	°C	
Barrel - Zone 2 Temperature	220 – 250	°C	
Barrel - Zone 3 Temperature	240 – 270	°C	
Barrel - Zone 4 Temperature	240 – 270	°C	
Hopper Temperature	40 – 60	°C	
Die Temperature	240 – 270	°C	
Calibrator Temperature	50 – 80	°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) 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.

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