NORYL™ Resin N1250G

DESCRIPTION

NORYL N1250G resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS) with component synthesized from Bio source. This injection moldable grade contains non-brominated, non-chlorinated flame retardant and carries a UL94 flame rating of 5VA at 2.5mm and V0 at 0.75mm. NORYL N1250G resin offers thin wall FR capability, enhanced dimensional stability, high heat resistance, low moisture absorption, and good electrically insulating properties. This material is intended for a variety of consumer electronic applications such as charger and adapter housings.

GENERAL INFORMATION	
Features	Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Bio-Renewable, Non Cl/Br flame retardant, Dimensional stability, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries
Building and Construction	Building Component
Consumer	Home Appliances, Commercial Appliance
Electrical and Electronics	Energy Management, Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241118

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, brk, Type I, 50 mm/min	62	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	15	%	ASTM D638
Tensile Modulus, 50 mm/min	2700	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	120	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2800	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	75	MPa	ISO 527
Tensile Stress, break, 50 mm/min	55	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.5	%	ISO 527
Tensile Strain, break, 50 mm/min	8	%	ISO 527
Tensile Modulus, 1 mm/min	2620	MPa	ISO 527
Flexural Strength, 2 mm/min	109	MPa	ISO 178
Flexural Modulus, 2 mm/min	2530	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	100	J/m	ASTM D256
Izod Impact, notched 80*10*4 +23°C	8	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
THERMAL [1]			
HDT, 0.45 MPa, 6.4 mm, unannealed	135	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	123	°C	ASTM D648
CTE, -30°C to 30°C	7.00E-05	1/°C	TMA
CTE, -40°C to 40°C, flow	6.1E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/120	139	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	119	°C	ISO 75/Af
Relative Temp Index, Elec [2]	110	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	105	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	110	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.1	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.07	%	ASTM D570
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Mold Shrinkage, flow, 24 hrs [3]	0.5	%	ISO 294
Density	1.1	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.25	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	12	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Dielectric Strength, in oil, 3.2 mm	49	kV/mm	IEC 60243-1
Comparative Tracking Index [4]	250	V	IEC 60112
Comparative Tracking Index (UL) {PLC} [2]	2	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0 [2]	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0 [2]	≥0.75	mm	UL 746A
High Voltage Arc Track Rate {PLC} [2]	4	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	6	PLC Code	ASTM D495
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-228585	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
UL Recognized, 94V-2 Flame Class Rating	≥0.4	mm	UL 94
Glow Wire Flammability Index, 0.75 mm	960	°C	IEC 60695-2-12
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, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 0.75 mm	750	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.0 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	775	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	775	°C	IEC 60695-2-13
INJECTION MOLDING [5]			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	Hrs	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

(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 and colors. 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.
(4) Value shown here is based on internal measurement.
(5) 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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