NORYL™ RESIN NP6020

DESCRIPTION

NORYL NP6020 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS) designed for high heat resistance and thin-wall FR performance. This injection moldable grade, non-chlorinated, non-brominated flame-retardant grade has a UL-94 V0 rating at 1.5 mm (all colors) and certified per UL746G - an outline of investigation for non-Fluorine and non-PFAS containing materials. NORYL NP6020 resin passes VDE/DIN 475 part 815 testing, Ball Pressure Test (BPT) at 125C, GWFI 960C at 1, 2, 3mm, GWIT 825C at 1mm, and CTI >600V making this an excellent candidate for unattended appliance components where EN/IEC 60335 applies.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Heat Stabilized, 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 temperature resistance, Impact resistant, UL 746G certified, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Injection Molding
Regional Availability	Global

TYPICAL PROPERTY VALUES

Revision 20250822

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	78	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	67	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	4.6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	6.1	%	ASTM D638
Tensile Modulus, 5 mm/min	2740	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	121	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	3020	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	77	MPa	ISO 527
Tensile Stress, break, 50 mm/min	56	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.6	%	ISO 527
Tensile Strain, break, 50 mm/min	4.7	%	ISO 527
Tensile Modulus, 1 mm/min	2740	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	114	MPa	ISO 178
Flexural Modulus, 2 mm/min	2680	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	49	J/m	ASTM D256
Izod Impact, notched, -30°C	36	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	18	J	ASTM D3763
Izod Impact, notched 80*10*4 +23°C	8	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	9	kJ/m²	ISO 179/1eA
THERMAL [1]			
Vicat Softening Temp, Rate B/50	150	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	125	°C	ASTM D648

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, flow	7.75E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	7.5E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.75E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	125	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	141	°C	ISO 306
Vicat Softening Temp, Rate B/120	151	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	124	°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	1.14	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	13.5	g/10 min	ASTM D1238
Density	1.14	g/cm³	ISO 1183
Water Absorption, (23°C/saturated)	0.18	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	11	cm³/10 min	ISO 1133
ELECTRICAL [1]			
Volume Resistivity	2.5E+16 – 4.2E+16	Ω.cm	IEC 60093
Dielectric Strength, in oil, 1.6 mm	27	kV/mm	IEC 60243-1
Dissipation Factor, 1 MHz	0.0029	-	IEC 60250
Comparative Tracking Index [4]	600	V	IEC 60112
Relative Permittivity, 50/60 Hz	2.7	-	IEC 60250
High Amp Arc Ignition (HAI), PLC 2	≥1	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 3	≥0.75	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2	≥0.75	mm	UL 746A
FLAME CHARACTERISTICS [2]			
UL 746G certificate	Certificate of Compliance	-	
UL Yellow Card Link	E45329-100104907	-	-
UL Yellow Card Link 2	E45329-100158888	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥0.75	mm	UL 94
Glow Wire Flammability Index, 1.0 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 Ignitability Temperature, 1.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	800	°C	IEC 60695-2-13
UV-light, water exposure/immersion	F1	-	UL 746C
Oxygen Index (LOI)	37	%	ISO 4589
INJECTION MOLDING [5]			
Drying Temperature	110 – 120	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Drying Time	2 – 3	Hrs	
Melt Temperature	300 – 320	°C	
Nozzle Temperature	280 – 300	°C	
Front - Zone 3 Temperature	300 – 320	°C	
Middle - Zone 2 Temperature	280 – 300	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Hopper Temperature	80 – 100	°C	
Mold Temperature	100 – 133	°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.
(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.

MORE INFORMATION

For curve data and CAE cards, please visit and register at https://materialfinder.sabic-specialties.com

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