

Noryl* Resin NH6020

Americas: COMMERCIAL

Noryl NH6020 resin is an unfilled, injection moldable modified polyphenylene ether resin. Designed for high heat resistance and thin wall FR performance, this resin delivers a UL94 V0 rating at 0.8 mm and is also non-halogenated according to VDE/DIN 472 part 815. Noryl NH6020 resin has a HDT > of 120 deg C, pass the BPT @ 125 deg C, pass the GWIT 775 deg C @ 1, 2 and 3 mm, has the CTI value > 250 V and may be an excellent material candidate for unattended appliances components, where IEC 60335 applies.

Property

TYPICAL PROPERTIES ⁽¹⁾			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 50 mm/min	78	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	67	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4.6	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	6.1	%	ASTM D 638
Tensile Modulus, 5 mm/min	2740	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	121	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3020	MPa	ASTM D 790
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	4.2	%	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	Value	Unit	Standard
Izod Impact, notched, 23°C	49	J/m	ASTM D 256
Izod Impact, notched, -30°C	36	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	18	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	8	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	5	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	9	kJ/m ²	ISO 179/1eA
THERMAL	Value	Unit	Standard
Vicat Softening Temp, Rate B/50	150	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	125	°C	ASTM D 648
CTE, -40°C to 40°C, flow	7.75E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.E+00	1/°C	ASTM E 831
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	110	°C	UL 746B
Relative Temp Index, Mech w/impact	105	°C	UL 746B
Relative Temp Index, Mech w/o impact	110	°C	UL 746B
PHYSICAL	Value	Unit	Standard

Specific Gravity	1.14	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 280°C/5.0 kgf	13.5	g/10 min	ASTM D 1238
Density	1.14	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.18	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 280°C/5.0 kg	11	cm ³ /10 min	ISO 1133
ELECTRICAL	Value	Unit	Standard
Hot Wire Ignition (PLC)	1	PLC Code	UL 746A
Volume Resistivity	2.5E+16 - 4.15E+16	Ohm-cm	IEC 60093
Dielectric Strength, in oil, 1.6 mm	27	kV/mm	IEC 60243-1
Relative Permittivity, 50/60 Hz	2.7	-	IEC 60250
Dissipation Factor, 1 MHz	0.0029	-	IEC 60250
Comparative Tracking Index	600	V	IEC 60112
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Compliant, 94V-0 Flame Class Rating (3)(4)	0.75	mm	UL 94 by GE
UL Compliant, 94-5VA Rating (3)(4)	2.5	mm	UL 94 by GE
UL Compliant, 94-5VB Rating (3)(4)	2.5	mm	UL 94 by GE
Glow Wire Flammability Index 960°C, passes at	3	mm	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

Source GMD, last updated:08/19/2008

Processing

Parameter	Value	Unit
Injection Molding		
Drying Temperature	110 - 120	°C
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 - 130	°C

Source GMD, last updated:08/19/2008

THESE PROPERTY VALUES ARE NOT INTENDED FOR SPECIFICATION PURPOSES.

PLEASE CHECK WITH YOUR [\(LOCAL SALES OFFICE\)](#) FOR AVAILABILITY IN YOUR REGION

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) Only typical data for selection purposes. Not to be used for part or tool design.

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

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