

Noryl* Resin NH7112

Americas: COMMERCIAL

Noryl* NH7112 resin is a 10% glass reinforced, modified PPE-PS blend. The material offers an exceptional balance of strength and dimensional stability while using non-halogenated flame retardants to achieve UL94 flame ratings. This grade can be processed via extrusion or injection molding. Noryl NH7112 is available in custom colors and may be an excellent material candidate for use in electrical and electronics markets.

Property

TYPICAL PROPERTIES ⁽¹⁾			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 5 mm/min	83	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	83	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	3	%	ASTM D 638
Tensile Modulus, 5 mm/min	4300	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	137	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3750	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	85	MPa	ISO 527
Tensile Stress, break, 5 mm/min	85	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	3	%	ISO 527
Tensile Strain, break, 5 mm/min	3	%	ISO 527
Tensile Modulus, 1 mm/min	4400	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	140	MPa	ISO 178
Flexural Stress, break, 2 mm/min	134	MPa	ISO 178
Flexural Modulus, 2 mm/min	4150	MPa	ISO 178
IMPACT	Value	Unit	Standard
Izod Impact, notched, 23°C	70	J/m	ASTM D 256
Izod Impact, notched, -30°C	60	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	15	J	ASTM D 3763
Izod Impact, unnotched 80*10*3 +23°C	26	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 +23°C	24	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	25	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	7	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	6	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	7	kJ/m ²	ISO 179/1eA
Charpy Impact, notched, 23°C	7	kJ/m ²	ISO 179/2C
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	6	kJ/m ²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	31	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	31	kJ/m ²	ISO 179/1eU
THERMAL	Value	Unit	Standard
Vicat Softening Temp, Rate B/50	148	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	138	°C	ASTM D 648
CTE, -40°C to 40°C, flow	5.5E-04	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	5.5E-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	PASSES	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	148	°C	ISO 306
Vicat Softening Temp, Rate B/120	150	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	137	°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	1.16	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.2 - 0.4	%	SABIC Method
Melt Flow Rate, 280°C/5.0 kgf	6.5	g/10 min	ASTM D 1238
Density	1.17	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.22	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.07	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	14	cm ³ /10 min	ISO 1133
ELECTRICAL	Value	Unit	Standard
Dielectric Strength, in oil, 3.2 mm	25	kV/mm	ASTM D 149
Relative Permittivity, 1 MHz	2.93	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0034	-	ASTM D 150
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	4	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	1	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	4	PLC Code	UL 746A
Volume Resistivity	>1.E+15	Ohm-cm	IEC 60093
Surface Resistivity, ROA	>3.E+17	Ohm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Relative Permittivity, 1 MHz	2.9	-	IEC 60250
Dissipation Factor, 1 MHz	0.0034	-	IEC 60250
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Compliant, 94V-1 Flame Class Rating (3)(4)	1	mm	UL 94 by GE
UL Compliant, 94-5VA Rating (3)(4)	2.5	mm	UL 94 by GE
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	775	°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:02/07/2008

Processing

Parameter	Value	Unit
Injection Molding		
Drying Temperature	100 - 120	°C
Drying Time	2 - 3	hrs
Melt Temperature	280 - 300	°C
Nozzle Temperature	260 - 280	°C
Front - Zone 3 Temperature	280 - 300	°C
Middle - Zone 2 Temperature	260 - 280	°C
Rear - Zone 1 Temperature	240 - 260	°C
Hopper Temperature	60 - 80	°C
Mold Temperature	80 - 120	°C

Source GMD, last updated:02/07/2008

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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