NORYL™ RESIN BN9003G

REGION ASIA

DESCRIPTION

NORYL BN0039 resin is a non-reinforced blend of polyphenylene ether (PPE) + polystyrene (PS). This blow moldable grade exhibits a good balance of impact resistance and surface aesthetics. NORYL BN0039 resin, with its Low warpage and dimensional stability, is an excellent candidate for automotive exterior components including spoilers.

GENERAL INFORMATION	
Features	Hydrolytic Stability, Low Warpage, Amorphous, Low Shrinkage, Low Moisture Absorption, Low Specific Gravity, Dimensional stability
Fillers	Unreinforced
Polymer Types	Polyphenylene Ether + PS (PPE+PS)
Processing Techniques	Extrusion Blow Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Exteriors

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	48	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	42	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	3.6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	45	%	ASTM D638
Tensile Modulus, 5 mm/min	2240	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	70	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2150	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	47	MPa	ISO 527
Tensile Stress, break, 50 mm/min	42	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	3.4	%	ISO 527
Tensile Strain, break, 50 mm/min	30.4	%	ISO 527
Tensile Modulus, 1 mm/min	2170	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	75	MPa	ISO 178
Flexural Modulus, 2 mm/min	2190	MPa	ISO 178
IMPACT [1]			
Izod Impact, unnotched, 23°C	NB	J/m	ASTM D4812
Izod Impact, notched, 23°C	320	J/m	ASTM D256
Izod Impact, notched, -30°C	127	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	40	J	ASTM D3763
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	54	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*4 +23°C	25	kJ/m²	ISO 180/1A

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 -30°C	10	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	26	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	12	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	107	kJ/m²	ISO 179/1eU
THERMAL [1]			
Vicat Softening Temp, Rate B/50	141	°C	ASTM D1525
HDT, 0.45 MPa, 3.2 mm, unannealed	124	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	108	°C	ASTM D648
CTE, -40°C to 40°C, flow	8.6E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	9.5E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	8.6E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	9.5E-05	1/°C	ISO 11359-2
Ball Pressure Test, 75°C +/- 2°C	N/A	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	127	°C	ISO 306
Vicat Softening Temp, Rate B/120	130	°C	ISO 306
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	126	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	110	°C	ISO 75/Af
PHYSICAL [1]			
Specific Gravity	1.06	-	ASTM D792
Mold Shrinkage on Tensile Bar, flow [2]	0.55 – 0.75	%	SABIC method
Mold Shrinkage, flow, 3.2 mm [2]	0.55 – 0.75	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.55 – 0.75	%	SABIC method
Melt Flow Rate, 280°C/5.0 kgf	10	g/10 min	ASTM D1238
Density	1.06	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
EXTRUSION BLOW MOLDING			
Drying Temperature	80 – 85	°C	
Drying Time	2 – 4	Hrs	
Melt Temperature (Parison)	235 – 260	°C	
Barrel - Zone 1 Temperature	225 – 260	°C	
Barrel - Zone 2 Temperature	230 – 260	°C	
Barrel - Zone 3 Temperature	235 – 260	°C	
Barrel - Zone 4 Temperature	235 – 260	°C	
Adapter - Zone 5 Temperature	235 – 260	°C	
Head - Zone 6 - Top Temperature	235 – 260	°C	
Head - Zone 7 - Middle Temperature	235 – 260	°C	
Head - Zone 7 - Bottom Temperature	235 – 260	°C	
Mold Temperature	65 – 95	°C	
Die Temperature	235 – 260	°C	

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(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) 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.

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