



NORYL™ Resin HNA055

Europe-Africa-Middle East: COMMERCIAL

>PPE+PS-HI< Autoclavable engineering thermoplastic. Biocompatible per ISO10993 (color dependent).

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	690	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	560	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	4.8	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	16.3	%	ASTM D 638
Tensile Modulus, 5 mm/min	33100	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1020	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	25900	kgf/cm ²	ASTM D 790
Tensile Stress, yield, 50 mm/min	61	MPa	ISO 527
Tensile Stress, break, 50 mm/min	57	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	3.8	%	ISO 527
Tensile Strain, break, 50 mm/min	12.6	%	ISO 527
Tensile Modulus, 1 mm/min	2400	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	107	MPa	ISO 178
Flexural Modulus, 2 mm/min	2490	MPa	ISO 178
IMPACT			
Izod Impact, notched, 23°C	29	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	14	cm-kgf/cm	ASTM D 256
Instrumented Impact Total Energy, 23°C	550	cm-kgf	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	24	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	14	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	27	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	168	°C	ASTM D 1525



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THERMAL			
HDT, 1.82 MPa, 3.2mm, unannealed	147	°C	ASTM D 648
CTE, -40°C to 40°C, flow	8.66E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	9.25E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	8.66E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	9.25E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	168	°C	ISO 306
Vicat Softening Temp, Rate B/120	169	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	147	°C	ISO 75/Af
PHYSICAL			
Specific Gravity	1.08	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.6 - 0.8	%	SABIC Method
Melt Flow Rate, 300°C/5.0 kgf	6.2	g/10 min	ASTM D 1238
Density	1.08	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.23	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.06	%	ISO 62
Melt Volume Rate, MVR at 300°C/5.0 kg	5	cm ³ /10 min	ISO 1133



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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
Drying Temperature	105 - 110	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	8	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	295 - 315	°C
Nozzle Temperature	295 - 315	°C
Front - Zone 3 Temperature	280 - 315	°C
Middle - Zone 2 Temperature	270 - 310	°C
Rear - Zone 1 Temperature	260 - 305	°C
Mold Temperature	75 - 105	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	20 - 100	rpm
Shot to Cylinder Size	30 - 70	%

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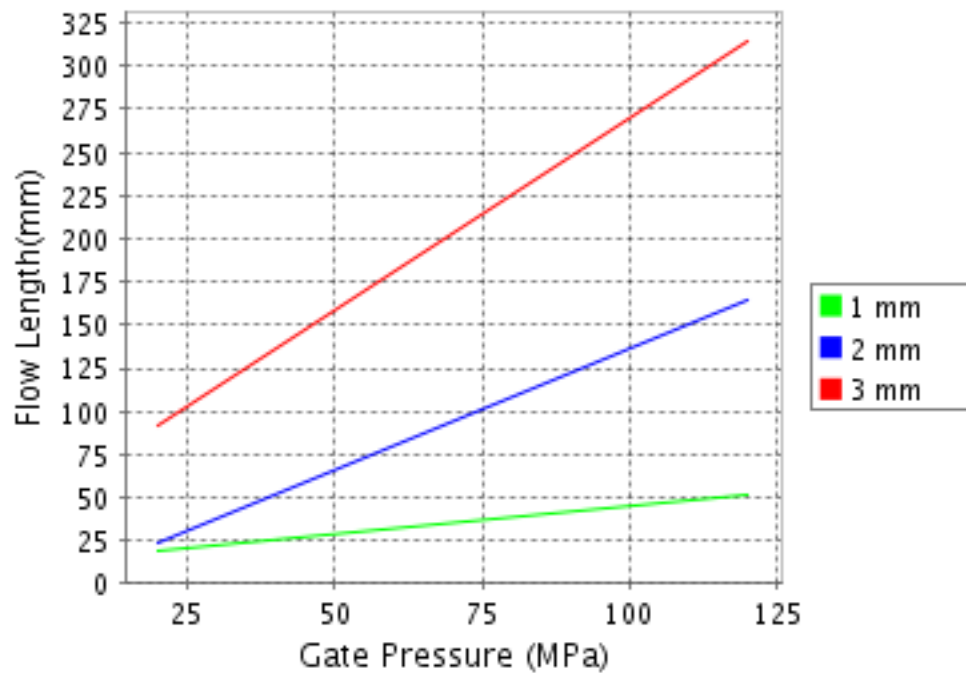
CALCULATED FLOW LENGTH INDICATION

Moldflow® Radial Flow Analysis

NORYL® HNA055

Melt Temperature : 305°C

Mold Temperature : 90°C



Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.

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