

Lexan* Resin HP9NR

Americas: COMMERCIAL

Low flow polycarbonate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 or USP Class VI). EtO and steam sterilizable. For blow molding applications.

Property

TYPICAL PROPERTIES ⁽¹⁾			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 50 mm/min	62	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	65	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	110	%	ASTM D 638
Tensile Modulus, 5 mm/min	2130	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	93	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2340	MPa	ASTM D 790
Hardness, Rockwell R	118	-	ASTM D 785
Taber Abrasion, CS-17, 1 kg	10	mg/1000cy	ASTM D 1044
Tensile Stress, yield, 50 mm/min	64	MPa	ISO 527
Tensile Stress, break, 50 mm/min	62	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6.8	%	ISO 527
Tensile Strain, break, 50 mm/min	100	%	ISO 527
Tensile Modulus, 1 mm/min	2300	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	93	MPa	ISO 178
Flexural Modulus, 2 mm/min	2100	MPa	ISO 178
IMPACT	Value	Unit	Standard
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D 4812
Izod Impact, notched, 23°C	747	J/m	ASTM D 256
Izod Impact, notched, -30°C	136	J/m	ASTM D 256
Falling Dart Impact (D 3029), 23°C	169	J	ASTM D 3029
Instrumented Impact Total Energy, 23°C	77	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	54	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	15	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	72	kJ/m ²	ISO 179/1eA
THERMAL	Value	Unit	Standard
Vicat Softening Temp, Rate B/50	157	°C	ASTM D 1525
HDT, 0.45 MPa, 6.4 mm, unannealed	137	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	132	°C	ASTM D 648
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ASTM E 831
CTE, -40°C to 95°C, flow	6.84E-05	1/°C	ASTM E 831
Specific Heat	1.25	J/g·°C	ASTM C 351
Thermal Conductivity	0.19	W/m·°C	ASTM C 177
CTE, -40°C to 40°C, flow	7.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	160	°C	ISO 306
Vicat Softening Temp, Rate B/120	162	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	131	°C	ISO 75/Af

Relative Temp Index, Elec	80	°C	UL 746B
Relative Temp Index, Mech w/impact	80	°C	UL 746B
Relative Temp Index, Mech w/o impact	80	°C	UL 746B
PHYSICAL	Value	Unit	Standard
Specific Gravity	1.2	-	ASTM D 792
Specific Volume	0.83	cm ³ /g	ASTM D 792
Density	1.19	g/cm ³	ASTM D 792
Water Absorption, 24 hours	0.15	%	ASTM D 570
Water Absorption, equilibrium, 23C	0.35	%	ASTM D 570
Water Absorption, equilibrium, 100°C	0.58	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.5 - 0.7	%	SABIC Method
Melt Flow Rate, 300°C/1.2 kgf	2.5	g/10 min	ASTM D 1238
Density	1.2	g/cm ³	ISO 1183
Water Absorption, (23°C/sat)	0.26	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.1	%	ISO 62
Melt Volume Rate, MVR at 300°C/1.2 kg	2	cm ³ /10 min	ISO 1133
OPTICAL	Value	Unit	Standard
Light Transmission	88	%	ASTM D 1003
Haze	1	%	ASTM D 1003
Refractive Index	1.586	-	ASTM D 542
FLAME CHARACTERISTICS	Value	Unit	Standard
UL Recognized, 94HB Flame Class Rating (3)	0.45	mm	UL 94

Source GMD, last updated:09/18/2007

Processing

- **CAUTION:** For production delays of two or more hours, reduce temperature setpoints to 150°C (300°F).

Parameter	Value	Unit
Injection Molding		
Drying Temperature	120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	320 - 345	°C
Nozzle Temperature	315 - 340	°C
Front - Zone 3 Temperature	320 - 345	°C
Middle - Zone 2 Temperature	310 - 330	°C
Rear - Zone 1 Temperature	300 - 320	°C
Mold Temperature	80 - 115	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	40 - 70	rpm
Shot to Cylinder Size	40 - 60	%
Vent Depth	0.025 - 0.076	mm

Parameter	Value	Unit
Extrusion Blow Molding		
Drying Temperature	115 - 120	°C
Drying Time	4 - 6	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Minimum Moisture Content	0.01	%
Melt Temperature (Parison)	265 - 275	°C
Barrel - Zone 1 Temperature	260 - 275	°C
Barrel - Zone 2 Temperature	260 - 275	°C
Barrel - Zone 3 Temperature	260 - 275	°C
Barrel - Zone 4 Temperature	260 - 275	°C

Adapter - Zone 5 Temperature	260 - 275	°C
Head - Zone 6 - Top Temperature	260 - 275	°C
Head - Zone 7 - Bottom Temperature	260 - 275	°C
Screw Speed	15 - 50	rpm
Mold Temperature	65 - 95	°C
Die Temperature	270 - 280	°C

Source GMD, last updated:09/18/2007

- Purge with HDPE prior to changing screw, head, or die tooling and/or machine shutdown.
- 24:1 L:D low shear 2.5:1 compression ratio screw recommended. Screw design affects melt temperature. Screw speed -- 15-50 rpm suggested. Adjust actual rpm for desired output while maintaining desired melt temperature range.

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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