



LEXAN™ Resin 503R
Americas: COMMERCIAL

10% GR PC. Optimum combination of high modulus plus excellent impact strength and flame retardance. UV-stabilized. Internal mold release.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 5 mm/min	670	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	560	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	8	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	15	%	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	1050	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	35100	kgf/cm ²	ASTM D 790
Hardness, Rockwell M	85	-	ASTM D 785
Hardness, Rockwell R	124	-	ASTM D 785
Taber Abrasion, CS-17, 1 kg	11	mg/1000cy	ASTM D 1044
IMPACT			
Izod Impact, unnotched, 23°C	217	cm-kgf/cm	ASTM D 4812
Izod Impact, notched, 23°C	10	cm-kgf/cm	ASTM D 256
Tensile Impact, Type S	160	cm-kgf/cm ²	ASTM D 1822
Falling Dart Impact (D 3029), 23°C	1036	cm-kgf	ASTM D 3029
THERMAL			
Vicat Softening Temp, Rate B/50	154	°C	ASTM D 1525
HDT, 0.45 MPa, 6.4 mm, unannealed	146	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	142	°C	ASTM D 648
CTE, -40°C to 95°C, flow	3.24E-05	1/°C	ASTM E 831
Specific Heat	1.21	J/g-°C	ASTM C 351
Thermal Conductivity	0.2	W/m-°C	ASTM C 177
Relative Temp Index, Elec	120	°C	UL 746B
Relative Temp Index, Mech w/impact	110	°C	UL 746B

(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.

(5) 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.

(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

Source GMD, last updated:

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THERMAL			
Relative Temp Index, Mech w/o impact	125	°C	UL 746B
PHYSICAL			
Specific Gravity	1.25	-	ASTM D 792
Specific Volume	0.8	cm ³ /g	ASTM D 792
Density	1.245	g/cm ³	ASTM D 792
Water Absorption, 24 hours	0.12	%	ASTM D 570
Water Absorption, equilibrium, 23C	0.31	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm (5)	0.2 - 0.4	%	SABIC Method
ELECTRICAL			
Volume Resistivity	>1.E+17	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 3.2 mm	17.7	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	3.1	-	ASTM D 150
Relative Permittivity, 1 MHz	3.05	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0008	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0075	-	ASTM D 150
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D 495
Hot Wire Ignition {PLC}	1	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	3	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
FLAME CHARACTERISTICS			
UL Recognized, 94V-0 Flame Class Rating (3)	1.52	mm	UL 94
UL Recognized, 94-5VA Rating (3)	2.99	mm	UL 94
Oxygen Index (LOI)	36	%	ASTM D 2863
UV-light, water exposure/immersion	F1	-	UL 746C

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PROCESSING PARAMETERS	TYPICAL 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	310 - 330	°C
Nozzle Temperature	305 - 325	°C
Front - Zone 3 Temperature	310 - 330	°C
Middle - Zone 2 Temperature	300 - 320	°C
Rear - Zone 1 Temperature	290 - 310	°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

• NOTE: Back Pressure, Screw Speed, Shot to Cylinder Size and Vent Depth are only mentioned as general guidelines. These may not apply or need adjustment in specific situations such as low shot sizes, thin wall molding and gas-assist molding.

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