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SABIC LEXAN™ FR 505RU

LEXAN 505RU Polycarbonate (PC) is an injection moldable non-chlorinated and non-brominated flame retardant grade that is 10% glass fiber filled. It It is UV stabilized and has a UL94 V0@1.5mm rating and is available in various opaque color options. This is an alternative to LEXAN 503R, 503R, 503RS.

Physical Properties	Metric	English	Comments
Specific Gravity	1.26 g/cc	1.26 g/cc	ASTM D792
Density	1.26 g/cc	0.0455 lb/in³	ISO 1183
Water Absorption	0.30 %	0.30 %	23°C/sat; ISO 62
Moisture Absorption	0.150 %	0.150 %	23°C / 50% RH; ISO 62
Linear Mold Shrinkage, Flow	0.0040 - 0.0060 cm/cm @Thickness 3.20 mm	0.0040 - 0.0060 in/in @Thickness 0.126 in	SABIC method
Melt Flow	7.0 g/10 min @Load 1.20 kg, Temperature 300 °C	7.0 g/10 min @Load 2.65 lb, Temperature 572 °F	cm³/10 min; ISO 1133
	8.0 g/10 min @Load 1.20 kg, Temperature 300 °C	8.0 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	60.0 MPa	8700 psi	5 mm/min; ISO 527
	62.0 MPa	8990 psi	5 mm/min; ASTM D638
Tensile Strength, Yield	72.0 MPa	10400 psi	5 mm/min; ISO 527
	74.0 MPa	10700 psi	5 mm/min; ASTM D638
Elongation at Break	6.0 %	6.0 %	5 mm/min; ISO 527
	6.0 %	6.0 %	5 mm/min; ASTM D638
Elongation at Yield	3.0 %	3.0 %	5 mm/min; ISO 527
	4.0 %	4.0 %	5 mm/min; ASTM D638
Tensile Modulus	3.50 GPa	508 ksi	1mm/min; ISO 527
	3.60 GPa	522 ksi	5 mm/min; ASTM D638
Flexural Yield Strength	114 MPa	16500 psi	1.3 mm/min, 50 mm span; ASTM D790
	122 MPa	17700 psi	2 mm/min; ISO 178
Flexural Modulus	3.20 GPa	464 ksi	1.3 mm/min, 50 mm span; ASTM D790
	3.50 GPa	508 ksi	2 mm/min; ISO 178

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Izod Impact, Notched	0.900 J/cm	1.69 ft-lb/in	ASTM D256
	0.700 J/cm @Temperature -30.0 °C	1.31 ft-lb/in @Temperature -22.0 °F	ASTM D256
Izod Impact, Unnotched	12.0 J/cm	22.5 ft-lb/in	ASTM D4812
Izod Impact, Notched (ISO)	10.0 kJ/m²	4.76 ft-lb/in²	80*10*3; ISO 180/1A
	8.00 kJ/m² @Temperature -30.0 °C	3.81 ft-lb/in² @Temperature -22.0 °F	80*10*3; ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	80*10*3; ISO 180/1U
	73.0 kJ/m² @Temperature -30.0 °C	34.7 ft-lb/in² @Temperature -22.0 °F	80*10*3; ISO 180/1U
Charpy Impact Unnotched	NB	NB	Edgew 80*10*3 sp=62mm; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eU
Charpy Impact, Notched	1.00 J/cm²	4.76 ft-lb/in²	Edgew 80*10*3 sp=62mm; ISO 179/1eA
	0.700 J/cm² @Temperature -30.0 °C	3.33 ft-lb/in² @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eA
Dart Drop, Total Energy	25.0 J	18.4 ft-lb	ASTM D3763

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	175 V	175 V	IEC 60112
	175 - 250 V	175 - 250 V	UL 746A
Hot Wire Ignition, HWI	15 - 30 sec	15 - 30 sec	UL 746A
High Amp Arc Ignition, HAI	>= 120 arcs	>= 120 arcs	UL 746A

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	50.0 µm/m-°C @Temperature -40.0 - 40.0 °C	27.8 µin/in-°F @Temperature -40.0 - 104 °F	ISO 11359-2
	50.0 µm/m-°C @Temperature -40.0 - 40.0 °C	27.8 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E831
CTE, linear, Transverse to Flow	74.0 µm/m-°C @Temperature -40.0 - 40.0 °C	41.1 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E831
	85.0 µm/m-°C @Temperature -40.0 - 40.0 °C	47.2 µin/in-°F @Temperature -40.0 - 104 °F	ISO 11359-2
Hot Ball Pressure Test	125 °C	257 °F	IEC 60695-10-2

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Deflection Temperature at 1.8 MPa (264 psi)	136 °C	277 °F	Flatw 80*10*4 sp=64mm; ISO 75/Af
	137 °C @Thickness 3.20 mm	279 °F @Thickness 0.126 in	unannealed; ASTM D648
Vicat Softening Point	147 °C	297 °F	Rate B/50; ISO 306
	149 °C	300 °F	Rate B/120; ISO 306
	149 °C	300 °F	Rate B/50; ASTM D1525
Flammability, UL94	V-2 @Thickness 0.750 mm	V-2 @Thickness 0.0295 in	UL 94 by SABIC-IP
	V-0 @Thickness 1.50 mm	V-0 @Thickness 0.0591 in	UL 94 by SABIC-IP
	5VB @Thickness 3.00 mm	5VB @Thickness 0.118 in	UL 94 by SABIC-IP
	5VA @Thickness 3.00 mm	5VA @Thickness 0.118 in	UL 94 by SABIC-IP
Glow Wire Test	850 °C @Thickness 1.00 mm	1560 °F @Thickness 0.0394 in	IEC 60695-2-13
	875 °C @Thickness 3.00 mm	1610 °F @Thickness 0.118 in	IEC 60695-2-13
	960 °C @Thickness 0.750 mm	1760 °F @Thickness 0.0295 in	IEC 60695-2-12

Processing Properties	Metric	English	Comments
Processing Temperature	60.0 - 80.0 °C	140 - 176 °F	Hopper Temperature
Nozzle Temperature	280 - 310 °C	536 - 590 °F	Injection Molding
Zone 1	270 - 300 °C	518 - 572 °F	
Zone 2	280 - 310 °C	536 - 590 °F	
Zone 3	290 - 320 °C	554 - 608 °F	
Melt Temperature	290 - 320 °C	554 - 608 °F	
Mold Temperature	80.0 - 120 °C	176 - 248 °F	
Drying Temperature	120 °C	248 °F	Injection Molding
Dry Time	2.00 - 4.00 hour	2.00 - 4.00 hour	Injection Molding
Moisture Content	0.020 %	0.020 %	