

## Technical Data

### Product Description

LEXAN™ FR Resin 940 - Americas      LEXAN™ 940 resin is a 10 MFR polycarbonate. Mold release. Flame retardant, UL94 V0 rated. UL746C f1 rated. Available in opaque colors.

Generic PC      This data represents typical values that have been calculated from all products classified as: Generic PC  
This information is provided for comparative purposes only.

General	LEXAN™ FR Resin 940 - Americas	Generic PC
Manufacturer / Supplier	<ul style="list-style-type: none"> <li>SABIC</li> </ul>	<ul style="list-style-type: none"> <li>Generic</li> </ul>
Generic Symbol	<ul style="list-style-type: none"> <li>PC</li> </ul>	<ul style="list-style-type: none"> <li>PC</li> </ul>
Material Status	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>
Availability	<ul style="list-style-type: none"> <li>Latin America</li> <li>North America</li> </ul>	<ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> <li>Europe</li> <li>Latin America</li> <li>North America</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Aerospace Applications</li> <li>Appliances</li> <li>Automotive Exterior Parts</li> <li>Construction Applications</li> <li>Decorative Parts</li> <li>Electrical Parts</li> <li>Electrical/Electronic Applications</li> <li>Electronic Displays</li> <li>Lawn and Garden Equipment</li> <li>Lighting Applications</li> <li>Material Handling</li> <li>Medical/Healthcare Applications</li> <li>Non-specific Food Applications</li> <li>Optical Applications</li> <li>Outdoor Applications</li> <li>Rail Applications</li> <li>Sporting Goods</li> <li>Water Management</li> </ul>	--
Multi-Point Data	<ul style="list-style-type: none"> <li>Elastic Modulus vs. Temperature (ASTM D4065)</li> <li>Flexural DMA (ASTM D5023)</li> <li>Instrumented Impact (Energy) (ASTM D3763)</li> <li>Instrumented Impact (Load) (ASTM D3763)</li> <li>Shear DMA (ASTM D4065)</li> <li>Specific Volume vs. Temperature (PVT)</li> <li>Tensile Creep (ASTM D2990)</li> <li>Tensile Fatigue</li> <li>Tensile Stress vs. Strain (ASTM D638)</li> <li>Thermal Conductivity vs. Temperature (ASTM E1530)</li> </ul>	--
Also Available In	--	<ul style="list-style-type: none"> <li>Africa &amp; Middle East</li> <li>Asia Pacific</li> <li>Europe</li> <li>Latin America</li> <li>North America</li> </ul>

Physical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Density / Specific Gravity	<ul style="list-style-type: none"> <li>1.22</li> <li>1.21</li> </ul>	1.14 to 1.26	g/cm <sup>3</sup>	ASTM D792
	--	1.18 to 1.21	g/cm <sup>3</sup>	ISO 1183
	--	1.20	g/cm <sup>3</sup>	ASTM D1505



Physical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Specific Volume	0.830	--	cm³/g	ASTM D792
Apparent (Bulk) Density	--	0.63 to 0.66	g/cm³	ISO 60
Melt Mass-Flow Rate (MFR)				
300°C/1.2 kg	10	0.80 to 27	g/10 min	ASTM D1238
300°C/1.2 kg	--	1.8 to 24	g/10 min	ISO 1133
Melt Volume-Flow Rate (MVR)				
--	--	6.5 to 19	cm³/10min	ASTM D1238
300°C/1.2 kg	--	2.0 to 23	cm³/10min	ISO 1133
Spiral Flow	--	2.20 to 30.8	cm	
Molding Shrinkage				
Flow	--	0.50 to 0.79	%	ASTM D955
Across Flow	--	0.56 to 0.61	%	ASTM D955
--	--	0.51 to 0.82	%	ISO 294-4
Flow : 3.20 mm	0.50 to 0.70	--	%	Internal Method
Water Absorption				
24 hr	--	0.15 to 0.17	%	ASTM D570
24 hr, 23°C	0.15	--	%	ASTM D570
24 hr, 23°C	--	0.15 to 0.25	%	ISO 62
Saturation	--	0.30 to 0.38	%	ASTM D570
Saturation, 23°C	0.35	--	%	ASTM D570
Saturation, 23°C	--	0.050 to 0.40	%	ISO 62
Equilibrium	--	0.32 to 0.58	%	ASTM D570
Equilibrium, 100°C	0.58	--	%	ASTM D570
Equilibrium, 23°C, 50% RH	--	0.066 to 0.18	%	ISO 62
Viscosity Number	--	50.0 to 63.0	cm³/g	ISO 307
Outdoor Suitability	f1	--		UL 746C
Mechanical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Tensile Modulus				
--	--	1600 to 2670	MPa	ASTM D638
--	--	1880 to 2710	MPa	ISO 527-1
Tensile Strength				
Yield <sup>2</sup>	62.0	--	MPa	ASTM D638
Yield	--	55.8 to 64.2	MPa	ASTM D638
Yield	--	53.8 to 66.8	MPa	ISO 527-2
Break	--	54.6 to 71.1	MPa	ASTM D638
Break <sup>2</sup>	55.0	--	MPa	ASTM D638
Break	--	48.3 to 73.8	MPa	ISO 527-2
--	--	46.5 to 71.1	MPa	ASTM D638
--	--	57.8 to 68.7	MPa	ISO 527-2
Tensile Elongation				
Yield	--	0.22 to 18	%	ASTM D638
Yield <sup>2</sup>	7.0	--	%	ASTM D638
Yield	--	2.5 to 6.2	%	ISO 527-2
Break	--	0.0 to 140	%	ASTM D638
Break <sup>2</sup>	90	--	%	ASTM D638
Break	--	1.0 to 130	%	ISO 527-2
Nominal Tensile Strain at Break	--	50 to 53	%	ISO 527-2
Tensile Creep Modulus				ISO 899-1
1 hr	--	2200	MPa	
1000 hr	--	1900	MPa	



Mechanical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Flexural Modulus				
50.0 mm Span <sup>3</sup>	2240	--	MPa	ASTM D790
--	--	1960 to 2540	MPa	ASTM D790
--	--	1880 to 2600	MPa	ISO 178
Flexural Strength				
--	--	65.3 to 110	MPa	ASTM D790
--	--	71.4 to 102	MPa	ISO 178
Yield	--	82.6 to 105	MPa	ASTM D790
Yield, 50.0 mm Span <sup>3</sup>	91.0	--	MPa	ASTM D790
Break	--	74.8 to 108	MPa	ASTM D790
Compressive Strength				
--	--	60.4 to 113	MPa	ASTM D695
--	--	21.0 to 80.0	MPa	ISO 604
Coefficient of Friction	--	0.090 to 0.32		ASTM D1894
Taber Abrasion Resistance				ASTM D1044
--	--	9.50 to 10.1	mg	
1000 Cycles, 1000 g, CS-17 Wheel	10.0	--	mg	
Wear Factor	--	-2.0 to 120	10 <sup>-8</sup> mm <sup>3</sup> /N·m	ASTM D3702
<b>Films</b>	<b>LEXAN™ FR Resin 940 - Americas</b>	<b>Generic PC</b>	<b>Unit</b>	
Film Thickness - Tested	--	180 to 660	µm	
<b>Impact</b>	<b>LEXAN™ FR Resin 940 - Americas</b>	<b>Generic PC</b>	<b>Unit</b>	<b>Test Method</b>
Charpy Notched Impact Strength	--	6.8 to 81	kJ/m <sup>2</sup>	ISO 179
Charpy Unnotched Impact Strength	--	38 to 300	kJ/m <sup>2</sup>	ISO 179
Notched Izod Impact				
--	--	36 to 910	J/m	ASTM D256
23°C	640	--	J/m	ASTM D256
--	--	7.1 to 71	kJ/m <sup>2</sup>	ISO 180
Notched Izod Impact (Area)	--	10.0 to 86.0	kJ/m <sup>2</sup>	ASTM D256
Unnotched Izod Impact				
--	--	2100 to 3200	J/m	ASTM D4812
23°C	3200	--	J/m	ASTM D4812
--	--	34 to 180	kJ/m <sup>2</sup>	ISO 180
Instrumented Dart Impact				
--	--	52.7 to 87.5	J	ASTM D3763
--	--	48.9 to 71.8	J	ISO 6603-2
Multi-Axial Instrumented Impact Peak Force	--	4870 to 6550	N	ISO 6603-2
Gardner Impact				ASTM D3029
--	--	33.9 to 170	J	
23°C	169	--	J	
Gardner Impact	--	36.2 to 49.9	J	ASTM D5420
Tensile Impact Strength				ASTM D1822
--	--	366 to 640	kJ/m <sup>2</sup>	
-- <sup>4</sup>	525	--	kJ/m <sup>2</sup>	



Hardness	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Rockwell Hardness				
--	--	69 to 124		ASTM D785
M-Scale	70	--		ASTM D785
R-Scale	118	--		ASTM D785
--	--	48 to 121		ISO 2039-2
Shore Hardness	--	79 to 82		ISO 868
Ball Indentation Hardness	--	94.7 to 117	MPa	ISO 2039-1

Thermal	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Deflection Temperature Under Load				
0.45 MPa, Unannealed	--	131 to 141	°C	ASTM D648
0.45 MPa, Unannealed, 6.40 mm	137	--	°C	ASTM D648
0.45 MPa, Unannealed	--	129 to 143	°C	ISO 75-2/B
0.45 MPa, Annealed	--	142 to 146	°C	ASTM D648
0.45 MPa, Annealed	--	136 to 146	°C	ISO 75-2/B
1.8 MPa, Unannealed	--	115 to 135	°C	ASTM D648
1.8 MPa, Unannealed, 6.40 mm	132	--	°C	ASTM D648
1.8 MPa, Unannealed	--	115 to 130	°C	ISO 75-2/A
1.8 MPa, Annealed	--	135 to 143	°C	ASTM D648
1.8 MPa, Annealed	--	138 to 143	°C	ISO 75-2/A
Continuous Use Temperature	--	120 to 135	°C	ASTM D794
Glass Transition Temperature				
--	--	143 to 146	°C	ISO 11357-2
--	--	145 to 148	°C	DSC
Vicat Softening Temperature				
--	--	132 to 157	°C	ASTM D1525
--	151	--	°C	ASTM D1525 <sup>5</sup>
--	--	136 to 151	°C	ISO 306
Ball Indentation Temperature	--	125	°C	IEC 60598-1
Melting Temperature	--	140 to 232	°C	
CLTE				
Flow	--	5.7E-5 to 7.0E-5	cm/cm/°C	ASTM D696
Flow	--	1.6E-5 to 0.17	cm/cm/°C	ASTM E831
Flow : -40 to 95°C	6.8E-5	--	cm/cm/°C	ASTM E831
Flow	--	6.5E-5 to 7.2E-5	cm/cm/°C	ISO 11359-2
Transverse	--	8.0E-6 to 1.8E-4	cm/cm/°C	ASTM D696
Transverse	--	5.9E-5 to 8.1E-5	cm/cm/°C	ASTM E831
Transverse	--	6.0E-5 to 8.1E-5	cm/cm/°C	ISO 11359-2
Specific Heat	--	1240 to 1270	J/kg/°C	ASTM C351
Thermal Conductivity				
--	0.19	0.13 to 0.48	W/m/K	ASTM C177
--	--	0.17 to 0.72	W/m/K	ISO 8302
RTI Elec	130	78.0 to 132	°C	UL 746B
RTI Imp	120	79.3 to 130	°C	UL 746B
RTI Str	130	78.0 to 132	°C	UL 746B

Electrical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Surface Resistivity				
--	--	2.5 to 2.6E+17	ohms	ASTM D257
--	--	1.0 to 1.0E+16	ohms	IEC 60093



Electrical	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Volume Resistivity				
--	> 1.0E+17	10 to 2.5E+17	ohms·cm	ASTM D257
--	--	1.0E+2 to 2.5E+17	ohms·cm	IEC 60093
--	--	1.0E+11 to 5.5E+14	ohms·m	IEC 62631-3-1
Dielectric Strength				
--	--	14 to 31	kV/mm	ASTM D149
3.20 mm, in Air	17	--	kV/mm	ASTM D149
--	--	17 to 34	kV/mm	IEC 60243-1
Dielectric Constant				
--	--	2.80 to 3.20		ASTM D150
60 Hz	3.01	--		ASTM D150
50 kHz	3.01	--		ASTM D150
1 MHz	2.96	--		ASTM D150
--	--	3.00 to 3.10		IEC 60250
--	--	2.90		IEC 60250
Dissipation Factor				
--	--	4.0E-4 to 0.078		ASTM D150
50 Hz	9.0E-4	--		ASTM D150
60 Hz	9.0E-4	--		ASTM D150
1 MHz	0.010	--		ASTM D150
--	--	4.0E-4 to 0.012		IEC 60250
--	--	1.0E-3 to 0.010		IEC 62631-2-1
Arc Resistance	--	88.7 to 120	sec	ASTM D495
Arc Resistance <sup>6</sup>	PLC 7	--		ASTM D495
Comparative Tracking Index (CTI)	PLC 2	--		UL 746A
Comparative Tracking Index	--	113 to 250	V	IEC 60112
High Amp Arc Ignition (HAI)	--	90.0 to 120		UL 746A
High Amp Arc Ignition (HAI) <sup>7</sup>	PLC 3	--		UL 746A
High Voltage Arc Resistance to Ignition (HVAR)	PLC 3	--		UL 746A
Hot-wire Ignition (HWI)	--	23 to 45	sec	UL 746A
Hot-wire Ignition (HWI)	PLC 2	--		UL 746A
<b>Flammability</b>	<b>LEXAN™ FR Resin 940 - Americas</b>	<b>Generic PC</b>	<b>Unit</b>	<b>Test Method</b>
Burning Rate	--	99 to 100	mm/min	ISO 3795
Flame Rating (1.1 mm)	V-0	--		UL 94
Glow Wire Flammability Index	--	849 to 960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature	--	788 to 883	°C	IEC 60695-2-13
Oxygen Index				
--	35	25 to 37	%	ASTM D2863
--	--	25 to 36	%	ISO 4589-2
Radiant Panel Listing <sup>8</sup>	True	--		
<b>Optical</b>	<b>LEXAN™ FR Resin 940 - Americas</b>	<b>Generic PC</b>	<b>Unit</b>	<b>Test Method</b>
Gloss	--	3 to 100		ISO 2813
Refractive Index				
--	--	1.584 to 1.587		ASTM D542
--	--	1.566 to 41.18		ISO 489
Light Transmittance	--	86.7 to 89.1	%	ASTM D1003
Haze	--	-0.500 to 2.01	%	ASTM D1003



Fill Analysis	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit	Test Method
Melt Density	--	1.01	g/cm³	
Melt Thermal Conductivity	--	0.24	W/m/K	ASTM C177

Injection	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit
Drying Temperature	120	119 to 122	°C
Drying Time	3.0 to 4.0	2.4 to 5.2	hr
Drying Time, Maximum	--	28	hr
Dew Point	--	-29	°C
Suggested Max Moisture	0.020	0.020 to 0.025	%
Suggested Shot Size	40 to 60	50	%
Suggested Max Regrind	--	20	%
Hopper Temperature	--	70	°C
Rear Temperature	270 to 295	254 to 304	°C
Middle Temperature	280 to 305	268 to 311	°C
Front Temperature	295 to 315	277 to 323	°C
Nozzle Temperature	290 to 310	277 to 316	°C
Processing (Melt) Temp	295 to 315	277 to 322	°C
Melt Temperature (Optimum)	--	285	°C
Mold Temperature	70 to 95	75 to 100	°C
Injection Pressure	--	84.5 to 103	MPa
Holding Pressure	--	87.9 to 90.0	MPa
Back Pressure	0.300 to 0.700	0.413 to 0.787	MPa
Screw Speed	40 to 70	52 to 57	rpm
Clamp Tonnage	--	4.8	kN/cm²
Vent Depth	0.025 to 0.076	0.047 to 0.056	mm

**Injection Notes**

LEXAN™ FR Resin 940 - Americas	• Drying Time (Cumulative): 48 hr
Generic PC	This data represents typical values that have been calculated from all products classified as: Generic PC  This information is provided for comparative purposes only.

Extrusion	LEXAN™ FR Resin 940 - Americas	Generic PC	Unit
Drying Temperature	--	109 to 124	°C
Drying Time	--	3.3 to 13	hr
Cylinder Zone 1 Temp.	--	267 to 270	°C
Cylinder Zone 2 Temp.	--	283 to 287	°C
Cylinder Zone 3 Temp.	--	281 to 285	°C
Cylinder Zone 4 Temp.	--	282 to 285	°C
Adapter Temperature	--	289 to 294	°C
Melt Temperature	--	274 to 312	°C
Die Temperature	--	276 to 298	°C

**Extrusion Notes**

Generic PC	This data represents typical values that have been calculated from all products classified as: Generic PC  This information is provided for comparative purposes only.
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Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> Type I, 50 mm/min

<sup>3</sup> 1.3 mm/min

<sup>4</sup> Type S

<sup>5</sup> Rate A (50°C/h), Loading 2 (50 N)

<sup>6</sup> Tungsten Electrode

<sup>7</sup> Surface

<sup>8</sup> UL Tested

