

# LEXAN™ COPOLYMER EXL5689

REGION ASIA

## DESCRIPTION

Lexan\* EXL5689 polycarbonate (PC) resin is a GF reinforced, UV stabilized, flame retardant injection molding copolymer blend. This medium flow resin features UL94 V0 @ 1.5mm flame retardancy based on non-chlorine, non-bromine FR agents with excellent processability and improved release performance. Lexan EXL5689 resin offers much improved impact strength and ductility over conventional GF reinforced PC resins. This product is an excellent candidate for a broad range of applications, including electrical and electronic enclosures amongst others.

## TYPICAL PROPERTY VALUES

Revision 20170913

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 5 mm/min	55	MPa	ASTM D 638
Tensile Stress, brk, Type I, 5 mm/min	44	MPa	ASTM D 638
Tensile Strain, yld, Type I, 5 mm/min	4.4	%	ASTM D 638
Tensile Strain, brk, Type I, 5 mm/min	15	%	ASTM D 638
Tensile Modulus, 5 mm/min	3500	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	97	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	3150	MPa	ASTM D 790
Tensile Stress, yield, 5 mm/min	54	MPa	ISO 527
Tensile Stress, break, 5 mm/min	46	MPa	ISO 527
Tensile Strain, yield, 5 mm/min	4.4	%	ISO 527
Tensile Strain, break, 5 mm/min	13	%	ISO 527
Tensile Modulus, 1 mm/min	3600	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	96	MPa	ISO 178
Flexural Modulus, 2 mm/min	3400	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	340	J/m	ASTM D 256
Izod Impact, notched, -30°C	150	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	40	J	ASTM D 3763
Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, notched 80*10*3 +23°C	25	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	10	kJ/m <sup>2</sup>	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	30	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	15	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	146	°C	ASTM D 1525
CTE, -40°C to 40°C, flow	4.7E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, flow	4.7E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	7.E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	146	°C	ISO 306
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	132	°C	ISO 75/Ae
<b>PHYSICAL</b>			
Specific Gravity	1.26	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.2 – 0.6	%	SABIC method
Melt Flow Rate, 300°C/1.2 kgf	9	g/10 min	ASTM D 1238
Density	1.26	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.35	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.15	%	ISO 62
Melt Volume Rate, MVR at 300°C/1.2 kg	8	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Comparative Tracking Index	175	V	IEC 60112
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94HB Flame Class Rating (3)	0.75	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating (3)	1.2	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating (3)	1.5	mm	UL 94
Glow Wire Flammability Index 960°C, passes at	1.1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.5 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	825	°C	IEC 60695-2-13
<b>INJECTION MOLDING</b>			
Drying Temperature	120	°C	
Drying Time	3 – 4	hrs	
Drying Time (Cumulative)	48	hrs	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

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