

SABIC LEXAN™ PK2870

LEXAN PK2870 polycarbonate resin, global grade, MVR (300C/1.2kg) 2 cm³/10min, high viscosity, branched, blow molding, high melt strength, high impact resistance, Available in transparent colors only. FDA 21CFR177.1580, European food contact regulation EC Directive EU10/2011. Designed to be a candidate for water bottle applications.
Information provided by SABIC

Physical Properties	Metric	English	Comments
Specific Gravity	1.20 g/cc	1.20 g/cc	ASTM D792
Density	1.20 g/cc	0.0434 lb/in ³	ISO 1183
Water Absorption	0.35 %	0.35 %	23°C/sat; ISO 62
Moisture Absorption	0.150 %	0.150 %	23°C / 50% RH; ISO 62
Moisture Absorption at Equilibrium	0.35 %	0.35 %	ASTM D570
	0.58 %	0.58 %	ASTM D570
	@Temperature 100 °C	@Temperature 212 °F	
Linear Mold Shrinkage, Flow	0.0050 - 0.0070 cm/cm @Thickness 3.20 mm	0.0050 - 0.0070 in/in @Thickness 0.126 in	SABIC method
Melt Flow	2.0 g/10 min @Load 1.20 kg, Temperature 300 °C	2.0 g/10 min @Load 2.65 lb, Temperature 572 °F	cm ³ /10 min; ISO 1133
	2.5 g/10 min @Load 1.20 kg, Temperature 300 °C	2.5 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D1238
	4.0 g/10 min @Load 2.16 kg, Temperature 300 °C	4.0 g/10 min @Load 4.76 lb, Temperature 572 °F	cm ³ /10 min; ISO 1133

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell R	120	120	ISO 2039-2
Tensile Strength at Break	65.0 MPa	9430 psi	50 mm/min; ASTM D638
	70.0 MPa	10200 psi	50 mm/min; ISO 527
Tensile Strength, Yield	62.0 MPa	8990 psi	50 mm/min; ASTM D638
	65.0 MPa	9430 psi	50 mm/min; ISO 527
Elongation at Break	>= 70 %	>= 70 %	50mm/min; ISO 527
	>= 70 %	>= 70 %	50mm/min; ASTM D638
Elongation at Yield	7.0 %	7.0 %	50 mm/min; ASTM D638
	7.0 %	7.0 %	50 mm/min; ISO 527
Tensile Modulus	2.35 GPa	341 ksi	1mm/min; ISO 527
	2.35 GPa	341 ksi	50 mm/min; ASTM D638
Flexural Yield Strength	95.0 MPa	13800 psi	2 mm/min; ISO 178
	95.0 MPa	13800 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	2.30 GPa	334 ksi	1.3 mm/min, 50 mm span; ASTM D790
	2.30 GPa	334 ksi	2 mm/min; ISO 178
Izod Impact, Notched	7.50 J/cm	14.1 ft-lb/in	ASTM D256
	1.50 J/cm	2.81 ft-lb/in	ASTM D256
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Izod Impact, Unnotched	NB	NB	ASTM D4812
	NB	NB	ASTM D4812
	@Temperature -30.0 °C	@Temperature -22.0 °F	

Izod Impact, Notched (ISO)	75.0 kJ/m ²	35.7 ft-lb/in ²	80*10*3; ISO 180/1A
	55.0 kJ/m ² @Temperature -30.0 °C	26.2 ft-lb/in ² @Temperature -22.0 °F	80*10*3; ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	80*10*3; ISO 180/1U
	NB @Temperature -30.0 °C	NB @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	7.00 J/cm ²	33.3 ft-lb/in ²	Edgew 80*10*3 sp=62mm; ISO 179/1eA
	5.00 J/cm ² @Temperature -30.0 °C	23.8 ft-lb/in ² @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eA
Falling Dart Impact	170 J	125 ft-lb	ASTM D3029

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	70.0 µm/m-°C @Temperature -40.0 - 95.0 °C	38.9 µin/in-°F @Temperature -40.0 - 203 °F	ASTM E831
	70.0 µm/m-°C @Temperature 23.0 - 80.0 °C	38.9 µin/in-°F @Temperature 73.4 - 176 °F	ISO 11359-2
Specific Heat Capacity	1.25 J/g-°C	0.299 BTU/lb-°F	ASTM C 351
Thermal Conductivity	0.200 W/m-K	1.39 BTU-in/hr-ft ² -°F	ISO 8302
	0.200 W/m-K	1.39 BTU-in/hr-ft ² -°F	ASTM C177
Hot Ball Pressure Test	125 °C	257 °F	IEC 60695-10-2
Deflection Temperature at 0.46 MPa (66 psi)	145 °C	293 °F	Flatw 80*10*4 sp=64mm; ISO 75/Bf
	145 °C @Thickness 3.20 mm	293 °F @Thickness 0.126 in	ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	130 °C	266 °F	Flatw 80*10*4 sp=64mm; ISO 75/Af
	130 °C @Thickness 3.20 mm	266 °F @Thickness 0.126 in	ASTM D648
Vicat Softening Point	149 °C	300 °F	Rate B/50; ISO 306
	150 °C	302 °F	Rate B/120; ISO 306
	150 °C	302 °F	Rate B/50; ASTM D1525

Optical Properties	Metric	English	Comments
Refractive Index	1.586	1.586	ISO 489
Haze	<= 0.80 % @Thickness 2.54 mm	<= 0.80 % @Thickness 0.100 in	ASTM D1003
Transmission, Visible	88 % @Thickness 2.54 mm	88 % @Thickness 0.100 in	ASTM D1003

Processing Properties	Metric	English	Comments
Nozzle Temperature	315 - 340 °C	599 - 644 °F	Injection Molding
Zone 1	260 - 275 °C	500 - 527 °F	Extrusion Blow Molding
	300 - 320 °C	572 - 608 °F	
Zone 2	260 - 275 °C	500 - 527 °F	Extrusion Blow Molding
	310 - 330 °C	590 - 626 °F	
Zone 3	260 - 275 °C	500 - 527 °F	Extrusion Blow Molding
	320 - 345 °C	608 - 653 °F	
Zone 4	260 - 275 °C	500 - 527 °F	Extrusion Blow Molding
Zone 5	260 - 275 °C	500 - 527 °F	
Die Temperature	270 - 280 °C	518 - 536 °F	Extrusion Blow Molding
Melt Temperature	265 - 275 °C	509 - 527 °F	
	320 - 345 °C	608 - 653 °F	
Head Temperature	260 - 275 °C	500 - 527 °F	Zone 7 - Bottom Temperature
	260 - 275 °C	500 - 527 °F	Zone 6 - Top Temperature
Mold Temperature	65.0 - 95.0 °C	149 - 203 °F	
	80.0 - 115 °C	176 - 239 °F	
Drying Temperature	115 - 120 °C	239 - 248 °F	Extrusion Blow Molding
	120 °C	248 °F	Injection Molding
Dry Time	3.00 - 4.00 hour	3.00 - 4.00 hour	Injection Molding
	4.00 - 6.00 hour	4.00 - 6.00 hour	Extrusion Blow Molding
	48.0 hour	48.0 hour	Cumulative; Injection Molding
	48.0 hour	48.0 hour	Cumulative; Extrusion Blow Molding
Moisture Content	>= 0.010 %	>= 0.010 %	
	0.020 %	0.020 %	
	0.020 %	0.020 %	
Back Pressure	0.300 - 0.700 MPa	43.5 - 102 psi	
Shot Size	40 - 60 %	40 - 60 %	
Vent Depth	0.00250 - 0.00760 cm	0.000984 - 0.00299 in	
Screw Speed	15 - 50 rpm	15 - 50 rpm	
	40 - 70 rpm	40 - 70 rpm	
Compliance Properties	Metric	English	Comments
FDA	Yes	Yes	See notes for details.