SABIC Innovative Plastics™

Lexan* Resin SD1278

Americas: COMMERCIAL

Lexan* SD1278 polycarbonate (PC) siloxane copolymer resin is a transparent extrusion grade for food contact applications for sheet extrusion. This resin offers extreme low temperature (-40 °C) ductility. Lexan SD1278 resin is an FDA compliant product available in transparent colors and is an excellent candidate for extrusion/blow molding food contact applications.

Property

TYPICAL PROPERTIES (1)			
MECHANICAL	Value	Unit	Standard
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	64	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	5.8	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	131.4	%	ASTM D 638
Tensile Modulus, 50 mm/min	2210	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	94	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2210	MPa	ASTM D 790
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	61	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5.5	%	ISO 527
Tensile Strain, break, 50 mm/min	124.9	%	ISO 527
Tensile Modulus, 1 mm/min	2350	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	90	MPa	ISO 178
Flexural Modulus, 2 mm/min	2150	MPa	ISO 178
IMPACT	Value	Unit	Standard
Izod Impact, notched, 23°C	890	J/m	ASTM D 256
Izod Impact, notched, -30°C	795	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	82	J	ASTM D 3763
Instrumented Impact Total Energy, -30°C	85	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	56	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	29	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	74	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	24	kJ/m²	ISO 179/1eA
THERMAL	Value	Unit	Standard
Vicat Softening Temp, Rate A/50	141	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	124	°C	ASTM D 648
CTE, -40°C to 95°C, flow	7.15E-05	1/°C	ASTM E 831
CTE, -40°C to 95°C, xflow	7.93E-05	1/°C	ASTM E 831
CTE, 23°C to 80°C, flow	7.15E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.93E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	141	°C	ISO 306
Vicat Softening Temp, Rate B/120	142	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	118	°C	ISO 75/Af
PHYSICAL	Value	Unit	Standard
Specific Gravity	1.19	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.4 - 0.8	%	SABIC Method
Melt Flow Rate, 300°C/1.2 kgf	6	g/10 min	ASTM D 1238

Density	1.19	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.24	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.09	%	ISO 62
Melt Volume Rate, MVR at 300°C/1.2 kg	6	cm³/10 min	ISO 1133

Source GMD, last updated:03/08/2007

Processing

Parameter Injection Molding	Value	Unit
Drying Temperature	120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	295 - 315	°C
Nozzle Temperature	290 - 310	°C
Front - Zone 3 Temperature	295 - 315	°C
Middle - Zone 2 Temperature	280 - 305	°C
Rear - Zone 1 Temperature	270 - 295	°C
Mold Temperature	70 - 95	°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

Parameter Sheet Extrusion	Value	Unit
Drying Temperature	110 - 120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	245 - 260	°C
Barrel - Zone 1 Temperature	250 - 290	°C
Barrel - Zone 2 Temperature	245 - 270	°C
Barrel - Zone 3 Temperature	225 - 255	°C
Adapter Temperature	225 - 255	°C
Die Temperature	240 - 260	°C
Roll Stack Temp - Top	75 - 115	°C
Roll Stack Temp - Middle	80 - 125	°C
Roll Stack Temp - Bottom	120 - 145	°C

Source GMD, last updated:03/08/2007

Regrind: Levels of regrind up to about 25% do not adversely affect extrusion or thermoforming in small scale tests. Regrind may be used as long as acceptable sheet aesthetics and performance can be obtained. If regrind is to be used, parts formed from sheet should be tested to assure that they will perform adequately in their intended end-use environment. Efforts should be made to avoid using contaminated regrind.

• PLEASE NOTE: Conditions were established using a down stack configuration for roll stack.

• Drying: LEXAN EXL resin must be dried before processing, even if vented barrels are used, in order to avoid material degradation)during the sheet extrusion process.

• Screw Design: LEXAN EXL resins have been successfully extruded using either general purpose or barrier type screws with compression ratios in the range of 2.5 - 3.0. Transition between feed and metering sections should be gradual, occurring over 6 ? 8 screw diameters if possible. Screws with L/D ratios of 24:1 or greater are suggested.

• Temperature Profile: A reverse temperature profile (higher temperature settings at the feed section and decreasing toward the die) has been used successfully with this material to improve melt strength of the web between the die and rolls.

(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.