LNP™ ELCRIN™ EXL8452TCC

DESCRIPTION

ELCRIN EXL8452TCC polycarbonate (PC) siloxane copolymer resin is a transparent injection molding grade with 50% post consumer recycle (PCR) content. This resin offers excellent low temperature (-20~-30 °C) ductility in combination with medium flow characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. ELCRIN EXL8452TCC resin is a general purpose product available in transparent and opaque colors and is an excellent candidate for a broad range of applications.

GENERAL INFORMATION	
Features	Good Processability, IR Transparent, Sustainable (Mechanical Recycling), Transparent/Translucent, Impact resistant, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Recreational/Specialty Vehicles
Building and Construction	Building Component
Consumer	Personal Accessory, Home Appliances
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20240208

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	59	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	65	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	110	%	ASTM D638
Tensile Modulus, 50 mm/min	2200	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	95	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2290	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	59	MPa	ISO 527
Tensile Stress, break, 50 mm/min	61	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5.9	%	ISO 527
Tensile Strain, break, 50 mm/min	110	%	ISO 527
Tensile Modulus, 1 mm/min	2240	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	89	MPa	ISO 178
Flexural Modulus, 2 mm/min	2240	MPa	ISO 178
Hardness, Rockwell L	88	-	ASTM D785
Hardness, Rockwell R	120	-	ASTM D785
IMPACT [1]			
Izod Impact, notched, 23°C	950	J/m	ASTM D256

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched, 0°C	870	J/m	ASTM D256
Izod Impact, notched, -20°C	600	J/m	ASTM D256
Izod Impact, notched, -30°C	320	J/m	ASTM D256
Izod Impact, notched, -40°C	200	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	77	J	ASTM D3763
Instrumented Dart Impact Total Energy, -30°C	82	J	ASTM D3763
Izod Impact, notched 80*10*3 +23°C	73	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	24	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	79	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	26	kJ/m²	ISO 179/1eA
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	135	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	136	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	122	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	7.3E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.4E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	8.3E-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
PHYSICAL [1]			
Specific Gravity	1.2	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [2]	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.4 – 0.8	%	SABIC method
Melt Flow Rate, 300°C/1.2 kgf	12	g/10 min	ASTM D1238
Density	1.19	g/cm³	ISO 1183
Melt Volume Rate, MVR at 300°C/1.2 kg	11	cm³/10 min	ISO 1133
OPTICAL [1]			
Light Transmission, 2.54 mm	86	%	ASTM D1003
Haze, 2.54 mm	2	%	ASTM D1003
ELECTRICAL [1]			
Volume Resistivity	>1E+16	Ω.cm	ASTM D257
Surface Resistivity	>1E+16	Ω	ASTM D257
Dielectric Constant, 1.1 GHz	2.86	-	SABIC method
Dielectric Constant, 1.9 GHz	2.79	-	SABIC method
Dielectric Constant, 5 GHz	2.8	-	SABIC method
Dielectric Constant, 10 GHz	2.84	-	SABIC method
Dissipation Factor, 1.1 GHz	0.0061	-	SABIC method
Dissipation Factor, 1.9 GHz	0.0056	-	SABIC method
Dissipation Factor, 5 GHz	0.0051	-	SABIC method
Dissipation Factor, 10 GHz	0.0054	-	SABIC method
FLAME CHARACTERISTICS [1]			
UL Yellow Card Link [3]	E207780-104551402	-	-
UL Recognized, 94HB Flame Class Rating [3]	≥0.4	mm	UL 94

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Oxygen Index (LOI)	36	%	ISO 4589
Glow Wire Flammability Index, 1.0 mm	900	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	875	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	875	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	850	°C	IEC 60695-2-13
INJECTION MOLDING [4]			
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	275 – 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	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(3) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

DISCLAIMER