

Covestro Makrolon® 2800

Polycarbonate

Main characteristics:

- High toughness
- Good heat resistance

Physical Properties	Metric	English	Comments
Bulk Density	0.660 g/cc	0.0238 lb/in ³	pellets; ISO 60
Density	1.20 g/cc	0.0434 lb/in ³	ISO 1183-1
Moisture Absorption at Equilibrium	0.12 %	0.12 %	ISO 62, 50% RH
Water Absorption at Saturation	0.30 %	0.30 %	ISO 62
Water Vapor Transmission	15.0 g/m ² /day @Thickness 0.100 mm	0.966 g/100 in ² /day @Thickness 0.00394 in	85% RH, film; ISO 15106-1
Oxygen Transmission	70.0 cc-mm/m ² -24hr-atm @Thickness 0.0254 mm	178 cc-mil/100 in ² -24hr-atm @Thickness 0.00100 in	2760 cc/m ² -24hr-bar; film; b.o. ISO 2556
	70.0 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	178 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	700 cc/m ² -24hr-bar; film; b.o. ISO 2556
Nitrogen Transmission	13.0 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	33.0 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	130 cc/m ² -24hr-bar; film; b.o. ISO 2556
	13.0 cc-mm/m ² -24hr-atm @Thickness 0.0254 mm	33.0 cc-mil/100 in ² -24hr-atm @Thickness 0.00100 in	510 cc/m ² -24hr-bar; film; b.o. ISO 2556
Carbon Dioxide Transmission	429 cc-mm/m ² -24hr-atm @Thickness 0.0254 mm	1090 cc-mil/100 in ² -24hr-atm @Thickness 0.00100 in	16900 cc/m ² -24hr-bar; film; b.o. ISO 2556
	430 cc-mm/m ² -24hr-atm @Thickness 0.100 mm	1090 cc-mil/100 in ² -24hr-atm @Thickness 0.00394 in	4300 cc/m ² -24hr-bar; film; b.o. ISO 2556
Linear Mold Shrinkage, Flow	0.0065 cm/cm @Thickness 2.00 mm	0.0065 in/in @Thickness 0.0787 in	60x60x2 mm; 500 bar; ISO 294-4
Linear Mold Shrinkage, Transverse	0.0070 cm/cm @Thickness 2.00 mm	0.0070 in/in @Thickness 0.0787 in	60x60x2 mm; 500 bar; ISO 294-4
Melt Flow	10 g/10 min @Load 1.20 kg, Temperature 300 °C	10 g/10 min @Load 2.65 lb, Temperature 572 °F	ISO 1133

Mechanical Properties	Metric	English	Comments
Puncture Resistance	5400 N @Temperature 23.0 °C	1210 lb (f) @Temperature 73.4 °F	ISO 6603-2
	6300 N @Temperature -30.0 °C	1420 lb (f) @Temperature -22.0 °F	ISO 6603-2
Ball Indentation Hardness	113 MPa	16400 psi	ISO 2039-1

Tensile Strength at Break	75.0 MPa	10900 psi	50 mm/min; ISO 527-1,-2
Tensile Strength, Yield	65.0 MPa	9430 psi	50 mm/min; ISO 527-1,-2
Elongation at Break	>= 50 %	>= 50 %	Nominal, 50 mm/min; ISO 527-1,-2
	125 %	125 %	50 mm/min; b.o. ISO 527-1,-2
Elongation at Yield	6.3 %	6.3 %	50 mm/min; ISO 527-1,-2
Tensile Modulus	2.35 GPa	341 ksi	1 mm/min; ISO 527-1,-2
Flexural Strength	96.0 MPa	13900 psi	2 mm/min; ISO 178
Flexural Yield Strength	72.0 MPa @Strain 3.5 %	10400 psi @Strain 3.5 %	2 mm/min; ISO 178
Flexural Modulus	2.35 GPa	341 ksi	2 mm/min; ISO 178
Izod Impact, Notched (ISO)	16.0 kJ/m ² @Thickness 3.20 mm, Temperature -30.0 °C	7.61 ft-lb/in ² @Thickness 0.126 in, Temperature -22.0 °F	complete break; b.o. ISO 180-A
	85.0 kJ/m ² @Thickness 3.20 mm, Temperature 23.0 °C	40.4 ft-lb/in ² @Thickness 0.126 in, Temperature 73.4 °F	partial break; b.o. ISO 180-A
Charpy Impact Unnotched	NB @Temperature 23.0 °C	NB @Temperature 73.4 °F	ISO 179-1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	ISO 179-1eU
	NB @Temperature -60.0 °C	NB @Temperature -76.0 °F	ISO 179-1eU
Charpy Impact, Notched	1.80 J/cm ² @Thickness 3.00 mm, Temperature -30.0 °C	8.57 ft-lb/in ² @Thickness 0.118 in, Temperature -22.0 °F	complete break; ISO 7391/b.o. ISO 179-1eA
	7.50 J/cm ² @Thickness 3.00 mm, Temperature 23.0 °C	35.7 ft-lb/in ² @Thickness 0.118 in, Temperature 73.4 °F	partial break; ISO 7391/b.o. ISO 179-1eA
Puncture Energy	60.0 J @Temperature 23.0 °C	44.3 ft-lb @Temperature 73.4 °F	ISO 6603-2
	65.0 J @Temperature -30.0 °C	47.9 ft-lb @Temperature -22.0 °F	ISO 6603-2
Tensile Creep Modulus, 1 hour	2200 MPa	319000 psi	ISO 899-1
Tensile Creep Modulus, 1000 hours	1900 MPa	276000 psi	ISO 899-1