

Covestro Makrolon® 2205 Polycarbonate, Injection Grade

Category : Polymer , Thermoplastic , Polycarbonate (PC) , Polycarbonate, Unreinforced, Flame Retardant

Material Notes:

Exceptionally good flow injection molding grade with easy mold release, for parts with a low wall thickness and long flow paths. Information provided by Bayer. As of 1 September 2015, Bayer Material Science was separated from Bayer AG and officially adopted its new name – Covestro.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Covestro-Makrolon-2205-Polycarbonate-Injection-Grade.php

| Physical Properties | Metric | English | Comments |
|------------------------------------|---|---|-----------------------|
| Density | 1.20 g/cc | 0.0434 lb/in ³ | |
| Water Absorption | 0.35 % | 0.35 % | Saturation in water |
| Moisture Absorption at Equilibrium | 0.15 % | 0.15 % | Equilibrium at 50% RH |
| Water Absorption at Saturation | 0.35 % | 0.35 % | |
| Linear Mold Shrinkage | 0.0050 - 0.0070 cm/cm | 0.0050 - 0.0070 in/in | ASTM D955 |
| Melt Flow | 35 g/10 min @Load 1.20 kg, Temperature 300 °C | 35 g/10 min @Load 2.65 lb, Temperature 572 °F | |

| Mechanical Properties | Metric | English | Comments |
|----------------------------|---------------------------------|--------------------------------------|-------------------------|
| Hardness, Rockwell M | 75 | 75 | ASTM D785 |
| Hardness, Rockwell R | 118 | 118 | ASTM D785 |
| Tensile Strength, Ultimate | 60.0 MPa | 8700 psi | ASTM D638 |
| Tensile Strength, Yield | 63.0 MPa | 9140 psi | |
| Elongation at Break | 110 % | 110 % | ASTM D638 |
| Elongation at Yield | 6.0 % | 6.0 % | |
| Tensile Modulus | 2.30 GPa | 334 ksi | |
| Flexural Yield Strength | 83.0 MPa | 12000 psi | at 5% strain; ASTM D790 |
| Flexural Modulus | 2.30 GPa | 334 ksi | ASTM D790 |
| Izod Impact, Notched | 6.40 J/cm @Thickness 3.20 mm | 12.0 ft-lb/in @Thickness 0.126 in | ASTM D256 |
| Charpy Impact Unnotched | NB | NB | |

| Mechanical Properties, 1 hour | Metric MPa | English psi | Comments |
|-----------------------------------|------------|-------------|----------|
| Tensile Creep Modulus, 1000 hours | 1700 MPa | 247000 psi | |

| Thermal Properties | Metric | English | Comments |
|---|--|---|------------|
| CTE, linear, Parallel to Flow | 70.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ | 38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ | |
| | @Temperature 20.0 $^\circ\text{C}$ | @Temperature 68.0 $^\circ\text{F}$ | |
| CTE, linear, Transverse to Flow | 70.0 $\mu\text{m}/\text{m}\cdot^\circ\text{C}$ | 38.9 $\mu\text{in}/\text{in}\cdot^\circ\text{F}$ | |
| | @Temperature 20.0 $^\circ\text{C}$ | @Temperature 68.0 $^\circ\text{F}$ | |
| Specific Heat Capacity | 1.17 J/g- $^\circ\text{C}$ | 0.280 BTU/lb- $^\circ\text{F}$ | ASTM D2766 |
| Thermal Conductivity | 0.200 W/m-K | 1.39 BTU-in/hr-ft ² - $^\circ\text{F}$ | ASTM C177 |
| Deflection Temperature at 0.46 MPa (66 psi) | 137 $^\circ\text{C}$ | 279 $^\circ\text{F}$ | |
| Deflection Temperature at 1.8 MPa (264 psi) | 122 $^\circ\text{C}$ | 252 $^\circ\text{F}$ | |
| Vicat Softening Point | 144 $^\circ\text{C}$ | 291 $^\circ\text{F}$ | |
| Glass Transition Temp, Tg | 145 $^\circ\text{C}$ | 293 $^\circ\text{F}$ | |
| UL RTI, Electrical | 75.0 $^\circ\text{C}$ | 167 $^\circ\text{F}$ | |
| UL RTI, Mechanical with Impact | 75.0 $^\circ\text{C}$ | 167 $^\circ\text{F}$ | |
| UL RTI, Mechanical without Impact | 75.0 $^\circ\text{C}$ | 167 $^\circ\text{F}$ | |
| Flammability, UL94 | V-2 | V-2 | |
| | @Thickness 1.60 mm | @Thickness 0.0630 in | |
| | V-2 | V-2 | |
| | @Thickness 2.80 mm | @Thickness 0.110 in | |
| Oxygen Index | 26 % | 26 % | |

| Optical Properties | Metric | English | Comments |
|-----------------------|--------------------|---------------------|------------|
| Refractive Index | 1.584 | 1.584 | |
| Haze | 1.0 % | 1.0 % | ASTM D1003 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |
| Transmission, Visible | 88 % | 88 % | ASTM D1003 |
| | @Thickness 3.20 mm | @Thickness 0.126 in | |

| Electrical Properties | Metric | English | Comments |
|----------------------------|-----------------------------------|-----------------------------------|----------|
| Electrical Resistivity | $\geq 1.00 \times 10^{15}$ ohm-cm | $\geq 1.00 \times 10^{15}$ ohm-cm | |
| Surface Resistance | 1.00×10^{15} ohm | 1.00×10^{15} ohm | |
| Dielectric Constant | 2.9 | 2.9 | |
| | @Frequency 1e+6 Hz | @Frequency 1e+6 Hz | |
| Dielectric Strength | 3.0 | 3.0 | |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| Dielectric Strength | 30.0 kV/mm | 762 kV/in | |
| Dissipation Factor | 0.0010 | 0.0010 | |
| | @Frequency 100 Hz | @Frequency 100 Hz | |
| Dissipation Factor | 0.010 | 0.010 | |
| | @Frequency 1e+6 Hz | @Frequency 1e+6 Hz | |
| Comparative Tracking Index | 275 V | 275 V | |

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