

Makrolon® 6485

Covestro - Polycarbonates - Polycarbonate

General Information

Product Description

 MVR (300°C/1.2 kg) 9.0 cm³/10 min; flame retardant; UL 94V-0/1.5 mm and 5VA/3.0 mm; medium viscosity; easy release; injection molding - melt temperature 280 - 320°C; available in opaque colors only

General

| | | | |
|-------------------|----------------------------|---------------------|--------------------|
| Material Status | • Commercial: Active | | |
| Availability | • Africa & Middle East | • Europe | • North America |
| | • Asia Pacific | • Latin America | |
| Additive | • Flame Retardant | | |
| Features | • Flame Retardant | • Good Mold Release | • Medium Viscosity |
| RoHS Compliance | • RoHS Compliant | | |
| Appearance | • Colors Available | • Opaque | |
| Processing Method | • Injection Molding | | |
| ISO Designation | • ISO 7391-PC,MFR,(,)-09-9 | | |

 Properties ¹

| Physical | Nominal Value | Unit | Test Method |
|--|---------------|------------------------|--------------|
| Density (73°F) | 1.20 | g/cm ³ | ISO 1183 |
| Apparent (Bulk) Density ² | 0.64 | g/cm ³ | ISO 60 |
| Melt Mass-Flow Rate (MFR) (300°C/1.2 kg) | 10 | g/10 min | ISO 1133 |
| Melt Volume-Flow Rate (MVR) (300°C/1.2 kg) | 9.0 | cm ³ /10min | ISO 1133 |
| Molding Shrinkage | | | |
| Across Flow | 0.60 to 0.80 | % | ISO 2577 |
| Flow | 0.60 to 0.80 | % | ISO 2577 |
| Across Flow : 536°F, 0.0787 in ³ | 0.70 | % | ISO 294-4 |
| Flow : 0.0787 in ³ | 0.65 | % | ISO 294-4 |
| Water Absorption (Saturation, 73°F) | 0.30 | % | ISO 62 |
| Water Absorption (Equilibrium, 73°F, 50% RH) | 0.12 | % | ISO 62 |
| Mechanical | Nominal Value | Unit | Test Method |
| Tensile Modulus (73°F) | 348000 | psi | ISO 527-1/1 |
| Tensile Stress (Yield, 73°F) | 9570 | psi | ISO 527-2/50 |
| Tensile Stress (Break, 73°F) | 9430 | psi | ISO 527-2/50 |
| Tensile Strain (Yield, 73°F) | 6.1 | % | ISO 527-2/50 |
| Tensile Strain (Break, 73°F) | 120 | % | ISO 527-2/50 |
| Nominal Tensile Strain at Break (73°F) | > 50 | % | ISO 527-2/50 |
| Tensile Creep Modulus (1 hr) | 319000 | psi | ISO 899-1 |
| Tensile Creep Modulus (1000 hr) | 276000 | psi | ISO 899-1 |
| Flexural Modulus ⁴ (73°F) | 348000 | psi | ISO 178 |
| Flexural Stress ⁴ | | | ISO 178 |
| 73°F | 14200 | psi | |
| 3.5% Strain, 73°F | 10700 | psi | |
| Flexural Strain at Flexural Strength ⁵ (73°F) | 7.1 | % | ISO 178 |
| Impact | Nominal Value | Unit | Test Method |
| Charpy Notched Impact Strength ⁶ | | | ISO 179/1eA |
| -22°F, Complete Break | 6.7 | ft·lb/in ² | |
| 73°F, Partial Break | 33 | ft·lb/in ² | |
| Charpy Unnotched Impact Strength | | | ISO 179/1eU |



| | | |
|---|-----------------------------------|--------------------|
| -76°F | No Break | |
| -22°F | No Break | |
| 73°F | No Break | |
| Notched Izod Impact Strength ⁶ | | ISO 180/A |
| -22°F, Complete Break | 5.7 ft·lb/in ² | |
| 73°F, Partial Break | 31 ft·lb/in ² | |
| Multi-Axial Instrumented Impact Energy | | ISO 6603-2 |
| -22°F | 40.6 ft·lb | |
| 73°F | 36.9 ft·lb | |
| Multi-Axial Instrumented Impact Peak Force | | ISO 6603-2 |
| -22°F | 1350 lbf | |
| 73°F | 1170 lbf | |
| Hardness | Nominal Value Unit | Test Method |
| Ball Indentation Hardness | 16700 psi | ISO 2039-1 |
| Thermal | Nominal Value Unit | Test Method |
| Deflection Temperature Under Load (66 psi, Unannealed) | 277 °F | ISO 75-2/B |
| Deflection Temperature Under Load (264 psi, Unannealed) | 255 °F | ISO 75-2/A |
| Glass Transition Temperature ⁷ | 288 °F | ISO 11357-2 |
| Vicat Softening Temperature | | |
| -- | 293 °F | ISO 306/B120 |
| -- | 291 °F | ISO 306/B50 |
| Ball Pressure Test (277°F) | Pass | IEC 60695-10-2 |
| CLTE - Flow (73 to 131°F) | 3.6E-5 in/in/°F | ISO 11359-2 |
| CLTE - Transverse (73 to 131°F) | 3.6E-5 in/in/°F | ISO 11359-2 |
| Thermal Conductivity ⁸ (73°F) | 1.4 Btu·in/hr/ft ² /°F | ISO 8302 |
| RTI Elec (0.06 in) | 257 °F | UL 746B |
| RTI Imp (0.06 in) | 239 °F | UL 746B |
| RTI Str (0.06 in) | 257 °F | UL 746B |
| Electrical | Nominal Value Unit | Test Method |
| Surface Resistivity | 1.0E+16 ohms | IEC 60093 |
| Volume Resistivity (73°F) | 1.0E+16 ohms·cm | IEC 60093 |
| Electric Strength (73°F, 0.0394 in) | 860 V/mil | IEC 60243-1 |
| Relative Permittivity | | IEC 60250 |
| 73°F, 100 Hz | 3.10 | |
| 73°F, 1 MHz | 3.00 | |
| Dissipation Factor | | IEC 60250 |
| 73°F, 100 Hz | 8.0E-4 | |
| 73°F, 1 MHz | 9.0E-3 | |
| Comparative Tracking Index | | IEC 60112 |
| Solution A | 225 V | |
| Solution B | 125 V | |
| Electrolytic Corrosion (73°F) | A1 | IEC 60426 |
| Flammability | Nominal Value Unit | Test Method |
| Flame Rating | | UL 94 |
| 0.030 in | V-1 | |
| 0.06 in | V-0 | |
| 0.12 in | 5VA | |
| Glow Wire Flammability Index | | IEC 60695-2-12 |
| 0.030 in | 1760 °F | |
| 0.06 in | 1760 °F | |
| 0.12 in | 1760 °F | |
| Glow Wire Ignition Temperature | | IEC 60695-2-13 |
| 0.030 in | 1610 °F | |
| 0.06 in | 1610 °F | |
| 0.12 in | 1610 °F | |
| Oxygen Index ⁹ | 36 % | ISO 4589-2 |
| 15 min Flame from Small Burner ¹⁰ (78.7 mil) | K1, F1 | DIN 5510 |
| 15 min Flame from Small Burner ¹¹ (> 39.4 mil) | passed | ISO 9796 |
| Charring Temperature | 860 °F | ASTM D568 |
| Char Yield at 860 °F | 100 % | EDF |

| | | |
|---------------------------|---------|----------------|
| 59.1 mil | 1382 °F | |
| 0.12 in | 1382 °F | |
| Needle Flame Test | | IEC 60695-11-5 |
| 59.1 mil ¹² | 120 sec | |
| 59.1 mil ¹³ | 120 sec | |
| 78.7 mil ¹² | 120 sec | |
| 78.7 mil ¹³ | 120 sec | |
| 0.12 in ¹² | 120 sec | |
| 0.12 in ¹³ | 120 sec | |
| Self Ignition Temperature | 1004 °F | ASTM D1929 |

Processing Information

| Injection | Nominal Value | Unit |
|------------------------------------|------------------|------|
| Drying Temperature - Dry Air Dryer | 248 | °F |
| Drying Time - Dry Air Dryer | 2.0 to 3.0 | hr |
| Suggested Max Moisture | < 0.020 | % |
| Suggested Shot Size | 30 to 70 | % |
| Rear Temperature | 482 to 500 | °F |
| Middle Temperature | 518 to 536 | °F |
| Front Temperature | 536 to 554 | °F |
| Nozzle Temperature | 554 to 572 | °F |
| Processing (Melt) Temp | 536 to 608 | °F |
| Mold Temperature | 176 to 248 | °F |
| Back Pressure | 725 to 2180 | psi |
| Vent Depth | 9.8E-4 to 3.0E-3 | in |

Injection Notes

Hold Pressure (% of Injection Pressure): 50 - 75%
Peripheral Screw Speed: 0.05 - 0.2 m/s
Standard Melt Temperature: 300°C

Notes

- ¹ Typical properties: these are not to be construed as specifications.
- ² Pellets
- ³ 60x60x2mm, 500 bar
- ⁴ 0.079 in/min
- ⁵ 2.0 mm/min
- ⁶ 3 mm
- ⁷ 10°C/min
- ⁸ Across Flow
- ⁹ Procedure A
- ¹⁰ Method K and F
- ¹¹ US-FMVSS
- ¹² Method K
- ¹³ Method F

