

Mitsubishi Chemical Advanced Materials PC 1000 Extruded, Unfilled, Polycarbonate (ASTM Product Data Sheet)
Categories: Polymer; Thermoplastic; Polycarbonate (PC); Polycarbonate, Extruded

Material Notes: Quadrant Engineering Plastic Products is now Mitsubishi Chemical Advanced Materials.

| Physical Properties | Metric | English | Comments |
|--------------------------------|-----------|-----------|-------------------------------|
| Specific Gravity | 1.20 g/cc | 1.20 g/cc | ASTM D792 |
| Water Absorption | 0.20 % | 0.20 % | Immersion, 24hr; ASTM D570(2) |
| Water Absorption at Saturation | 0.40 % | 0.40 % | Immersion; ASTM D570(2) |

| Mechanical Properties | Metric | English | Comments |
|----------------------------------|------------|---------------|---------------------|
| Hardness, Rockwell M | 75 | 75 | ASTM D785 |
| Hardness, Rockwell R | 126 | 126 | ASTM D785 |
| Hardness, Shore D | 80 | 80 | ASTM D2240 |
| Tensile Strength | 72.4 MPa | 10500 psi | ASTM D638 |
| Tensile Strength at 65°C (150°F) | 34.5 MPa | 5000 psi | ASTM D638 |
| Elongation at Break | 100 % | 100 % | ASTM D638 |
| Tensile Modulus | 2.21 GPa | 320 ksi | ASTM D638 |
| Flexural Strength | 89.6 MPa | 13000 psi | ASTM D790 |
| Flexural Modulus | 2.41 GPa | 350 ksi | ASTM D790 |
| Compressive Strength | 79.3 MPa | 11500 psi | 10% Def.; ASTM D695 |
| Compressive Modulus | 2.07 GPa | 300 ksi | ASTM D695 |
| Shear Strength | 63.4 MPa | 9200 psi | ASTM D732 |
| Izod Impact, Notched | 0.801 J/cm | 1.50 ft-lb/in | ASTM D256 Type A |

| Electrical Properties | Metric | English | Comments |
|--------------------------------|-------------------------------|-------------------------------|-----------------------|
| Surface Resistivity per Square | $\geq 1.00e+13$ ohm | $\geq 1.00e+13$ ohm | EOS/ESD S11.11 |
| Dielectric Constant | 3.17 @Frequency 1e+6 Hz | 3.17 @Frequency 1e+6 Hz | ASTM D150 |
| Dielectric Strength | 15.7 kV/mm | 400 kV/in | Short Term; ASTM D149 |
| Dissipation Factor | 0.00090 @Frequency 1e+6 Hz | 0.00090 @Frequency 1e+6 Hz | ASTM D150 |

| Thermal Properties | Metric | English | Comments |
|---|---|---|------------------|
| CTE, linear | 70.2 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature -40.0 - 149 °C | 39.0 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature -40.0 - 300 °F | ASTM E831 |
| Thermal Conductivity | 0.186 W/m-K | 1.29 BTU-in/hr-ft ² -°F | ASTM F433 |
| Maximum Service Temperature, Air | 121 °C | 250 °F | Long Term |
| Deflection Temperature at 1.8 MPa (264 psi) | 143 °C | 290 °F | ASTM D648 |
| Glass Transition Temp, Tg | 145 °C | 293 °F | ASTM D3418 |
| Flammability, UL94 | HB @Thickness 3.17 mm | HB @Thickness 0.125 in | Estimated Rating |

| Compliance Properties | Metric | English | Comments |
|-----------------------|--------|---------|----------|
| 3A-Dairy | No | No | |
| Canada AG | No | No | |
| FDA | No | No | |
| NSF | No | No | |
| USDA | No | No | |
| USP Class VI | No | No | |

| Chemical Resistance Properties | Metric | English | Comments |
|---------------------------------|--------------|--------------|----------|
| Acids, Strong (pH 1-3) | Unacceptable | Unacceptable | |
| Acids, Weak | Acceptable | Acceptable | |
| Alcohols | Acceptable | Acceptable | |
| Alkalies, Strong (pH 11-14) | Unacceptable | Unacceptable | |
| Alkalies, Weak | Acceptable | Acceptable | |
| Chlorinated Solvents | Unacceptable | Unacceptable | |
| Conductive / Static Dissipative | No | No | |
| Continuous Sunlight | Limited | Limited | |
| Hot Water / Steam | Limited | Limited | |
| Hydrocarbons - Aliphatic | Limited | Limited | |
| Hydrocarbons - Aromatic | Unacceptable | Unacceptable | |

| | | |
|-------------------------------|--------------|---------------------------|
| Inorganic Salt Solutions | Acceptable | Acceptable |
| Ketones, Esters | Unacceptable | Unacceptable |
| Descriptive Properties | | |
| Color | Natural | |
| Machinability | 3 | 1-10, 1=Easier to Machine |



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