



Polycarbonate (PC)

MATERIAL DATA SHEET



A true industrial thermoplastic, PC (polycarbonate) is widely used in automotive, aerospace, medical and many other applications. PC offers accuracy, durability and stability, creating strong parts that withstand functional testing. It also has superior mechanical properties to ABS and a number of other thermoplastics. PC gives you strong parts for conceptual modeling, functional prototyping, manufacturing tools, and end-use parts.

Quick Facts:

- Great for any industry
- Superior mechanical properties to ABS
- Great for concept modeling

Color options:

White



| MECHANICAL PROPERTIES | TEST METHOD | ENGLISH | | METRIC | |
|---|-------------|-------------|-------------|-----------|-----------|
| | | XZ AXIS | ZX AXIS | XZ AXIS | ZX AXIS |
| Tensile Strength, Yield (Type 1, 0.125", 0.2"/min) | ASTM D638 | 5,800 psi | 4,300 psi | 40 MPa | 30 MPa |
| Tensile Strength, Ultimate (Type 1, 0.125", 0.2"/min) | ASTM D638 | 8,300 psi | 6,100 psi | 57 MPa | 42 MPa |
| Tensile Modulus (Type 1, 0.125", 0.2"/min) | ASTM D638 | 282,000 psi | 284,000 psi | 1,944 MPa | 1,958 MPa |
| Tensile Elongation at Break (Type 1, 0.125", 0.2"/min) | ASTM D638 | 4.8% | 2.5% | 4.8% | 2.5% |
| Tensile Elongation at Yield (Type 1, 0.125", 0.2"/min) | ASTM D638 | 2.2% | 2% | 2.2% | 2% |

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| Continued MECHANICAL PROPERTIES | TEST METHOD | ENGLISH | | METRIC | |
|---|----------------|------------------|--------------|-----------|-----------|
| | | XZ AXIS | ZX AXIS | XZ AXIS | ZX AXIS |
| Flexural Strength (Method 1, 0.05"/min) | ASTM D790 | 13,000 psi | 9,900 psi | 89 MPa | 68 MPa |
| Flexural Modulus (Method 1, 0.05"/min) | ASTM D790 | 291,000 psi | 261,000 psi | 2,006 MPa | 1,800 MPa |
| Flexural Strain at Break (Method 1, 0.05"/min) | ASTM D790 | No break | 4% | No break | 4% |
| IZOD Impact, notched (Method A, 23°C) | ASTM D256 | 1.4 ft-lb/in | 0.5 ft-lb/in | 73 J/m | 28 J/m |
| IZOD Impact, un-notched (Method A, 23°C) | ASTM D256 | 16.4 ft-lb/in | 3.5 ft-lb/in | 877 J/m | 187 J/m |
| Compressive Strength, Yield (Method 1, 0.05"/min) | ASTM D695 | 10,000 psi | 9,200 psi | 69 MPa | 64 MPa |
| Compressive Strength, Ultimate (Method 1, 0.05"/min) | ASTM D695 | 28,000 psi | 9,400 psi | 193 MPa | 65 MPa |
| Compressive Modulus (Method 1, 0.05"/min) | ASTM D695 | 1,100,000 psi | 227,000 psi | 7,564 MPa | 1,565 MPa |

| THERMAL PROPERTIES | TEST METHOD | ENGLISH | METRIC |
|---------------------------------|-------------|----------------|----------------|
| Heat Deflection (HDT) @ 66 psi | ASTM D648 | 280°F | 138°C |
| Heat Deflection (HDT) @ 264 psi | ASTM D648 | 261°F | 127°C |
| Vicat Softening | ASTM D1525 | 282°F | 139°C |
| Glass Transition (Tg) | DMA (SSYS) | 322°F | 161°C |
| Melting Point | ----- | Not Applicable | Not Applicable |

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| ELECTRICAL PROPERTIES | TEST METHOD | VALUE RANGE |
|-----------------------|------------------------|--|
| Volume Resistivity | ASTM D257 | 6.0x10 ¹³ - 2.0x10 ¹⁴ ohm-cm |
| Dielectric Constant | ASTM D150-98 | 2.8 - 3.0 |
| Dissipation Factor | ASTM D150-98 | .0005 - .0006 |
| Dielectric Strength | ASTM D149-09, Method A | 80 - 360 V/mil |

| OTHER | TEST METHOD | VALUE |
|----------------------------------|-------------|--------------------------------|
| Specific Gravity | ASTM D792 | 1.2 |
| Flame Classification | UL94 | HB |
| Coefficient of Thermal Expansion | ASTM E831 | 3.8x10 ⁻⁰⁵ in/in/°F |
| Rockwell Hardness | ASTM D785 | R115 |
| UL File Number | ----- | E345258 |