# LNP™ THERMOCOMP™ Compound D451RC

## DESCRIPTION

LNP THERMOCOMP D451RC compound is based on recycled Polycarbonate (PC) resin containing 40% glass fiber. Added features of this grade include: High Modulus, Low Warpage, Good Ductility, Non-Brominated & Non-Chlorinated Flame Retardant. Post-Consumer Recycling (PCR) Polycarbonate content up to 35%.

| GENERAL INFORMATION | |
|---|---|
| **Features** | Flame Retardant, Low Warpage, Mechanical Recycling, Non Cl/Br flame retardant, High stiffness/Strength, Impact resistant |
| **Fillers** | Glass Fiber |
| **Polymer Types** | Polycarbonate (PC) |
| **Processing Techniques** | Injection Molding |

| INDUSTRY | SUB INDUSTRY |
|---|---|
| Building and Construction | Building Component |
| Consumer | Personal Accessory |
| Electrical and Electronics | Mobile Phone - Computer - Tablets |
| Industrial | Electrical |

## TYPICAL PROPERTY VALUES

Revision 20260409

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL [1] | | | |
| **Flexural Modulus, 1.3 mm/min, 50 mm span** | 10100 | MPa | ASTM D790 |
| **Flexural Stress, yld, 1.3 mm/min, 50 mm span** | 190 | MPa | ASTM D790 |
| **Flexural Stress, brk, 1.3 mm/min, 50 mm span** | 186 | MPa | ASTM D790 |
| **Flexural Modulus, 2 mm/min** | 10700 | MPa | ISO 178 |
| **Flexural Stress, yield, 2 mm/min** | 196 | MPa | ISO 178 |
| **Flexural Stress, break, 2 mm/min** | 195 | MPa | ISO 178 |
| **Tensile Modulus, 5 mm/min** | 12300 | MPa | ASTM D638 |
| **Tensile Stress, brk, Type I, 5 mm/min** | 145 | MPa | ASTM D638 |
| **Tensile Strain, brk, Type I, 5 mm/min** | 2.0 | % | ASTM D638 |
| **Tensile Modulus, 1 mm/min** | 11800 | MPa | ISO 527 |
| **Tensile Stress, break, 5 mm/min** | 140 | MPa | ISO 527 |
| **Tensile Strain, break, 5 mm/min** | 1.9 | % | ISO 527 |
| IMPACT [1] | | | |
| **Izod Impact, notched, 23°C** | 133 | J/m | ASTM D256 |
| **Izod Impact, notched, -30°C** | 115 | J/m | ASTM D256 |
| **Izod Impact, unnotched, 23°C** | 510 | J/m | ASTM D4812 |
| **Izod Impact, notched 80*10*4 +23°C** | 12 | kJ/m² | ISO 180/1A |
| **Izod Impact, notched 80*10*4 -30°C** | 11 | kJ/m² | ISO 180/1A |
| **Izod Impact, unnotched 80*10*4 +23°C** | 34 | kJ/m² | ISO 180/1U |
| **Instrumented Dart Impact Total Energy, 23°C** | 21 | J | ASTM D3763 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| **THERMAL** [1] | | | |
| **HDT, 1.82 MPa, 3.2mm, unannealed** | 110 | °C | ASTM D648 |
| **HDT, 0.45 MPa, 3.2 mm, unannealed** | 115 | °C | ASTM D648 |
| **HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm** | 112 | °C | ISO 75/Af |
| **HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm** | 118 | °C | ISO 75/Bf |
| **Vicat Softening Temp, Rate B/50** | 121 | °C | ISO 306 |
| **Vicat Softening Temp, Rate B/120** | 123 | °C | ISO 306 |
| **CTE, 23°C to 80°C, flow** | 1.7E-05 | 1/°C | ASTM E831 |
| **CTE, 23°C to 80°C, xflow** | 6.6E-05 | 1/°C | ASTM E831 |
| **CTE, -40°C to 40°C, flow** | 1.9E-05 | 1/°C | ASTM E831 |
| **CTE, -40°C to 40°C, xflow** | 5.7E-05 | 1/°C | ASTM E831 |
| **Relative Temp Index, Elec** [2] | 80 | °C | UL 746B |
| **Relative Temp Index, Mech w/impact** [2] | 80 | °C | UL 746B |
| **Relative Temp Index, Mech w/o impact** [2] | 80 | °C | UL 746B |
| **PHYSICAL** [1] | | | |
| **Mold Shrinkage, flow, 24 hrs** [3] | 0.1 – 0.2 | % | ASTM D955 |
| **Mold Shrinkage, xflow, 24 hrs** [3] | 0.1 – 0.2 | % | ASTM D955 |
| **Water Absorption, (23°C/24hrs)** | 0.02 | % | ISO 62-1 |
| **Density** | 1.52 | g/cm³ | ASTM D792 |
| **Melt Flow Rate** | | | |
| 300°C/1.2 kgf | 11 | g/10 min | ASTM D1238 |
| 300°C/2.16 kgf | 23 | g/10 min | ASTM D1238 |
| 300°C/5.0 kgf | 69 | g/10 min | ASTM D1238 |
| **Melt Volume Rate** | | | |
| 300°C/1.2 kg | 8 | cm³/10 min | ISO 1133 |
| 300°C/2.16 kg | 17 | cm³/10 min | ISO 1133 |
| 300°C/5.0 kg | 51 | cm³/10 min | ISO 1133 |
| **ELECTRICAL** [1] | | | |
| **Volume Resistivity** | >1.0E+16 | Ω.cm | ASTM D257 |
| **Comparative Tracking Index (UL) {PLC}** | 3 | PLC Code | UL 746A |
| **Surface Resistivity** | >1.0E+16 | Ω | ASTM D257 |
| **Dielectric Constant** | | | |
| 1.1 GHz | 3.73 | - | SABIC method |
| 1.9 GHz | 3.74 | - | SABIC method |
| 5 GHz | 3.77 | - | SABIC method |
| 10 GHz | 3.79 | - | SABIC method |
| **Dissipation Factor** | | | |
| 1.1 GHz | 0.0073 | - | SABIC method |
| 1.9 GHz | 0.0075 | - | SABIC method |
| 5 GHz | 0.0083 | - | SABIC method |
| 10 GHz | 0.0084 | - | SABIC method |
| **FLAME CHARACTERISTICS** [2] | | | |
| **UL Yellow Card Link** | E207780-103195752 | - | - |
| **UL Recognized, 94V-0 Flame Class Rating** | ≥0.6 | mm | UL 94 |
| **Glow Wire Ignitability Temperature, 2.0 mm** | 875 | °C | IEC 60695-2-13 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Glow Wire Ignitability Temperature, 1.0 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.6 mm | 875 | °C | IEC 60695-2-13 |
| Glow Wire Flammability Index, 2.0 mm | 960 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.0 mm | 960 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.6 mm | 960 | °C | IEC 60695-2-12 |
| INJECTION MOLDING (4) | | | |
| Drying Temperature | 110 | °C | |
| Drying Time | 3 – 6 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 285 – 310 | °C | |
| Nozzle Temperature | 285 – 305 | °C | |
| Front - Zone 3 Temperature | 280 – 300 | °C | |
| Middle - Zone 2 Temperature | 270 – 290 | °C | |
| Rear - Zone 1 Temperature | 260 – 280 | °C | |
| Mold Temperature | 80 – 110 | °C | |
| Back Pressure | 0.1 – 0.3 | MPa | |
| Screw Speed | 50 – 90 | rpm | |

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.

(2) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(3) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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