# LNP™ THERMOCOMP™ COMPOUND WF006XXP

WF006XXP
REGION AMERICAS

## DESCRIPTION

LNP* THERMOCOMP* WF006XXP is a compound based on PBT resin containing 30% glass. Added features of this grade include: excellent strength, stiffness and dimensional stability, high heat resistance. Good for appliance handles, spotlights, electric motors, connectors.

## TYPICAL PROPERTY VALUES

Revision 20190925

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL | | | |
| Tensile Stress, yld, Type I, 5 mm/min | 119 | MPa | ASTM D 638 |
| Tensile Stress, brk, Type I, 5 mm/min | 119 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 5 mm/min | 2.7 | % | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 3 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 9300 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 195 | MPa | ASTM D 790 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 189 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 7580 | MPa | ASTM D 790 |
| Hardness, Rockwell R | 118 | - | ASTM D 785 |
| Taber Abrasion, CS-17, 1 kg | 19 | mg/1000cy | ASTM D 1044 |
| Tensile Stress, yield, 5 mm/min | 125 | MPa | ISO 527 |
| Tensile Stress, break, 5 mm/min | 125 | MPa | ISO 527 |
| Tensile Strain, yield, 5 mm/min | 2 | % | ISO 527 |
| Tensile Strain, break, 5 mm/min | 2 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 9300 | MPa | ISO 527 |
| Flexural Stress, yield, 2 mm/min | 195 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 8500 | MPa | ISO 178 |
| Ball Indentation Hardness, H358/30 | 122 | MPa | ISO 2039-1 |
| Hardness, Rockwell R | 118 | - | ISO 2039-2 |
| IMPACT | | | |
| Izod Impact, unnotched, 23°C | 801 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 85 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 80 | J/m | ASTM D 256 |
| Instrumented Impact Total Energy, 23°C | 8 | J | ASTM D 3763 |
| Izod Impact, unnotched 80*10*4 +23°C | 45 | kJ/m² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | 45 | kJ/m² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 8 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 7 | kJ/m² | ISO 180/1A |
| Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm | 5 | kJ/m² | ISO 179/1eA |
| Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm | 5 | kJ/m² | ISO 179/1eA |
| Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm | 45 | kJ/m² | ISO 179/1eU |
| Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm | 45 | kJ/m² | ISO 179/1eU |
| THERMAL | | | |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Vicat Softening Temp, Rate B/50 | 215 | °C | ASTM D 1525 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 220 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 3.2mm, unannealed | 203 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 6.4 mm, unannealed | 215 | °C | ASTM D 648 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 207 | °C | ASTM D 648 |
| CTE, -40°C to 40°C, flow | 2.52E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, xflow | 1.2E-04 | 1/°C | ASTM E 831 |
| CTE, 60°C to 138°C, flow | 2.52E-05 | 1/°C | ASTM E 831 |
| Thermal Conductivity | 0.19 | W/m-°C | ISO 8302 |
| CTE, -40°C to 40°C, flow | 2.52E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 40°C, xflow | 1.2E-04 | 1/°C | ISO 11359-2 |
| Ball Pressure Test, 125°C +/- 2°C | Passs | - | IEC 60695-10-2 |
| Vicat Softening Temp, Rate A/50 | 223 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/50 | 215 | °C | ISO 306 |
| Vicat Softening Temp, Rate B/120 | 215 | °C | ISO 306 |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm | 217 | °C | ISO 75/Bf |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 204 | °C | ISO 75/Af |
| Relative Temp Index, Elec [1] | 140 | °C | UL 746B |
| Relative Temp Index, Mech w/impact [1] | 140 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact [1] | 140 | °C | UL 746B |
| PHYSICAL | | | |
| Specific Gravity | 1.53 | - | ASTM D 792 |
| Specific Volume | 0.65 | cm³/g | ASTM D 792 |
| Density | 1.53 | g/cm³ | ASTM D 792 |
| Filler Content | 30 | % | ASTM D 229 |
| Water Absorption, 24 hours | 0.06 | % | ASTM D 570 |
| Mold Shrinkage on Tensile Bar, flow | 0.3 – 0.7 | % | SABIC method |
| Mold Shrinkage, flow, 3.2 mm | 0.3 – 0.7 | % | SABIC method |
| Mold Shrinkage, flow, 1.5-3.2 mm | 0.3 – 0.5 | % | SABIC method |
| Mold Shrinkage, flow, 3.2-4.6 mm | 0.5 – 0.8 | % | SABIC method |
| Mold Shrinkage on Tensile Bar, xflow | 0.5 – 1 | % | SABIC method |
| Mold Shrinkage, xflow, 3.2 mm | 0.5 – 1 | % | SABIC method |
| Mold Shrinkage, xflow, 1.5-3.2 mm | 0.4 – 0.6 | % | SABIC method |
| Mold Shrinkage, xflow, 3.2-4.6 mm | 0.6 – 0.9 | % | SABIC method |
| Moisture Absorption (23°C / 50% RH) | 0.08 | % | ISO 62 |
| Melt Flow Rate, 250°C/2.16 kg | 17 | g/10 min | ISO 1133 |
| Melt Volume Rate, MVR at 250°C/2.16 kg | 13 | cm³/10 min | ISO 1133 |
| ELECTRICAL | | | |
| Volume Resistivity | >3.2E+16 | Ohm-cm | ASTM D 257 |
| Dielectric Strength, in air, 3.2 mm | 18.7 | kV/mm | ASTM D 149 |
| Dielectric Strength, in oil, 1.6 mm | 24.8 | kV/mm | ASTM D 149 |
| Relative Permittivity, 100 Hz | 3.8 | - | ASTM D 150 |
| Relative Permittivity, 1 MHz | 3.7 | - | ASTM D 150 |
| Dissipation Factor, 100 Hz | 0.002 | - | ASTM D 150 |
| Dissipation Factor, 1 MHz | 0.02 | - | ASTM D 150 |

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| Volume Resistivity | 1.E+15 | Ohm-cm | IEC 60093 |
| Surface Resistivity, ROA | 1.E+15 | Ohm | IEC 60093 |
| Dielectric Strength, shorttime, 1.0mm | 19 | kV/mm | IEC 60243-1 |
| Dielectric Strength, in oil, 0.8 mm | 28 | kV/mm | IEC 60243-1 |
| Dielectric Strength, in oil, 1.6 mm | 24 | kV/mm | IEC 60243-1 |
| Dielectric Strength, in oil, 3.2 mm | 16 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 1 MHz | 3.1 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 100 Hz | 0.001 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.01 | - | IEC 60250 |
| Comparative Tracking Index | 300 | V | IEC 60112 |
| Relative Permittivity, 50/60 Hz | 3.1 | - | IEC 60250 |
| Comparative Tracking Index (UL) {PLC} | 0 | PLC Code | UL 746A |
| Hot-Wire Ignition (HWI), PLC 0 | ≥6 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 1 | ≥1.5 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 3 | ≥0.84 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 4 | ≥0.38 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 1 | ≥1.5 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 2 | ≥0.38 | mm | UL 746A |
| High Voltage Arc Track Rate {PLC} | 1 | PLC Code | UL 746A |
| Arc Resistance, Tungsten {PLC} | 5 | PLC Code | ASTM D 495 |
| FLAME CHARACTERISTICS [1] | | | |
| UL Yellow Card Link | E121562-103952715 | - | - |
| UL Recognized, 94HB Flame Class Rating | ≥0.84 | mm | UL 94 |
| Glow Wire Ignitability Temperature, 1.0 mm | 775 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 1.5 mm | 775 | °C | IEC 60695-2-13 |
| Glow Wire Ignitability Temperature, 3.0 mm | 825 | °C | IEC 60695-2-13 |
| Glow Wire Flammability Index, 1.0 mm | 750 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 1.5 mm | 750 | °C | IEC 60695-2-12 |
| Glow Wire Flammability Index, 3.0 mm | 800 | °C | IEC 60695-2-12 |
| Oxygen Index (LOI) | 19 | % | ASTM D 2863 |
| INJECTION MOLDING | | | |
| Drying Temperature | 120 | °C | |
| Drying Time | 3 – 4 | hrs | |
| Drying Time (Cumulative) | 12 | hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 250 – 265 | °C | |
| Nozzle Temperature | 245 – 260 | °C | |
| Front - Zone 3 Temperature | 250 – 265 | °C | |
| Middle - Zone 2 Temperature | 245 – 260 | °C | |
| Rear - Zone 1 Temperature | 240 – 255 | °C | |
| Mold Temperature | 65 – 90 | °C | |
| Back Pressure | 0.3 – 0.7 | MPa | |
| Screw Speed | 50 – 80 | rpm | |
| Shot to Cylinder Size | 40 – 80 | % | |

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|---|---|---|---|
| **Vent Depth** | 0.025 – 0.038 | mm | |

(1) 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.

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