# LNP™ THERMOCOMP™ COMPOUND ZKC08

## DESCRIPTION

LNP™ Thermocomp™ ZKC08 is a compound based on PPO resin containing Mineral Filler, Impact Modifier. Added features of this material include: high dielectric constant (Dk), extremely low dissipation factor (Df), good ductility, and good thermal performance.

## TYPICAL PROPERTY VALUES

Revision 20191216

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL | | | |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 2000 | MPa | ASTM D 790 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 65 | MPa | ASTM D 790 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 63 | MPa | ASTM D 790 |
| Flexural Modulus, 2 mm/min | 2230 | MPa | ISO 178 |
| Flexural Stress, yield, 2 mm/min | 72 | MPa | ISO 178 |
| Flexural Stress, break, 2 mm/min | 70 | MPa | ISO 178 |
| Tensile Modulus, 50 mm/min | 2170 | MPa | ASTM D 638 |
| Tensile Stress, yld, Type I, 50 mm/min | 43 | MPa | ASTM D 638 |
| Tensile Strain, yld, Type I, 50 mm/min | 7.8 | % | ASTM D 638 |
| Tensile Stress, brk, Type I, 50 mm/min | 36 | MPa | ASTM D 638 |
| Tensile Strain, brk, Type I, 50 mm/min | 8.9 | % | ASTM D 638 |
| Tensile Stress, break, 50 mm/min | 42 | MPa | ISO 527 |
| Tensile Modulus, 1 mm/min | 2080 | MPa | ISO 527 |
| Tensile Strain, break, 50 mm/min | 9.3 | % | ISO 527 |
| IMPACT | | | |
| Izod Impact, notched, 23°C | 205 | J/m | ASTM D 256 |
| Izod Impact, notched, -20°C | 166 | J/m | ASTM D 256 |
| Izod Impact, notched 80*10*4 +23°C | 21 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -20°C | 16 | kJ/m² | ISO 180/1A |
| THERMAL | | | |
| HDT, 1.82 MPa, 3.2mm, unannealed | 148 | °C | ASTM D 648 |
| HDT, 0.45 MPa, 3.2 mm, unannealed | 173 | °C | ASTM D 648 |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 149 | °C | ISO 75/Af |
| HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm | 174 | °C | ISO 75/Bf |
| CTE, -40°C to 150°C, flow | 6.1E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 150°C, xflow | 8.3E-05 | 1/°C | ASTM E 831 |
| Relative Temp Index, Elec [1] | 65 | °C | UL 746B |
| Relative Temp Index, Mech w/impact [1] | 65 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact [1] | 65 | °C | UL 746B |
| PHYSICAL | | | |
| Melt Volume Rate, MVR at 300°C/5.0 kg | 7 | cm³/10 min | ISO 1133 |
| Melt Volume Rate, MVR at 300°C/10.0 kg | 23.5 | cm³/10 min | ISO 1133 |
| Melt Flow Rate, 300°C/5.0 kgf | 9.5 | g/10 min | ASTM D 1238 |
| Melt Flow Rate, 300°C/10 kgf | 31 | g/10 min | ASTM D 1238 |
| Mold Shrinkage, flow, 24 hrs | 0.75 – 0.85 | % | ASTM D 955 |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Mold Shrinkage, xflow, 24 hrs | 0.75 – 0.85 | % | ASTM D 955 |
| Water Absorption, 23°C/24hrs | 0.03 | % | ISO 62-1 |
| Density | 1.43 | g/cm³ | ASTM D 792 |
| ELECTRICAL | | | |
| Dielectric Constant, 1.1 GHz | 3.91 | - | SABIC method |
| Dissipation Factor, 1.1 GHz | 0.0009 | - | SABIC method |
| Dielectric Constant, 1.9 GHz | 3.93 | - | SABIC method |
| Dissipation Factor, 1.9 GHz | 0.0012 | - | SABIC method |
| Dielectric Constant, 5 GHz | 3.95 | - | SABIC method |
| Dissipation Factor, 5 GHz | 0.0018 | - | SABIC method |
| Dielectric Constant, 10 GHz | 3.93 | - | SABIC method |
| Dissipation Factor, 10 GHz | 0.0021 | - | SABIC method |
| FLAME CHARACTERISTICS (1) | | | |
| UL Yellow Card Link | E207780-102468956 | - | - |
| UL Recognized, 94HB Flame Class Rating | 1 | mm | UL 94 |
| INJECTION MOLDING | | | |
| Drying Temperature | 105 | °C | |
| Drying Time | 3 – 5 | hrs | |
| Melt Temperature | 285 – 295 | °C | |
| Nozzle Temperature | 280 – 295 | °C | |
| Front - Zone 3 Temperature | 285 – 305 | °C | |
| Middle - Zone 2 Temperature | 280 – 295 | °C | |
| Rear - Zone 1 Temperature | 275 – 285 | °C | |
| Mold Temperature | 90 | °C | |
| Back Pressure | 9 | MPa | |
| Screw Speed | 100 | rpm | |

(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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