# LNP™ THERMOTUF™ COMPOUND WF009NA

## DESCRIPTION

LNP THERMOTUF WF009NA is a PBT based compound containing 45% glass fiber for nano-molding technology (NMT) application. Added features include high metal bonding strength.

## TYPICAL PROPERTY VALUES

Revision 20200521

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| MECHANICAL | | | |
| Tensile Stress, brk, Type I, 5 mm/min | 178 | MPa | ASTM D 638 |
| Tensile Strain, brk, Type I, 5 mm/min | 2.1 | % | ASTM D 638 |
| Tensile Modulus, 5 mm/min | 14900 | MPa | ASTM D 638 |
| Flexural Stress, yld, 1.3 mm/min, 50 mm span | 268 | MPa | ASTM D 790 |
| Flexural Stress, brk, 1.3 mm/min, 50 mm span | 263 | MPa | ASTM D 790 |
| Flexural Modulus, 1.3 mm/min, 50 mm span | 13400 | MPa | ASTM D 790 |
| Tensile Stress, break, 5 mm/min | 177 | MPa | ISO 527 |
| Tensile Strain, break, 5 mm/min | 2.2 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 14950 | MPa | ISO 527 |
| Flexural Stress, break, 2 mm/min | 275 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 13400 | MPa | ISO 178 |
| Bonding strength (TRI) , 5 mm/min, Type A | 40 | MPa | ISO 19095 |
| IMPACT | | | |
| Izod Impact, unnotched, 23°C | 1140 | J/m | ASTM D 4812 |
| Izod Impact, notched, 23°C | 146 | J/m | ASTM D 256 |
| Izod Impact, notched, -30°C | 127 | J/m | ASTM D 256 |
| Izod Impact, unnotched 80*10*4 +23°C | 54 | kJ/m² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 15 | kJ/m² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 16 | kJ/m² | ISO 180/1A |
| Charpy Impact, unnotched, 23°C | 64 | kJ/m² | ISO 179/2C |
| Charpy Impact, notched, 23°C | 15 | kJ/m² | ISO 179/2C |
| Charpy Impact, notched, -30°C | 15 | kJ/m² | ISO 179/2C |
| THERMAL | | | |
| Vicat Softening Temp, Rate B/50 | 214 | °C | ASTM D 1525 |
| HDT, 1.82 MPa, 6.4 mm, unannealed | 216 | °C | ASTM D 648 |
| Vicat Softening Temp, Rate A/50 | 215 | °C | ISO 306 |
| HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm | 213 | °C | ISO 75/Af |
| CTE, -40°C to 40°C, flow | 1.4E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, xflow | 4.9E-05 | 1/°C | ASTM E 831 |
| CTE, -40°C to 40°C, flow | 1.8E-05 | 1/°C | ISO 11359-2 |
| CTE, -40°C to 40°C, xflow | 5.9E-05 | 1/°C | ISO 11359-2 |
| Relative Temp Index, Elec [1] | 75 | °C | UL 746B |
| Relative Temp Index, Mech w/impact [1] | 75 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact [1] | 75 | °C | UL 746B |
| PHYSICAL | | | |

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Density | 1.7 | g/cm³ | ASTM D 792 |
| Mold Shrinkage, flow | 0.19 | % | SABIC method |
| Mold Shrinkage, xflow | 0.37 | % | SABIC method |
| Melt Volume Rate, MVR at 275°C/5 kg | 27 | cm³/10 min | ISO 1133 |
| ELECTRICAL | | | |
| Dielectric Constant, 1.1 GHz | 3.95 | - | SABIC method |
| Dielectric Constant, 1.9 GHz | 4.01 | - | SABIC method |
| Dissipation Factor, 1.1 GHz | 0.0077 | - | SABIC method |
| Dissipation Factor, 1.9 GHz | 0.0077 | - | SABIC method |
| FLAME CHARACTERISTICS (1) | | | |
| UL Yellow Card Link | E207780-103351822 | - | - |
| UL Recognized, 94HB Flame Class Rating | ≥0.7 | mm | UL 94 |
| INJECTION MOLDING | | | |
| Drying Temperature | 100 – 120 | °C | |
| Drying Time | 4 – 8 | hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 265 – 295 | °C | |
| Nozzle Temperature | 265 – 295 | °C | |
| Front - Zone 3 Temperature | 265 – 295 | °C | |
| Middle - Zone 2 Temperature | 260 – 290 | °C | |
| Rear - Zone 1 Temperature | 250 – 275 | °C | |
| Mold Temperature | 120 – 160 | °C | |

(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.

## DISCLAIMER