NORPLEX MICARTA
Global Thermoset Composite Solutions

# NP612

# TECHNICAL DATA BULLETIN

**GRADE: NP612** **NEMA: XPC** **U.L. LISTED: Y [2]**

DESCRIPTION: Room temperature punching and shearing paper phenolic grade up to .125" thick. NP612 is more flexible with lower mechanical properties than NP611, and is intended for applications where electrical and moisture requirements are of secondary importance. NP612 meets the requirements of MIL-I-24768/20 and IEC-60893-3-4-PF CP 207.

## TYPICAL PROPERTIES

| | | UNITS | VALUE | | |
|---|---|---|---|---|---|
| | | | Thickness Tested | | |
| | | | 0.0625″ | 0.125″ | 0.500″ |
| **PHYSICAL PROPERTIES** | | | | | |
| **Specific Gravity** *(ASTM D792)* | | - | | | 1.38 |
| **Rockwell Hardness** *(ASTM D785)* | 0.250″ Build-up | M Scale | 84 | | |
| **Moisture Absorption** *(ASTM D570)* | Condition A | % | | | |
| | Condition $D_1$-24/23 | % | 3.20 | | |
| **Flexural Strength** *(ASTM D790)* | Condition A LW / CW | psi (MPa) | 19,300 / 17,600 (133.1) / (121.3) | | |
| **Flexural Modulus** *(ASTM D790)* | Condition A LW / CW | kpsi (GPa) | 1,000 / 850 (6.9) / (5.9) | | |
| **Tensile Strength** *(ASTM D638)* | Condition A LW / CW | psi (MPa) | | 12,500 / 8,400 (86.2) / (57.9) | |
| **Izod Impact Strength** *(ASTM D256)* | Condition A LW / CW | ft-lb/in (J/cm) | | | |
| | Condition E-48/50 LW / CW | ft-lb/in (J/cm) | | | 0.76 / 0.66 (0.41) / (0.35) |
| **Compressive Strength** *(ASTM D695)* | Condition A Flatwise | psi (MPa) | | | 27,000 (186.2) |
| **Bonding Strength** *(ASTM D229)* | Condition A | lb (kg) | | | 1,400 (635.0) |
| **Shear Strength** *(ASTM D732)* | Condition A Perpendicular | psi (MPa) | 9,500 (65.5) | | |

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## TYPICAL PROPERTIES (continued)

| | | UNITS | VALUE | | |
|---|---|---|---|---|---|
| | | | Thickness Tested | | |
| | | | 0.0625″ | 0.125″ | 0.500″ |
| **THERMAL PROPERTIES** | | | | | |
| **Temperature Index** [1] *(UL Bulletin 746b)* | Electrical / Mechanical | °C | 130 / 130 | | |
| **Coefficient of Thermal Expansion** *(IPC-TM 650-2.4.24)* | X-axis / Y-axis | "/"/°C x$10^{-6}$ | | 15.0 / 19.0 | |
| **Flammability Rating** *(UL Bulletin 94)* | Condition A | Class | HB | | |
| **ELECTRICAL PROPERTIES** | | | | | |
| **Dissipation Factor @ 1 MHz** *(ASTM D150)* | Condition A | - | | | |
| | Condition D-24/23 | - | 0.060 | | |
| **Relative Permittivity @ 1 MHz** *(ASTM D150)* | Condition A | - | | | |
| | Condition D-24/23 | - | 5.50 | | |
| **Breakdown Voltage** *(ASTM D149)* | Condition A | kVolts | 55 | | |
| | Condition D-48/50 | kVolts | 10 | | |
| **Electric Strength** *(ASTM D149)* | Condition A | Volts/mil (kV/cm) | 700 (275.6) | | |
| **Arc Resistance** *(ASTM D495)* | Condition A | sec | | 110 | |
| **Comparative Tracking Index** *(ASTM D3638)* | | Volts | | 500 | |

[1] This temperature is a recommendation only, and based upon experience in various applications. The maximum operating temperature is dependent upon the application and should be investigated prior to use.

[2] Only applies to thicknesses greater than 0.027″.

This data, while believed to be accurate and based on reliable analytical methods, is for informational purposes only. The terms and conditions of the agreement under which it is sold will govern any sales of this product. Data supplied above are "typical values"; not to be considered "specification values".

To assure the material's performance is adequate for a specific application; customers should verify, independent of Norplex-Micarta, performance characteristics of interest.

It is the responsibility of the users of this information to make sure that they have the latest version of this TDB, and are urged to check with Customer Service or, preferably our web site, www.norplex-micarta.com, to determine if the information is the most current available.
Specification writers: Contact Norplex-Micarta for specification values before submission.