

## The Gund Company, Inc

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## **MATERIAL DATA SHEET**

Item: NEMA Grade G-10 Glass Epoxy Laminate

Description: NEMA Grade G-10 material is a continuous filament woven fiberglass sheet bonded with epoxy resin.

The material has the ability to maintain excellent mechanical, electrical, and physical properties at elevated temperatures to 130°C. NEMA G-10 is a non-brominated, non-flame retardant grade of

glass epoxy laminate.

Please note that much of the industry refers to "G-10" material when they want a flame retardant, V-0 rated glass epoxy laminate rated at 130°C RTI such as NEMA FR4. Technically, NEMA G-10 is a non-flame retardant, non-brominated version of glass epoxy laminate. If a non-brominated material is required, please specifically address this issue.

Standards: NEMA LI-1 Grade FR4

IEC 60893 EP GC 201 MIL-I-24768 27 GEE

English Units SI Units

Availability: Laminate Sheets: Thickness: .006" to 5.0" 0.15 mm to 127 mm

Sheet Sizes: 36" x 48", 39" x 48" 91.4 cm x 122 cm, 99 cm x 122 cm

36" x 72", 48" x 48" 91.4 cm x 182.2 cm, 122 cm x 122 cm 48" x 96", 48" x 108" 122 cm x 243.8 cm, 122 cm x 274.3 cm

Convolute Tubing: Available in an infinite number of inner diameter/outer diameter combinations

as per customer requirements.

Fabricated Parts: The Gund Company custom fabricates insulation materials to the exact

specifications and drawings of our customers

Key Characteristics	Test Method	Units - English (SI)	Typical Values
Specific Gravity		lb./in. <sup>3</sup> (g/cc)	0.064 (1.77)
Rockwell Hardness (.50")		M Scale	99
Tensile Strength (.125") LW CW	ASTM D-638	psi (MPa)	43,000 (296) 39,000 (269)
Compressive Strength, Flatwise (.50")	ASTM D-695	psi (MPa)	44,000 (303)
Flexural Strength (.062") LW CW	ASTM D-790	psi (MPa)	66,000 (455) 60,000 (413)
Flexural Modulus (.062") LW CW	ASTM D-790	ksi (MPa)	3,400 (23,442) 3,300 (22,753)
Shear Strength, Perpendicular (.062")	ASTM D-732	psi (MPa)	19,000 (130)
IZOD Impact Strength LW CW	ASTM D-256	ftlbs./in. Notched	9.5 7.5
Dielectric Strength (.062") Condition A D-48/50	ASTM D-149	V/mil	960 1,000
Breakdown Voltage (.062") Condition A D-48/50	ASTM D-149	kV	66 65

All of the information, suggestions, and recommendations pertaining to the properties and uses of the products herein are based upon tests and data believed to be accurate; however, the final determination regarding the suitability of any material described herein for the use contemplated, the manner of such use, and whether the use infringes any patents is the sole responsibility of the user. There is no warranty, expressed or implied, including, without limitation warranty of merchantability or fitness for a particular purpose. Under no circumstances shall we be liable for incidental or consequential loss or damage.