

TUFNOL Grade 10G/50

Silicone Glass Fabric laminate

Glass fibre/silicone resin laminated plastic

(SRBGF - Synthetic Resin Bonded Glass Fabric)

For heat resistance and high frequency insulation.

TUFNOL Grade 10G/50 is a laminated plastics material made from woven glass fabric, bonded with silicone resin.

It is a rigid sheet material with good resistance to high temperatures and very good electrical insulation properties, especially in applications involving very high frequencies. Note, however, that silicone bonded laminates have mechanical strength properties somewhat lower than some other glass fabric laminates.

Temperature resistance

TUFNOL Grade 10G/50 is suitable for use at temperatures up to 200°C and will also withstand short term exposure to 240°C. It has very good retention of properties (thermal endurance) at temperatures up to 200°C and can be an economical choice in comparison with other plastics materials with similar heat resistance. It also has good flammability performance.

High Frequency Performance

The silicone resin used to bond the laminate gives TUFNOL Grade 10G/50 first class dielectric properties, including high insulation resistance and low loss tangent and permittivity. This ensures good performance in electrical applications at high frequencies.

What is Grade 10G/50 used for?

This grade is used for a wide variety of electrical and mechanical applications where its particular combination of properties makes it an ideal choice. It is equally at home as insulation in Class H electrical equipment, or used on a conveyor carrying components through a hot oven process.

The low loss characteristics are particularly important for engineers and designers working with many types of high frequency electrical devices, such as high-powered radar and military communications equipment.

Typical non-military applications include microwave and RF equipment, such as are used in the food processing industry and in medical equipment using microwaves.

TYPES AVAILABLE	Sheets	Rods	Tubes	Other sections
Natural colour	Yes	No	No	No

Minimum order quantities may apply.

PHYSICAL PROPERTIES**TUFNOL Grade 10G/50 Sheet**

PROPERTY	TYPICAL RESULT	UNITS
Cross breaking strength	140	MPa
Impact strength, notched, Charpy	70	kJ/m ²
Cross breaking strength at 150 0C (after 180 hour at 150 0C)		MPa
Water Absorption		
- 1.6mm thick.	4	mg
- 3mm thick.	6	mg
- 6mm thick.	9	mg
Electric strength, flatwise in oil at 90°C		
- 1.6mm thick.	14	MV/m
- 3mm thick.	11	MV/m
Electric strength, edgewise in oil at 90°C	65	kV
Insulation resistance after immersion in 1 x 10 ¹¹ water		ohms
Loss tangent at 1 MHz	0.002	-
Permittivity at 1 MHz	4.2	-
Flammability category	FV0	
Comparative tracking index	800	
Relative density	1.90	-

Maximum working temperature**

- continuous	200	°C
- intermittent	240	°C
Thermal classification (BS2757)	Class 200	-

Test methods as BS EN 60893-2, where applicable.

**Users of highly stressed components at temperatures approaching the maximum are recommended to seek further advice from Tufnol Composites Ltd.