

# TLY

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**Dimensionally Stable**  
**Low Loss**  
**Low Moisture Absorption**  
**High Peel Strength**  
**Uniform & Consistent DK**

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**TACONIC**

Mullingar Business Park  
Mullingar, Co. Westmeath,  
Republic of Ireland  
TEL: +353-44-38300  
FAX: +353-44-44369

P.O. Box 69 • 136 Coonbrook Road  
Petersburgh, NY 12138  
TEL: 518-658-3202 • FAX: 518-658-3988  
TOLL FREE: 800-833-1805 • FAX: 800-272-2503

801 Koong Jeon Plaza II  
360-4 Yatap-dong Bundang-ku  
Sungnam-si, Kyungki-do  
Republic of Korea  
TEL: 82-31-704-1858/9  
FAX: 82-31-704-1857



## APPLICATIONS

Automotive Radars

Satellite Communications

Cellular Communications

Power Amplifiers

LNBS, LNAs, LNCs

Aerospace:

*Radars*

*Guidance Telemetry*

*High Frequency Communication*

*Military*

Taconic has over 35 years of experience coating fiberglass fabric with PTFE (polytetrafluoroethylene). This enables Taconic to manufacture copper clad PTFE/woven glass laminates with exceptionally well controlled electrical and mechanical properties.

Taconic TLY laminates are manufactured from woven fiberglass fabric coated with PTFE interleaved with thin sheets of pure PTFE. The woven matrix produces a more mechanically stable laminate with a more uniform dielectric constant (DK) than traditional non-woven products. The exceptionally low dissipation factor extends the usefulness of this product to 35 GHz and above.

The dielectric constant range is 2.17 to 2.40. For most thicknesses, the dielectric constant can be specified anywhere within this range with a tolerance of  $\pm 0.02$ . In the low dielectric constant range, the dissipation factor is approximately 0.0009 when measured at 10 GHz.

TLY laminates can be sheared, drilled, milled and plated using the accepted methods for PTFE/woven fiberglass laminates. The laminates are dimensionally stable and are resistant to the solvents and reagents used during fabrication. TLY laminates are being used in composite multi-layer circuitboard applications.

Typical applications for TLY laminates include mobile communications systems, microwave transmission devices, phased array antennas, RF components, and automotive and military radars.

TLY laminates are generally ordered clad on one or both sides with 1/2, 1, and 2 oz. electrodeposited copper. Contact our Customer Service Department for alternate claddings.

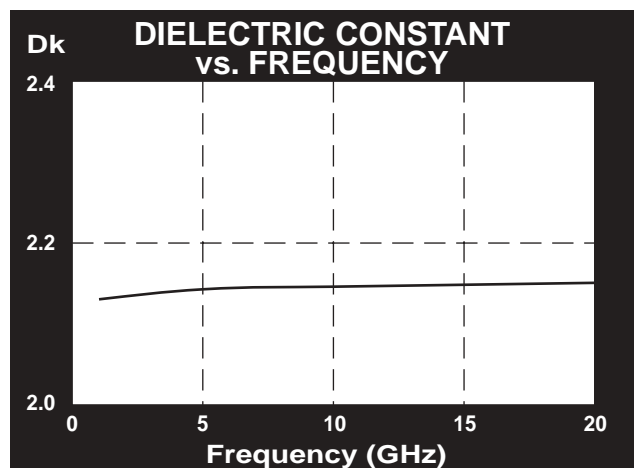
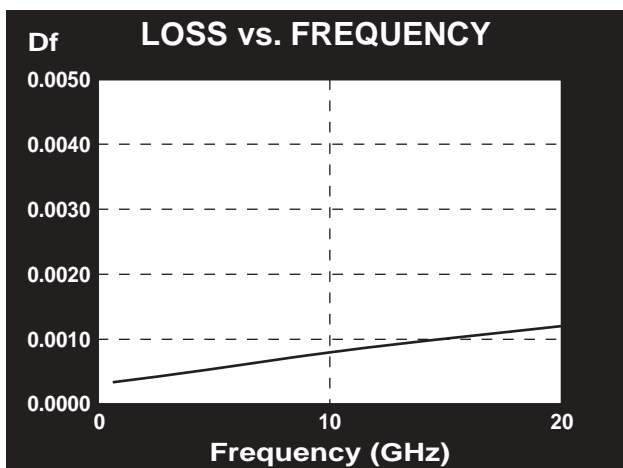
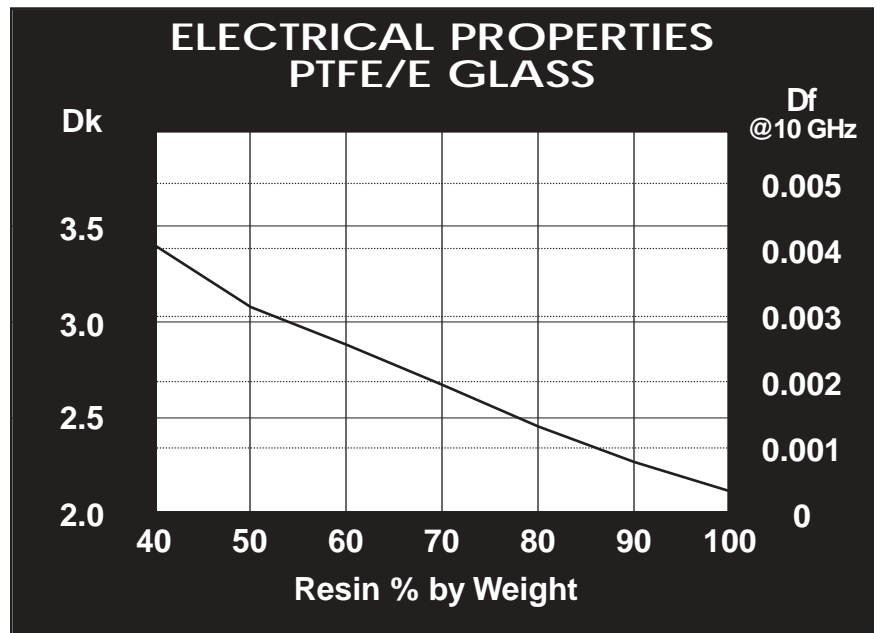
TLY laminates are tested in accordance with IPC-TM 650. A certificate of compliance containing lot-specific test data accompanies each shipment.

See "How to Order" on back page for a complete product listing.

## TLY-5 TYPICAL VALUES

Property	Test Method	Units	Value	Units	Value
Dielectric Constant @ 10 GHz	IPC-TM 650 2.5.5.5		2.20		2.20
Dissipation Factor @ 10 GHz	IPC-TM 650 2.5.5.5		0.0009		0.0009
Moisture Absorption	IPC-TM 650 2.6.2.1	%	<0.02	%	<0.02
Dielectric Breakdown	IPC-TM 650 2.5.6	kV	>60	kV	>60
Volume Resistivity	IPC-TM 650 2.5.17.1	Mohm/cm	10 <sup>7</sup>	Mohm/cm	10 <sup>7</sup>
Surface Resistivity	IPC-TM 650 2.5.17.1	Mohm	10 <sup>7</sup>	Mohm	10 <sup>7</sup>
Arc Resistance	IPC-TM 650 2.5.1	seconds	>180	seconds	>180
Flexural Strength Lengthwise	IPC-TM 650 2.4.4	lbs./in.	>12,000	N/mm <sup>2</sup>	>83
Flexural Strength Crosswise	IPC-TM 650 2.4.4	lbs./in.	>10,000	N/mm <sup>2</sup>	>69
Peel Strength (1oz copper)	IPC-TM 650 2.4.8	lbs./linear in.	12.0	N/mm	2.1
Thermal Conductivity	ASTM F 433	W/m/K	0.22	W/m/K	0.22
x-y CTE	ASTM D 3386 (TMA)	ppm/°C	20	ppm/°C	20
z CTE	ASTM D 3386 (TMA)	ppm/°C	280	ppm/°C	280
UL-94 Flammability Rating	UL-94		V-0		V-0

Type	Dk
TLY-5A	2.17
TLY-5	2.20
TLY-3	2.33
TLT-0   TLX-0	2.45
TLT-9   TLX-9	2.50
TLT-8   TLX-8	2.55
TLT-7   TLX-7	2.60
TLT-6   TLX-6	2.65
TLE-95	2.95
TLC-27	2.75
TLC-30	3.00
TLC-32	3.20
RF-30	3.00
RF-35   RF-35P	3.50
RF-60	6.15
CER-10	10



# How to Order

Designation	Dielectric Constant	Dielectric Thickness	Dielectric Thickness
TLY - 5A	2.17 +/- .02	.0310"	0.78mm
TLY - 5	2.20 +/- .02	.0050"	0.13mm
TLY - 3	2.33 +/- .02	.0050"	0.13mm

Standard sheet size is 36" x 48" (914mm x 1220mm). Please contact our Customer Service Department for the availability of other sizes and claddings.

TLY can be ordered with the following electrodeposited copper:

Designation	Weight	Copper Thickness	Copper Thickness
CH	1/2 oz./sq. ft.	~ .0007"	~18 µm
C1	1 oz./sq. ft.	~ .0014"	~ 35 µm
C2	2 oz./sq. ft.	~ .0028"	~ 70 µm

Panels may be ordered cut to size

Typical Panel Sizes	
12" x 18"	304mm x 457mm
16" x 18"	406mm x 457mm
18" x 24"	457mm x 610mm
16" x 36"	406mm x 914mm
24" x 36"	610mm x 914mm
18" x 48"	457mm x 1220mm

An example of our part number is: TLY-5-0100-CH/CH-18" x 24" (TLY-5-0100-CH/CH-457mm x 610mm)

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ADVANCED DIELECTRIC DIVISION

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Petersburgh, New York 12138 • USA  
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