Copper-Polyester

High-performance electromagnetic shielding for critical applications

Descripción

The copper-polyester laminate (CU/PET) combines the superior electrical conductivity of copper with the mechanical strength of polyester film, bonded with an oven post-cured polyurethane adhesive. Compared with aluminium, copper offers approximately 60 % higher conductivity, translating into more effective EMI attenuation in applications where the shielding level is critical.

In signal, data and coaxial cable construction, CU/PET is applied as a shield when attenuation requirements exceed the performance of standard aluminium-polyester. Copper purity (>99.5 %) ensures consistent conductivity along the cable length, while the polyester backing provides the mechanical strength needed to withstand taping without deformation or breakage.

The standard 18/23 µm structure (18 µm copper + 23 µm polyester) yields a total thickness of 44 µm and tensile strength ≥100 MPa per ISO 527. This configuration represents the optimum balance between shielding effectiveness, finished-cable flexibility and material cost.

Propiedad	Value	Test method
Copper thickness	18 ± 2 µm	DIN 53370
Polyester thickness	23 ± 2 µm	DIN 53370
Total thickness	44 ± 4 µm	DIN 53370
Tensile strength	≥100 MPa	ISO 527
Elongation at break	≥13%	ISO 527
Copper purity	>99.5%	—
Unit weight	250 ± 10% g/m²	Calculated
Bonding type	Polyurethane adhesive, oven post-cured	—

Guía de selección

Selection between copper-polyester and aluminium-polyester is based on the trade-off between shielding requirements and cost. Copper offers superior performance at a higher cost; its use is justified in applications where attenuation is critical.

Factor	Copper-Polyester	Aluminium-Polyester
Electrical conductivity	Superior (~60% higher)	Standard
EMI shielding effectiveness	Maximum	Good
Relative cost	Higher	Lower
Typical application	Critical instrumentation cables, medical equipment, high-interference environments	LAN cables, standard data, conventional installations
When to choose	Demanding specifications, severe EMI environments, critical medical or industrial applications	Standard requirements, cost optimisation

Variantes disponibles

Alternative structures
– Other Cu/PET thickness combinations available on request
– Specific configurations per shielding requirements

Colour
– Natural copper — standard

Formatos de entrega

The supply format directly influences process continuity and taping efficiency. Material can be supplied in different formats and dimensions adapted to each machine type and production speed.

Pad / Roll (pancake)

Core ID:	76 mm (3″), 102 mm (4″), 152 mm (6″)
Max OD:	80 – 600 mm
Width range:	5 – 1000 mm
Core material:	Plastic or cardboard

Spool (TWS / STS reel)

Core ID:	76 mm (3″)
Max OD:	300 – 320 mm
Width range:	3.5 – 80 mm
Winding type:	Traverse Wounded (TWS) or Step to Step (STS)
Core material:	Plastic or cardboard

The values shown below correspond to the standard CU/PET 18/23 structure and characterise the material's behaviour both during processing and in service.

Los valores indicados son típicos y no constituyen especificaciones vinculantes.