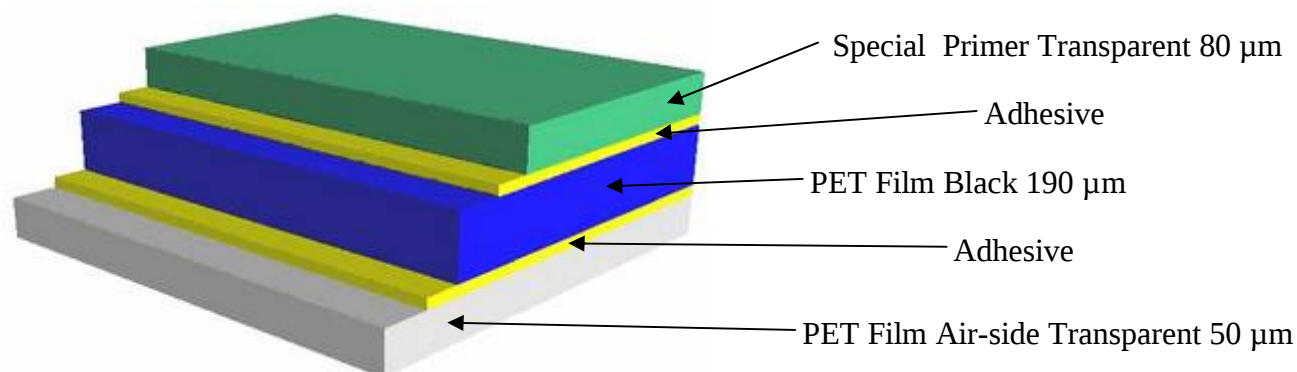


BACKSHEET FOR PHOTOVOLTAIC MODULES

FILMBACK-PVS 190 BLACK is a laminate made with two layers of HIGH PERFORMANCE POLYESTER FILM: Cell-side is treated with a special primer with extremely high bonding properties to EVA (Primer can be supplied in different colours). FILMBACK-PVS 190 BLACK is properly suitable for photovoltaic cell module encapsulations thanks to its long term resistance to hydrolysis and UV rays, its high dielectric strenght and its strong barrier to atmospheric agents (especially oxygen, humidity and pollution).

**FILMBACK-PVS 190 BLACK MAIN FEATURES :**

- 1) Excellent resistance to atmospheric agents and outdoor exposure.
- 2) Strong barrier against oxygen and humidity permeation.
- 3) Long-term resistance to adhesive hydrolysis.
- 4) High voltage insulation.
- 6) FILMBACK-PVS 190 Black complies with IEC/CEI EN60626-3 SHEET 502 rules.

TECHNICAL SPECIFICATIONS	UNIT	METHOD	VALUE
PET film Air-side Transparent Extra Quality	micron	caliper	50
PET film inner layer black	micron	caliper	190
Primer transparent	micron	caliper	80
Laminate thickness	micron	caliper	320 +/- 5%
Unit weight	gr/sqm	10x10 weight	415 +/- 5%
Tensile strenght (MD)	N/10mm	ASTM D-882	> 280
Tensile strenght (TD)	N/10mm	ASTM D-882	> 280
Elongation at break (MD)	%	ASTM D-882	> 110
Elongation at break (TD)	%	ASTM D-882	> 100
Heat shrinkage (MD) 150° - C x 30'	%	ASTM D-1204	< 1,2
Heat shrinkage (TD) 150° - C x 30'	%	ASTM D-1204	< 0,6
Layer peel strenght	N/10mm	180° peel	> 5
EVA adhesion (primer coated side vs EVA)	N/10mm	internal	> 40
Moisture barrier at 38° 100 % RH	gr/sqm x day	ASTM F-1240	< 2,47
Breakdown voltage	kv	ASTM D-149	> 15
Partial discharge test	VDC	IEC 60664-1	> 1000