

**Requirements for combined flexible triplex materials of three layers –  
P-PAa/F-PI/P-PAa (aramid calendered paper on both sides of PI film)**

**1 Description**

This sheet gives the requirements for triplex materials consisting of calendered aramid paper (P-PAa) laminated on both sides of polyimide film (F-PI).

**2 Thermal classification**

Experience has shown that the combined flexible materials listed in this sheet may be suitable for use in electrical apparatus with ratings up to and including the range of 180 °C to 200 °C.

**3 Single-layer requirements**

Use paper which meets the requirements of IEC 819-1 and IEC 819-3.

Use a PI film which meets the requirements of IEC 674-1 and IEC 674-3.

**4 Additional requirements**

Additional requirements are given in the table below.

Property	Clause in IEC 626-2	Units Tolerance							
Laminate nominal thickness	2	mm	0,14	0,17	0,20	0,22	0,30	0,32	
Laminate thickness tolerance	2	± %	15	15	15	15	15	15	
Laminate nominal grammage	3	g/m <sup>2</sup> ±12 %	135	170	190	220	300	330	
Film nominal thickness		μm	25	50	25	50	25	50	
Aramid paper nominal thickness		μm	50	50	80	80	130	130	
Unfolded tensile strength	4	N/10 mm min. MD CMD	140 80	160 90	160 100	200 180	270 150	300 260	
Folded tensile strength	4	N/10 mm min. MD CMD	70 50	90 70	80 60	160 100	140 90	180 130	
Elongation, unfolded	4	% min. MD CMD	15 15	17 17	15 15	17 17	15 15	17 17	
Electric breakdown voltage, 6 mm diameter electrodes	9	kV min. Unfolded Folded	7 6	9 8	7 6	9 8	7 6	9 8	
<b>NOTES</b> MD = machine direction CMD = cross machine direction min. = minimum									