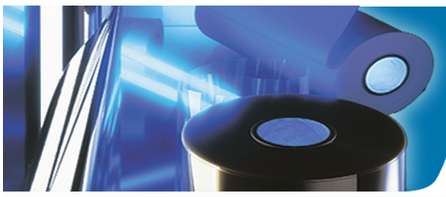


HOSTAPHAN®

Preliminary data sheet

Hostaphan® WIN

White, long-term stable, thermally stable polyester film for PV back sheet laminates

Hostaphan® WIN has the outstanding mechanical and electrical properties and general performance of biaxially oriented polyester films combined with extended stability against hydrolysis and UV resistance.

Typical properties

Property	*Thickness µm*	*Units*	*Value*		*Test Method*	*Test Conditions*
			MD	*TD*		
MECHANICAL						
Tensile strength	250	N/mm^2	170	200	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 100 %/min.; 23 °C, 50 % r.h.
Elongation at break	250	%	180	120	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 100 %/min.; 23 °C, 50 % r.h.
Young´s Modulus	250	N/mm^2	4000	4800	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 1 %/min.; 23 °C, 50 % r.h.
THERMAL						
Shrinkage	250	%	1.0	0.5	DIN 40634	150°C, 15 min.
OPTICAL						
Transparency	250	%	9		ASTM-D 1003-61 method A	-
Haze	250	%	100		ASTM-D 1003-61 method A	Enlarged measurement angle
SURFACE						
Gloss	250	-	70		DIN 67530	Measuring angle 20°
PHYSICAL/CHEMICAL						
Density	250	g/cm^3	1.44		ASTM-D 1505-68 method C	23°C
BARRIER						
Water vapour	250	$g/m^2 \times d$	2.5		DIN 53122	37.8°C, 90% r.h.

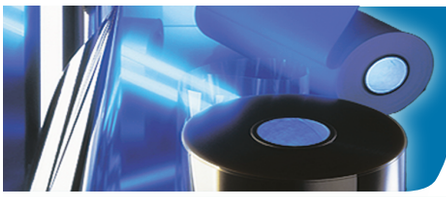
MD = Machine direction, TD = Transverse direction

Delivery program Hostaphan® WIN

Thickness	*Yield*	
µm	*g/m^2*	*m^2/kg*
190	274	3.66
250	360	2.78

MITSUBISHI POLYESTER FILM GmbH

Kasteler Str. 45 • 65203 Wiesbaden/Deutschland • Tel.: +49 611 96203 • Fax.: +49 611 9629357



Roll widths and lengths on request. Core diameter: 152.4 mm (6")

UV stability

Due its stabilization Hostaphan® WIN is extremely UV stable. Hostaphan® WIN had been exposed to artificial weathering in a QUV device for 10.000 h so far (conditions see below). After this time Hostaphan® WIN did not fail mechanically (less than 5 % elongation at break) and is expected to survive significantly longer that this. During this time Hostaphan® WIN showed a marginal increase of 3.5 units in b* (CIE) and no change in a*. Hostaphan® WIN lost app.12 units of whiteness according to Berger during weathering so far.

Weathering conditions (adopted according to DIN EN ISO 4892-3:2006):

Device: QUV/spray from Q-panel (UV fluorescence lamp)
Test cycle:
a. 4 h UVA irradiation at 60 °C (black panel temperature)
b. 5 min water spray while irradiated
c. 4 h condensation at 50 °C
d. back to a
Irradiation intensity = 0.89 W/m2/nm at 340 nm (UV-A)

All data applies for the film only. Any final product has to be tested separately.

Edition 07/16

MITSUBISHI POLYESTER FILM GmbH
Kasteler Str. 45 • 65203 Wiesbaden/Deutschland • Tel.: +49 611 96203 • Fax.: +49 611 9629357