MITSUBISHI CHEMICAL GROUP

HOSTAPHAN®

Hostaphan® RN 50-500

Transparent polyester film with moderate haze

Hostaphan® RN is a biaxially oriented film made of polyethylene terephthalate (PET) and characterized by outstanding physical properties.

Typical properties

Property	*Thickness µm*	*Units*	*Value*		*Test Method*	*Test Conditions*
			MD	*TD*		
MECHANICAL						
Tensile strength	50-75 100-125 175-350 500	N/mm^2	195 200 170 170	225 220 200 170	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 100 %/min.; 23 °C, 50 % r.h.
Elongation at break	50-75 100-125 175-250 300, 350 500	%	200 190 220 230 210	140 140 145 170 160	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 100 %/min.; 23 °C, 50 % r.h.
Young´s Modulus	50-125 175-250 300, 350 500	N/mm^2	4200 3900 3600 3400	4800 4600 4300 3800	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 1 %/min.; 23 °C, 50 % r.h.
F5-value (stress to obtain 5% elongation)	50-350 500	N/mm^2	105 110	105 110	ISO 527-1 and ISO 527-3 Sample type 2	Test speed 100 %/min.; 23 °C, 50 % r.h.
THERMAL						
Shrinkage	50-190 250-350 500	%	1.0 1.0 0.9	0.3 1.0 0.6	DIN 40634	150°C, 15 min.
OPTICAL						
Haze	50 75 100 125 175 190 250 300 350 500	%	9 12 15 18 21 24 27 32 36 90		ASTM-D 1003-61 method A	Enlarged measurement angle
SURFACE						
Coefficient of friction (static)	50-500	-	0.4		DIN53375 or ASTM-D 1894	-

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Property	Thickness µm	Units	Value MD	Value TD	Test Method	Test Conditions
PHYSICAL/CHEMICAL						
Density	50-500	g/cm³	1.4		ASTM-D 1505-68 method C	23°C
Conductivity of aqueous extract	50-500	µS/cm	2		DIN 40634 or VDE 0345	1kHZ
Water absorption (compared to dry state)	50-500	%	0.5		ASTM-D 570	4 days in water at 23°C
Frigen extract	190	%	0.05		DIN 8944	Cold extraction
Trichloroethylene-extract	190	%	0.2		DIN 8943	Extracted in Soxhalet apparatus for 2h. Boiled down for 15h at 105°C.
ELECTRICAL						
Break down voltage	50 75 100 125 175 190 250 300 350 500 190 190	kV	12 16 19 23 28 30 35 40 45 (exceeding measurement limit) 80 26		DIN 40634 or VDE 0345 in air	23°C, 50 Hz 23°C , DC 150°C, 50 Hz
Dielectric dissipation factor (tanδ)	50-500	-	0.0020 0.0052 0.0210 0.0060 0.0060 0.0048		DIN 40634 or VDE 0345	23°C, 50 Hz 23°C, 1 kHz 23°C, 1 MHz 23°C, 240 MHz 23°C, 9300 MHz 150°C, 50 Hz
Volume resistivity	50-500	Ω x cm	$> 10^{17}$ $> 10^{11}$		DIN 40634 or VDE 0345	23°C, DC 150°C, DC
Surface resistivity	50-500	Ω	$> 5 \times 10^{14}$ $> 5 \times 10^{14}$ $> 10^{12}$		DIN 53482 or VDE 0303/part 3	23°C, 25% r.h. 23°C, 50% r.h 150°C, 75% r.h.
Dielectric constant	50-500	-	3.3 3.3 3.2 2.9 2.9 3.6		DIN 40634 or VDE 0345 in air	23°C, 50 Hz 23°C, 1 kHz 23°C, 1 MHz 23°C, 240 MHz 23°C, 9300 MHz 150°C, 50 Hz

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Property	*Thickness µm*	*Units*	*Value*		*Test Method*	*Test Conditions*
			MD	*TD*		
BARRIER						
Air	50	cm^3/m^2 x d x bar	15		DIN 53380	23°C, 0% r.h.
Oxygen		cm^3/m^2 x d x bar	28		DIN 53380	23°C, 50% r.h.
Water vapour		g/m^2 x d	4		DIN 53122	23°C, 85% r.h.
Nitrogen		cm^3/m^2 x d x bar	9		DIN 53380	23°C, 0% r.h.
Carbon dioxide		cm^3/m^2 x d x bar	125		DIN 53380	23°C, 0% r.h.

MD = Machine direction, TD = Transverse direction

Applications:

Films for industrial applications

- Coating
- Laminating
- Metallizing
- Printing

Decorative films

Adhesive tapes
Adhesive films
Insulation tapes

Electrical insulation

- Flexible printed circuits
- Transformers and coils

Reprography

- Base for color printing
- Carrier film for flexible printing plates
- Drafting film/engineering

Release

- Transfer film
- Film for production of cast films
- Film for production of GRP-products

Stiffening

- Collar stiffeners

Building insulation

Further applications

- Gaskets and gasket inserts
- Membranes
- Tape measures
- Soundproofing and thermal insulation in combination with suitable materials
- Drum skins
- Carrier film in veneer- and furniture presses

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Delivery program Hostaphan® RN 50-500

Thickness	*Yield*		*Roll length*	*Roll-diameter*	*Roll length*	*Roll-diameter*
µm	*g/m²*	*m²/kg*	*m*	*mm*	*m*	*mm*
50	70	14	3 200	485	6 400	670
75	105	9.6	2 000	475	4 000	650
100	140	7.2	1 600	485	3 200	670
125	175	5.7	1 280	485	2 560	670
175	245	4.1	800	460	1 600	630
190	266	3.8	800	475	1 600	650
250	350	2.9	600	475	1 200	650
300	420	2.4	480	465	960	635
350	490	2.0	440	480	880	655
500	680	1.5	On request	On request		

Other roll lengths on request. Core diameter: 152.4 mm (6")

The properties shown in this technical data sheet only apply to the film itself. We cannot guarantee the properties of an intermediate or final product made from or using the film. Instead, the intermediate or final product must be subjected to standard industrial testing.

This Hostaphan® film is permitted for food contact according to the current version of EU Regulation 1935/2004 and 10/2011 as well as FDA regulation 21 CFR 177.1630 under the conditions set out in our current Declaration of Compliance. Before using this Hostaphan® film in a food contact article, please request this Declaration of Compliance.

This data sheet reflects our state of knowledge at the time this was prepared. The purpose is to provide an overview of the characteristics of our products and their potential uses. The values given reflect the typical characteristics of the film. They are not specification limits. They are neither a guarantee of specific properties nor the suitability of products in specific applications. The user must observe industrial property rights, such as patents or trademarks. The quality of our products is covered by the terms of the General Conditions of Sale of MITSUBISHI POLYESTER FILM GmbH.

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