

Electrical insulating materials

Hostaphan® RN FI 13011

Composition: Hostaphan® RN FI 13011 is a polyethylene terephthalate (PET) film which is orientated biaxially.

Properties: Hostaphan® RN FI 13011 has excellent physical properties and therefore it can be used in many different areas of the industry.

Applications: Hostaphan® RN FI 13011 is used for example in flexible, imprinted circuits, membrane switches, in transformers and chokes to isolate electrically. Furthermore Hostaphan® RN FI 13011 is also used at imprinting, coating, laminating and metallisation processes. Hostaphan® RN FI 13011 can also be used as transfer film, drawing film, colour printing base, supporter for flexible printing plates and during manufacture of cast films and GFRP products.

Delivery forms: Hostaphan® RN FI 13011 is delivered in different thicknesses as die-cut or formed parts, cuts, on rolls or as reels. Further dimensions and delivery forms are available on request.

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Property	Test method	Unit	Value								
			36	50	75	100	125	190	250	350	
Thickness	-	µm	36	50	75	100	125	190	250	350	
Tolerance	-	µm	±2.0	±2.5	±3.5	±5.0	±6.5	±10	±12	±14	
Yield	-	g/m ²	50	70	105	140	175	266	350	490	
Yield	-	m ² /kg	20	14	9.6	7.2	5.7	3.8	2.9	2.0	
Tensile strength longitudinal, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	N/mm ²	210			180		150			
Tensile strength crosswise, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	N/mm ²	260			230		200			
Elongation at break longitudinal, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	%	150			185		200			
Elongation at break crosswise, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	%	110			120		140			
Elasticity module longitudinal, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	N/mm ²	4000			4100		3600			
Elasticity module crosswise, test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	N/mm ²	5200			4800		4300			
Machining to create elongation of 5% (F5-value) test speed 100%/min, 23°C, 50% rel. air humidity	ISO 527-1 ISO 527-3	N/mm ²	105								
Shrinkage longitudinal 150°C, 15 Min.	DIN 40634	%	1.0						0.3		
Shrinkage crosswise 150°C, 15 Min.	DIN 40634	%	1.0								
Haze	ASTM D1003-61	%	9	13	15	18	22	25	40	40	
Static coefficient of friction	DIN 53375	-	0.4								
Density	ASTM D1505-68 Method C	g/cm ³	1.4								
Conductivity of aqueous extract 1 kHz	DIN 40634 VDE 0345	µS/cm	2.0								
Water absorption, 4 days in water, 23°C	ASTM D570	%	0.5								
Frigene-Extract	DIN 8944	%	0.05								
Trichloroethylene-Extract, 2 h evaporation, 15 hours 105°C	DIN 8943	%	0.2								

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Property	Test method	Unit	Value
Dielectric strength direct voltage, 23°C, 36 µm	DIN 40634 VDE 0345	kV/mm	510
Dielectric strength direct voltage, 23°C, 190 µm	DIN 40634 VDE 0345	kV/mm	420
Dielectric strength 50 Hz, 23°C, 36 µm	DIN 40634 VDE 0345	kV/mm	290
Dielectric strength 50 Hz, 23°C, 190 µm	DIN 40634 VDE 0345	kV/mm	150
Dielectric strength 50 Hz, 130°C, 36 µm	DIN 40634 VDE 0345	kV/mm	200
Dielectric strength 50 Hz, 130°C, 190 µm	DIN 40634 VDE 0345	kV/mm	135
Dielectric dissipation factor tanδ, 50 Hz	DIN 40634 VDE 0345	-	0.0020
Dielectric dissipation factor tanδ, 1 kHz	DIN 40634 VDE 0345	-	0.0052
Dielectric dissipation factor tanδ, 1 MHz	DIN 40634 VDE 0345	-	0.0210
Dielectric dissipation factor tanδ, 240 MHz	DIN 40634 VDE 0345	-	0.0060
Dielectric dissipation factor tanδ, 9300 MHz	DIN 40634 VDE 0345	-	0.0060
Dielectric dissipation factor tanδ, 150°C 50 Hz	DIN 40634 VDE 0345	-	0.0048
Specific volume resistivity, 36 µm, 23°C, direct voltage	DIN 40634 VDE 0345	Ω x cm	>10 ¹⁷
Specific volume resistivity, 36 µm, 150°C, direct voltage	DIN 40634 VDE 0345	Ω x cm	>10 ¹¹
Surface resistivity, 36 µm, 23°C, 25% rel. air humidity	DIN 53482 VDE 0303/part 3	Ω	>5 x 10 ¹⁴
Surface resistivity, 36 µm, 23°C, 25% rel. air humidity	DIN 53482 VDE 0303/part 3	Ω	>5 x 10 ¹⁴
Surface resistivity, 150°C, 75% rel. air humidity	DIN 53482 VDE 0303/part 3	Ω	>10 ¹²
Dielectric constant 23°C, 50 Hz	DIN 40634 VDE 0345	-	3.3
Dielectric constant 23°C, 1 kHz	DIN 40634 VDE 0345	-	3.3
Dielectric constant 23°C, 1 MHz	DIN 40634 VDE 0345	-	3.2
Dielectric constant 23°C, 240 MHz	DIN 40634 VDE 0345	-	2.9
Dielectric constant 23°C, 9300 MHz	DIN 40634 VDE 0345	-	2.9
Dielectric constant 150°C, 50 Hz	DIN 40634 VDE 0345	-	3.6

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Barrier

Property	Test method	Unit	Value
Air 36 µm, 23°C, 0% rel. air humidity	DIN 53380	cm ³ /m ² x d x bar	20
Oxygen 36 µm, 23°C, 50% rel. air humidity	DIN 53380	cm ³ /m ² x d x bar	50
Water vapour 36 µm, 23°C, 85% rel. air humidity	DIN 53122	g/m ² x d	5
Nitrogen 36 µm, 23°C, 0% rel. air humidity	DIN 53380	cm ³ /m ² x d x bar	12
Nitrogen carbon dioxide 36 µm, 23°C, 0% rel. air humidity	DIN 53380	cm ³ /m ² x d x bar	180

Trademark information: Hostaphan® is a registered trademark of the company MITSUBISHI POLYESTER FILM.

Please note:

The information in this data sheet is based on our current knowledge and experience. They do not disengage the fabricator and user from own tests and inspections because of the plenty of possible effects. There is no judicial binding assurance of certain properties or of the qualification for a concrete application in our declaration. We recommend consulting us in individual cases. The acceptor of our products has to observe possible industrial property rights as well as present laws by himself.

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