

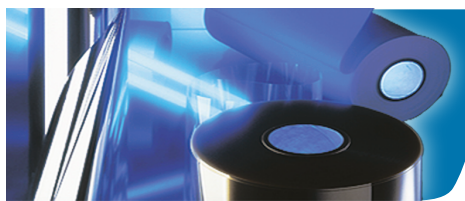
Hostaphan® RN 50-500

Transparent polyester film with moderate haze

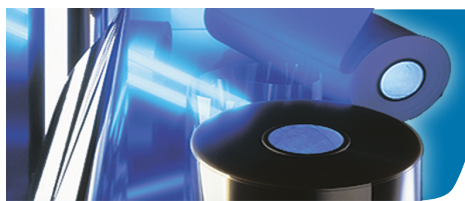
Hostaphan® RN is a biaxially oriented film made of polyethylene terephthalate (PET) and characterized by outstanding physical properties.

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 | - |



| Property | Thickness μm | Units | Value | | Test Method | Test Conditions |
|--|----------------------------|---------------------------|-------------------------------|----|---------------------------------|--|
| | | | MD | TD | | |
| PHYSICAL/CHEMICAL | | | | | | |
| Density | 50-500 | g/cm^3 | 1.4 | | ASTM-D 1505-68 method C | 23°C |
| Conductivity of aqueous extract | 50-500 | $\mu\text{S}/\text{cm}$ | 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 | kV | 12 | | DIN 40634 or VDE 0345 in air | 23°C, 50 Hz |
| | 75 | | 16 | | | |
| | 100 | | 19 | | | |
| | 125 | | 23 | | | |
| | 175 | | 28 | | | |
| | 190 | | 30 | | | |
| | 250 | | 35 | | | |
| | 300 | | 40 | | | |
| | 350 | | 45 | | | |
| | 500 | | (exceeding measurement limit) | | | |
| | 190 | | 80 | | | |
| 190 | 26 | | 150°C, 50 Hz | | | |
| Dielectric dissipation factor ($\tan\delta$) | 50-500 | - | 0.0020 | | 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 |
| | | | 0.0052 | | | |
| | | | 0.0210 | | | |
| | | | 0.0060 | | | |
| | | | 0.0060 | | | |
| | | | 0.0048 | | | |
| Volume resistivity | 50-500 | $\Omega \times \text{cm}$ | $> 10^{17}$ | | DIN 40634 or VDE 0345 | 23°C, DC 150°C, DC |
| | | | $> 10^{11}$ | | | |
| Surface resistivity | 50-500 | Ω | $> 5 \times 10^{14}$ | | DIN 53482 or VDE 0303/part 3 | 23°C, 25% r.h. 23°C, 50% r.h. 150°C, 75% r.h. |
| | | | $> 5 \times 10^{14}$ | | | |
| | | | $> 10^{12}$ | | | |
| Dielectric constant | 50-500 | - | 3.3 | | 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 |
| | | | 3.3 | | | |
| | | | 3.2 | | | |
| | | | 2.9 | | | |
| | | | 2.9 | | | |
| | | | 3.6 | | | |



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

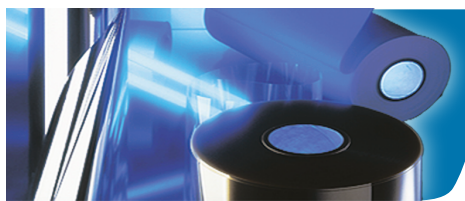
Stiffening

- 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



Delivery program Hostaphan® RN 50-500

| Thickness <i>μm</i> | Yield | | Roll length <i>m</i> | Roll- diameter <i>mm</i> | Roll length <i>m</i> | Roll- diameter <i>mm</i> |
|------------------------|------------------------|-------------------------|-------------------------|--------------------------------|-------------------------|--------------------------------|
| | <i>g/m²</i> | <i>m²/kg</i> | | | | |
| 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.