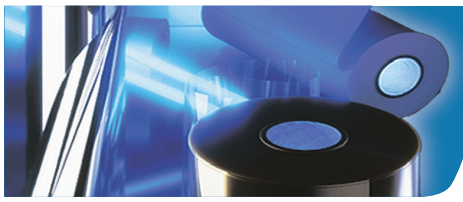


MITSUBISHI CHEMICAL GROUP

HOSTAPHAN®

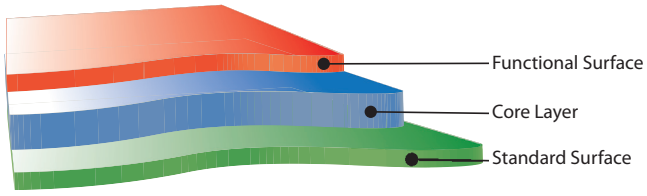
# Hostaphan® RHBY, RHBY MI and RHBY MO

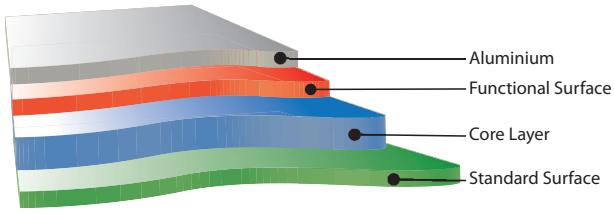
## Transparent polyester film with enhanced barrier

Hostaphan® RHBY is a biaxially oriented film made of polyethylene terephthalate (PET) with a structure optimized to offer previously unattainable barrier properties against oxygen, water vapour and other gases as well as aroma substances after vacuum coating with aluminium, $Al_2O_3$ or SiOx.

Hostaphan® RHBY MI and RHBY MO are metallized on the functional layer.

## Layer structure of Hostaphan® RHBY, RHBY MI and RHBY MO




## Typical properties for RHBY 12

| *Property* | *Thickness µm* | *Units* | *Value* | | *Test Method* | *Test Conditions* |
|---|---|---|---|---|---|---|
| | | | *MD* | *TD* | | |
| MECHANICAL | | | | | | |
| Tensile strength | 12 | $N/mm^2$ | 250 | 250 | ISO 527-1 and ISO 527-3 Sample type 2 | Test speed 100 %/ min.; 23 °C, 50 % r.h. |
| Elongation at break | 12 | % | 130 | 120 | ISO 527-1 and ISO 527-3 Sample type 2 | Test speed 100 %/ min.; 23 °C, 50 % r.h. |
| Young´s Modulus | 12 | $N/mm^2$ | 4 400 | 5 000 | 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) | 12 | $N/mm^2$ | 105 | 100 | ISO 527-1 and ISO 527-3 Sample type 2 | Test speed 100 %/ min.; 23 °C, 50 % r.h. |
| THERMAL | | | | | | |
| Shrinkage | 12 | % | 1.6 | 0.1 | DIN 40634 | 150°C, 15 min. |
| OPTICAL | | | | | | |
| Haze | 12 | % | < 2.5 | | ASTM-D 1003-61 method A | Enlarged measurement angle |

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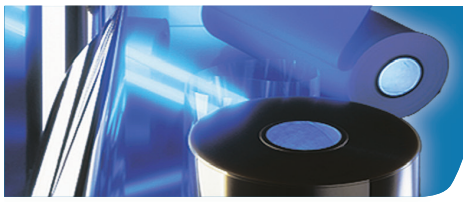

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| Property | Thickness µm | Units | Value | | Test Method | Test Conditions |
|---|---|---|---|---|---|---|
| | | | MD | TD | | |
| SURFACE | | | | | | |
| Coefficient of friction (static)<br><br>Standard surface/ Standard surface<br><br>Standard surface/ Functional surface<br><br>Functional surface/ Functional surface | 12 | - | <br><br>0.4<br><br>0.4<br><br>blocks | | DIN53375 or ASTM-D 1894 | - |
| Gloss | 12 | - | 225 | | DIN 67530 | Measuring angle 20° |
| PHYSICAL/CHEMICAL | | | | | | |
| Density | 12 | g/cm³ | 1.4 | | ASTM-D 1505-68 method C | 23°C |

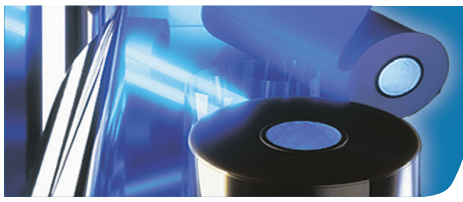
MD = Machine direction, TD = Transverse direction

## Typical barrier data achievable with Hostaphan® RHBY 12*

| Permeent | RHBY without vacuum coating | Metallized OD 2.6-3.0 (RHBY 12 MI) | SiOx-coated | $Al_2O_3$-coated | Units | Test Method | Test Conditions |
|---|---|---|---|---|---|---|---|
| Oxygen | 110 | 0.5 | 0.5 | 1.8 | $cm^3/m^2$ x d x bar | DIN 53380 Part 3 | 23°C, 50% r.h. |
| Water vapour | 16 | 0.2 | 1.0 | 1.6 | $g/m^2$ x d | DIN 53122 Part 2 | 37,8°C, 90% r.h. |

*) unlaminated

The measurement of barrier in this range can be problematic. Please contact us if you need support in this matter.



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## Delivery program Hostaphan® RHBY, RHBY MI and RHBY MO

| *Thickness* | *Yield* | | *Roll length* | *Roll-diameter* | *Roll length* | *Roll-diameter* |
|---|---|---|---|---|---|---|
| *µm* | *g/m²* | *m²/kg* | *m* | *mm* | *m* | *mm* |
| 12 | 17 | 60 | 24 000 | 650 | 36 000 | 775 |

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

Hostaphan® RHBY MI has the metallized side wound inside, Hostaphan® RHBY MO has the metallized side wound outside.

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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