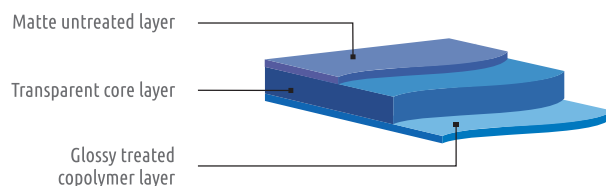


Description

BOPP film with matte side and glossy treated side for printing and lamination



Properties		Unit	Limit	Method	Value		
Thickness		μm	±5%	WATERFALL PRO	15	20	35
Density		g/cm ³	±10%		0,91		
Weight m ²		g/m ²	±5%		13,65	18,20	31,85
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	125		
	TD				240		
Elongation at break	MD	%	not more		220		
	TD			80			
Kinetic coefficient of friction	matte side/ matte side	-	±0,15	ASTM D1894 ISO 8295 GOST 27492	0,25		
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4		
	TD				2		
Heat sealing strength at 140°C, 1 bar, 1 sec*	matte side/ matte side	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	2,0	2,3	2,5
Heat sealing temperature*	matte side/ matte side	°C	-	WATERFALL PRO	130-140		
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70		
Gloss	matte side	%	not more	ASTM D2457 ISO 2813	12		
Surface tension**	treated side (glossy side)	mN/n (dyn/cm)	not less	ASTM D2578 ISO 8296	38		

MD – Machine Direction; TD – Transverse Direction

Matte side – untreated side

* the typical values are indicated, guaranteed only for untreated side

** with double-side treatment (if ordered), the activation of the second side (usually the inside of the roll) is not less than 36 mN/m

With double-side processing – strength and range of welding are not applicable

Kinetic coefficient of friction in 15 days from the date of production

Main characteristics

- one side: matte (rough) not activated
- the other side: gloss (smooth) activated for reverse printing
- high haze, low gloss
- low coefficient of friction

Application

- as a face film of the package, to make the package matte – “silk” or “paper” kind

For packing

- on the high-speed HFFS and VFFS packaging machines
- with hot (heat sealing) seal formation, if it is necessary – «overlap»
- Flow-Pack and standing packet VFFS
- self using in decorative packaging
- possibility of application for wrap-around label

For lamination

- with other films and materials
- with method of the solvent or nonsolvent (extrusion) lamination

For printing

- high-quality rotogravure and flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

The guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is:

- for all film types (except metallized) – 6 months;
- for metallized film – 3 months.

In the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

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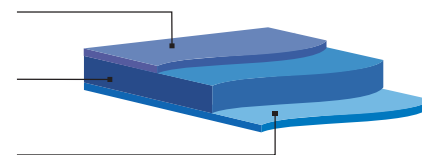
Description

BOPP film with matte side and glossy treated side for printing and lamination with increased coefficient of friction

Matte untreated layer
with increased coefficient of friction

Transparent layer

Glossy treated copolymer layer



Properties	Unit	Limit	Method	Value			
Thickness	μm	±5%	WATERFALL PRO	15	20	35	
Density	g/cm ³	±10%		0,91			
Weight m ²	g/m ²	±5%		13,65	18,20	31,85	
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	125		
	TD				240		
Elongation at break	MD	%	not more	ASTM D1894 ISO 8295 GOST 27492	220		
	TD				80		
Kinetic coefficient of friction	matte side/ matte side	-	not less	0,5			
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4		
	TD				2		
Heat sealing strength at 140°C, 1 bar, 1 sec*	matte side/ matte side	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	2,0	2,3	2,5
Heat sealing temperature*	matte side/ matte side	°C	-	WATERFALL PRO	130-140		
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70		
Gloss	matte side	%	not more	ASTM D2457 ISO 2813	12		
Surface tension**	treated side (glossy side)	mN/n (dyn/cm)	not less	ASTM D2578 ISO 8296	38		

MD – Machine Direction; TD – Transverse Direction

matte side – untreated side

* typical values are indicated, guaranteed only for untreated layer

** with double-side treatment (if ordered), the activation of the second side (usually the inside of the roll) is not less than 36 mN/m

With double-side processing – strength and range of welding are not applicable

Kinetic coefficient of friction in 15 days from the date of production

Main characteristics

- one side: matte (rough) not activated
- other side: gloss (smooth) is activated for reverse printing
- high haze, low gloss
- stable high coefficient of friction

Application

- as a face film of the package, to give matte "silk" or "paper" look to the package

For packing

- on the high-speed HFFS and VFFS packaging machines
- with hot (heat sealable) seal formation, if it is necessary – "overlap", and cold (using cold glue) seal formation
- Flow-Pack and standing packet VFFS
- of multiple packs of packaged product with banding method
- in packs, which can stay in single group without sliding on each other

For lamination

- with other films and materials, for decreasing influence of slip additives migration on the BOPP film side, which leads to significant reduction of coefficient of friction. In this case high coefficient of friction compensates that

- using solvent or non-solvent (extrusive) lamination method

For printing

- high-quality rotogravure and flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

The guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is:

- for all film types (except metallized) – 6 months;
- for metallized film – 3 months.

In the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

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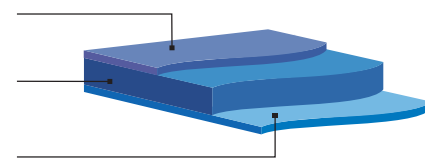
Description

BOPP film with matte heat sealable side with a low threshold of heat sealability and glossy treated side for printing and lamination

Matte untreated heat sealable layer with a low sealing (from 110°C)

Transparent core layer

Glossy treated copolymer layer



Properties		Unit	Limit	Method	Value			
Thickness		μm	±5%	WATERFALL PRO	15	18	20	35
Density		g/cm ³	±10%		0,91			
Weight m ²		g/m ²	±5%		13,65	16,38	18,20	31,85
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	125			
	TD				240			
Elongation at break	MD	%	not more		220			
	TD				80			
Kinetic coefficient of friction	matte side/ matte side	-	±0,15	ASTM D1894 ISO 8295 GOST 27492	0,25			
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4			
	TD				2			
Heat sealing strength at 130°C, 1 bar, 1 sec*	matte side/ matte side	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	2,0	2,3	2,5	
Heat sealing temperature*	matte side/ matte side	°C	-	WATERFALL PRO	110-140			
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70			
Gloss	matte side	%	not more	ASTM D2457 ISO 2813	12			
Surface tension**	treated side (glossy side)	mN/n (dyn/cm)	not less	ASTM D2578 ISO 8296	38			

MD – Machine Direction; TD – Transverse Direction

Matte side – untreated side

* the typical values are indicated, guaranteed only for untreated side

** with double-side treatment (if ordered), the activation of the second side (usually the inside of the roll) is not less than 36 mN/m

With double-side processing – strength and range of welding are not applicable

Kinetic coefficient of friction in 15 days from the date of production

Main characteristics

- one side: matte (rough) not activated with a low barrier of friction (from 110°C)
- the other side: gloss (smooth) activated for reverse printing
- high haze, low gloss
- low coefficient of friction

Application

- as a face film of the package, to make the package matte – “silk” or “paper” kind

For packing

- on the high-speed HFFS and VFFS packaging machines
- with hot (heat sealing) seal formation, if it is necessary – «overlap» on lower temperatures of heat sealable (from 110°C)
- Flow-Pack and standing packet VFFS
- self using in decorative packaging
- application for a wrap-around label

For lamination

- with other films and materials
- with method of the solvent or nonsolvent (extrusion) lamination

For printing

- high-quality rotogravure and flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

The guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is:

- for all film types (except metallized) – 6 months;
- for metallized film – 3 months.

In the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

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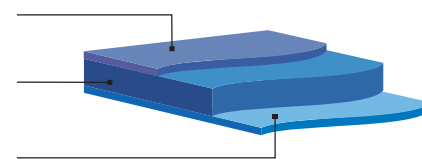
Description

BOPP film with matte side with release effect for production of flexible packaging with glue border of cold adhesion and glossy treated side for printing and lamination

Matte untreated non-heat sealable layer with release effect

Transparent core layer

Glossy treated copolymer layer



Properties		Unit	Limit	Method	Value		
Thickness		μm	±5%	WATERFALL PRO	15	18	20
Density		g/cm ³	±10%		0,91		
Weight m ²		g/m ²	±5%		13,65	16,38	18,20
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	125		
	TD				240		
Elongation at break	MD	%	not more		220		
	TD			80			
Kinetic coefficient of friction	matte side/ matte side	-	±0,15	ASTM D1894 ISO 8295 GOST 27492	0,25		
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4		
	TD				2		
Heat sealing strength at 140°C, 1 bar, 1 sec	matte side/ matte side	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	non-heat sealable		
Heat sealing temperature	matte side/ matte side	°C	-	WATERFALL PRO	non-heat sealable		
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70		
Gloss	matte side	%	not more	ASTM D2457 ISO 2813	12		
Surface tension	treated side (glossy side)	mN/n (dyn/cm)	not less	ASTM D2578 ISO 8296	38		

MD – Machine Direction; TD – Transverse Direction
 Matte side – untreated side
 Kinetic coefficient of friction in 15 days from the date of production

Main characteristics

- one side: matte (rough) with a high release effect
- the other side: gloss (smooth) activated for reverse printing
- high haze, low gloss
- low coefficient of friction

Application

- as a face film of the package, to make the package matte – “silk” or “paper” kind
- for possibility of reopening/reclosing package

For packing

- on the HFFS packaging machines
- with cold (using cold glue) seal formation
- with cold glue for one-and reopening
- Flow-Pack

For lamination

- with other films and materials
- with method of the solvent or nonsolvent (extrusion) lamination

For printing

- high-quality rotogravure and flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

The guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is:

- for all film types (except metallized) – 6 months;
- for metallized film – 3 months.

In the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

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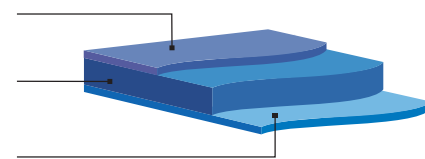
Description

BOPP film with matte side and glossy side and double-sided treatment for printing and lamination

Matte treated non-heat sealable layer

Transparent core layer

Glossy treated non-heat sealable layer



Properties		Unit	Limit	Method	Value		
Thickness		μm	±5%	WATERFALL PRO	15	20	35
Density		g/cm ³	±10%		0,91		
Weight m ²		g/m ²	±5%		13,65	18,20	31,85
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	125		
	TD				240		
Elongation at break	MD	%	not more		220		
	TD			80			
Kinetic coefficient of friction	matte side/ matte side	-	±0,15	ASTM D1894 ISO 8295 GOST 27492	0,25		
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4		
	TD				2		
Heat sealing strength at 140°C, 1 bar, 1 sec	-	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	non-heat sealable		
Heat sealing temperature	-	°C	-	WATERFALL PRO	non-heat sealable		
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70		
Gloss	matte side	%	not more	ASTM D2457 ISO 2813	12		
Surface tension*	treated side	matte side glossy side	mN/n (dyn/cm)	ASTM D2578 ISO 8296	38		

MD – Machine Direction; TD – Transverse Direction

*with double-side processing (with order), the activation of the second side is not less than 36 mN/m

Main characteristics

- matte side has roughness and diffuses light. When filling the roughness (with water or laquer) the film in these places becomes glossy and transparent. It allows to highlight objects of reverse printing
- low coefficient of friction

Application

- as a face film of the package, to give the package matte – “silk” or “paper” look
- for highlighting objects of reverse printing. When filling the roughness of the matte surface with water or laquer, the film in these places becomes glossy and transparent

For packing

- on the high-speed HFFS and VFFS packaging machines
- use for decorative packaging

For lamination

- with other films and materials
- for the solvent or nonsolvent (extrusion) lamination

For printing

- high-quality rotogravure and flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

- the guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is 6 months
- in the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

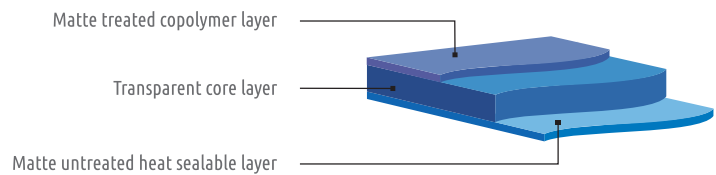
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Description

BOPP film with matte on both sides and treatment on one side for printing and packaging



Properties		Unit	Limit	Method	Value		
Thickness		μm	±5%	WATERFALL PRO	20	30	35
Density		g/cm ³	±10%		0,91		
Weight m ²		g/m ²	±5%		18,20	27,30	31,85
Tensile strength	MD	N/mm ² (MPa)	not less	ASTM D882 ISO 527 GOST 14236	120		
	TD				240		
Elongation at break	MD	%	not more		220		
	TD			80			
Kinetic coefficient of friction	untreated side/ untreated side	-	±0,15	ASTM D1894 ISO 8295 GOST 27492	0,25		
Shrinkage at 120°C, 5 min	MD	%	not more	ASTM D1204 ISO 11501 GOST 18616	4		
	TD				2		
Heat sealing strength at 140°C, 1 bar, 1 sec*	untreated side/ untreated side	N/15 mm	not less	ASTM F88/F88M D882 ISO 527 GOST 27319	2,3	2,4	2,5
Heat sealing temperature*	untreated side/ untreated side	°C	-	WATERFALL PRO	130-140		
Haze	-	%	not less	ASTM D1003 ISO 14782 GOST 15875	70		
Gloss	untreated side	%	not more	ASTM D2457 ISO 2813	12		
Surface tension**	treated side	mN/n (dyn/cm)	not less	ASTM D2578 ISO 8296	38		

MD – Machine Direction; TD – Transverse Direction

* the typical values are indicated, guaranteed only for untreated side.

With double-sided treatment – strength and range of welding are not applicable

** with double-sided treatment (if ordered), the activation of the second side (usually the inside of the roll) is not less than 36 mN/m

Main characteristics

- matte look from the both sides
- slip-antistatic additives

Application

- for contact with food
- to give the package matte – “silk” or “paper” look
- for manual and machine product wrapping (flowers, gifts, textile products etc.)
- string heat sealing is possible

For packing

- decorative packaging

For printing

- high-quality flexographic print
- with the use of solvent paint

Storage

- Films should be stored on the pallets in a closed dry place and should not be exposed to direct sunlight, at a safe distance of not less than 1 m from heating devices or anything that can cause damage the package.
- The film should be kept in workplace not less than 48 hours before being used.
- Guaranteed storage period – 6 months from production date.

Treatment

- the guaranteed period for maintaining the minimum permissible level of surface tension on the activated film surface from the date of manufacture, subject to proper storage conditions, is 6 months
- in the interests of minimizing the deterioration of surface dressing level, it is recommended to store the film at a temperature of no higher than 30°C and use it in a short time.

Recycling

In the process of printing and lamination it is recommended to perform corona treatment.

Reeling

- Maximum roll diameter: 800 mm
- Film width in a roll from 290 to 2000 mm
- Diameter of paper cores (inside): 76, 152 mm

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