



BOPP FILMS

TECHNICAL DATA SHEETS

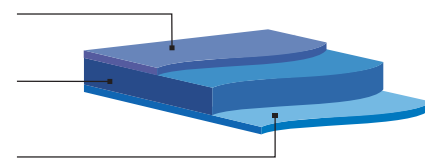
Description

BOPP film “tobacco” transparent, with medium shrink properties, heat sealable with an average sealing threshold, with a low coefficient of friction, without activation, for packing “soft” and “hard” cardboard packs on high-speed machines

Untreated heat sealable layer with a low coefficient of friction (F)

Transparent layer

Untreated heat sealable layer with a higher coefficient of friction (NF)



Properties		Unit	Limit	Method	Value				
Thickness		μm	±5%	ISO 4591, 4593 GOST 17035	16	18	20	25	30
Density		g/cm ³	±10%	WATERFALL PRO	0,91				
Weight m ²		g/m ²	±5%	GOST 13199	14,56	16,38	18,20	22,75	27,30
Tensile strength	MD	N/mm ² (Mpa)	not less	ASTM D882 ISO 527 GOST 14236	130			140	
	TD				230			250	
Elongation at break	MD	%	not more	ASTM D1894 GOST 27492	220				
	TD				80				
Kinetic coefficient of friction	F / F	-	+0,05 -0,10	ASTM D1894 GOST 27492	0,25				
Shrinkage at 120°C, 5 min	MD	%	-	ASTM D1204	4-6,5				
	TD				4-6,5				
Heat sealing strength at 115°C, 1 bar, 1 sec.	NF / F	N/15 mm	not less	ASTM F88/F88M, D882 ISO 527	2,5				
Minimal heat sealing temperature not less than 1H/15mm at 1 bar, sec.	NF / F	°C	-	WATERFALL PRO	105				
Haze	-	%	not more	ASTM D1003 GOST R 8.829	2,5				
Gloss	F	%	not less	ASTM D2457	85				
MD – machine direction TD – transverse direction		NF – non-functional side F – functional side (with low coefficient of friction)							

Main characteristics

- standart shrinkable
- standart coefficient of friction
- high rigidity
- high gloss
- high transparent

Application

- for wrapping “soft” and “hard” paper packs of cigarettes, cigarette blocks, tea, marshmallows, sweets, perfumes, etc.

For packing

- on the high-speed HFFS packaging machines without a thertotunnel
- with hot (heat sealing) seal formation
- “soft” and “hard” paper packs and boxes

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

Reeling

- maximum roll diameter 500 mm
- film width in a roll from 90 to 450 mm
- diameter of paper cores (inside) 76 mm

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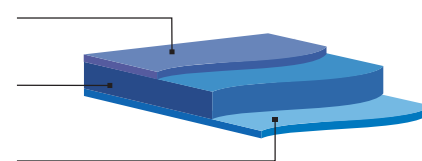
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Description

BOPP film “tobacco” transparent, with standart shrink properties, heat sealable with an average sealing threshold, with a very low coefficient of friction, without activation, for packing “hard” cardboard packs on high-speed machines

Untreated heat sealable layer with a low coefficient of friction (F)
 Transparent layer
 Untreated heat sealable layer with a higher coefficient of friction (NF)



Properties		Unit	Limit	Method	Value		
Thickness		µm	±5%	ISO 4591, 4593 GOST 17035	16	18	20
Density		g/cm³	±10%	WATERFALL PRO	0,91		
Weight m²		g/m²	±5%	GOST 13199	14,56	16,38	18,20
Tensile strength	MD	N/mm² (Мпа)	not less	ASTM D882 ISO 527 GOST 14236	140		
	TD				260		
Elongation at break	MD	%	not more	ASTM D1894 GOST 27492	180		
	TD				70		
Kinetic coefficient of friction		F / F	-	ASTM D1894 GOST 27492	0,15		
Shrinkage at 120°C, 5 мин	MD	%	-	ASTM D1204	6,5-9		
	TD				6,5-9		
Heat sealing strength at 115°C, 1 bar, 1 sec.		NF / F	N/15 mm	not less	ASTM F88/F88M, D882 ISO 527	2,5	
Minimal heat sealing temperature not less than 1H/15mm at 1 bar, sec.		NF / F	°C	-	WATERFALL PRO	105	
Haze		-	%	not more	ASTM D1003 GOST R 8.829	2,5	
Gloss		F	%	not less	ASTM D2457	85	

MD – machine direction
 TD – transverse direction
 NF – non-functional side
 F – functional side (with low coefficient of friction)

Main characteristics

- high hardness
- high gloss
- high transparent
- low stable coefficient of friction, including over heated surfaces

Application

- for wrapping “hard” paper packs of cigarettes, cigarette blocks, tea, marshmallows, sweets, etc.
- for film tightening of packs due to shrinkable properties of the film
- for tightening packs small and medium sizes

For packing

- on the high-speed HFFS packaging machines with a thertotunnel
- on the high-speed HFFS packaging machines without a thertotunnel where the film shrink is able due to heating of the weld seal
- with hot (heat sealing) seal formation
- “hard” paper packs

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

Reeling

- maximum roll diameter 500 mm
- film width in a roll from 90 to 450 mm
- diameter of paper cores (inside) 76 mm

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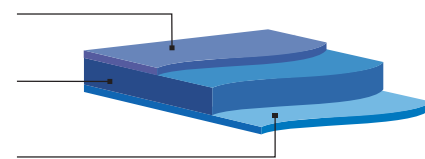
Description

BOPP film “tobacco” transparent, with high shrink properties, heat sealable with an average sealing threshold, with a very low coefficient of friction, without activation, for packing “hard” cardboard packs on high-speed machines

Untreated heat sealable layer with a low coefficient of friction (F)

Transparent layer

Untreated heat sealable layer with a higher coefficient of friction (NF)



Properties		Unit	Limit	Method	Value		
Thickness		µm	±5%	ISO 4591, 4593 GOST 17035	16	18	20
Density		g/cm ³	±10%	WATERFALL PRO	0,91		
Weight m ²		g/m ²	±5%	GOST 13199	14,56	16,38	18,20
Tensile strength	MD	N/mm ² (Мпа)	not less	ASTM D882 ISO 527 GOST 14236	140		
	TD				260		
Elongation at break	MD	%	not more	ASTM D1894 GOST 27492	180		
	TD				70		
Kinetic coefficient of friction		F / F	-	ASTM D1894 GOST 27492	0,15		
Shrinkage at 130°C, 5 мин	MD	%	±2	ASTM D1204	12		
	TD				12		
Heat sealing strength at 115°C, 1 bar, 1 sec.		NF / F	N/15 mm	not less	ASTM F88/F88M, D882 ISO 527	2,5	
Minimal heat sealing temperature not less than 1H/15mm at 1 bar, sec.		NF / F	°C	-	WATERFALL PRO	105	
Haze		-	%	not more	ASTM D1003 GOST R 8.829	2,8	
Gloss		F	%	not less	ASTM D2457	85	

MD – machine direction
TD – transverse direction

NF – non-functional side
F – functional side (with low coefficient of friction)

Main characteristics

- resistant to scratching and abrasion
- low stable coefficient of friction asymmetric, including over heated surfaces
- high hardness
- high transparent
- high gloss

Application

- for wrapping “hard” paper packs of cigarettes, cigarette blocks, tea, marshmallows, sweets, etc.
- for film tightening of packs due to shrinkable properties of the film
- for tightening packs small and medium sizes

For packing

- on the high-speed HFFS packaging machines with a thertotunnel
- on the high-speed HFFS packaging machines without a thertotunnel where the film shrink is able due to heating of the weld seal
- with hot (heat sealing) seal formation
- “hard” paper packs

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

Reeling

- maximum roll diameter 500 mm
- film width in a roll from 90 to 450 mm
- diameter of paper cores (inside) 76 mm

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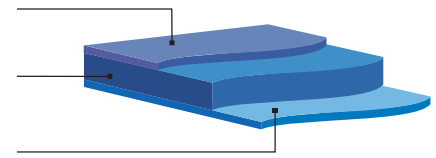
Description

BOPP film “tobacco” transparent, with high shrink properties, heat sealable with a low sealing threshold, with a very low coefficient of friction, without activation, for packing “hard” cardboard packs on high-speed machines

Untreated heat sealable layer with a very low coefficient of friction (F)

Transparent layer

Untreated heat sealable layer with a low heat sealing (NF)



Properties		Unit	Limit	Method	Value			
Thickness		µm	±5%	ISO 4591, 4593 GOST 17035	20	23	25	30
Density		g/cm ³	±10%	WATERFALL PRO	0,91			
Weight m ²		g/m ²	±5%	GOST 13199	18,20	20,93	22,75	27,30
Tensile strength	MD	N/mm ² (МПа)	not less	ASTM D882 ISO 527 GOST 14236	140			
	TD				260			
Elongation at break	MD	%	not more	ASTM D1894 GOST 27492	160			
	TD				70			
Kinetic coefficient of friction		F / F	-	ASTM D1894 GOST 27492	0,15			
Shrinkage at 130°C, 5 мин	MD	%	±2	ASTM D1204	11			
	TD				11			
Heat sealing strength at 95°C, 1 bar, 1 sec.		NF / F	N/15 mm	ASTM F88/F88M, D882 ISO 527	2,5			
Minimal heat sealing temperature not less than 1H/15mm at 1 bar, sec.		NF / F	°C	WATERFALL PRO	80			
Haze		-	%	ASTM D1003 GOST R 8.829	3,0			
Gloss		F	%	ASTM D2457	85			

MD – machine direction
 TD – transverse direction
 NF – non-functional side (with a low threshold of thermal welding)
 F – functional side (with very low coefficient of friction)

Main characteristics

- resistant to scratching and abrasion
- low stable coefficient of friction asymmetric, including over heated surfaces
- high hardness
- high transparent
- high gloss

Application

- for wrapping “hard” paper packs of cigarettes, cigarette blocks, tea, marshmallows, sweets, etc.
- for film tightening of packs due to shrinkable properties of the film
- for tightening packs small and medium sizes

For packing

- on the high-speed HFFS packaging machines with a thertotunnel
- on the high-speed HFFS packaging machines without a thertotunnel where the film shrink is able due to heating of the weld seal
- with hot (heat sealing) seal formed at lower heat sealing temperatures (from 90°C)
- “hard” paper packs

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

Reeling

- maximum roll diameter 500 mm
- film width in a roll from 90 to 450 mm
- diameter of paper cores (inside) 76 mm

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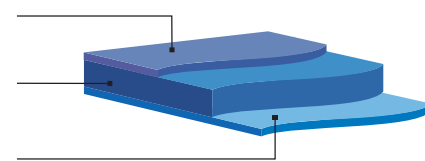
Description

BOPP film “tobacco” transparent, with high shrink properties, heat sealable with an average sealing threshold, with a very low coefficient of friction, with activation on one side, for printing and packaging “hard” cardboard packs on high-speed machines

Untreated heat sealable layer with a very low coefficient of friction

Transparent layer

Treated heat sealable layer



Properties		Unit	Limit	Method	Value			
Thickness		µm	±5%	ISO 4591, 4593 GOST 17035	16	18	20	25
Density		g/cm ³	±10%	WATERFALL PRO	0,91			
Weight m ²		g/m ²	±5%	GOST 13199	14,56	16,38	18,20	22,75
Tensile strength	MD	N/mm ² (МПа)	not less	ASTM D882 ISO 527 GOST 14236	140			
	TD				260			
Elongation at break	MD	%	not more	ASTM D1894 GOST 27492	180			
	TD				70			
Kinetic coefficient of friction		UT / UT	-	ASTM D1894 GOST 27492	0,15			
Shrinkage at 130°C, 5 мин	MD	%	±2	ASTM D1204	12			
	TD				12			
Heat sealing strength at 115°C, 1 bar, 1 sec.		T / UT	N/15 mm	not less	ASTM F88/F88M, D882 ISO 527	2,0		
Minimal heat sealing temperature not less than 1H/15mm at 1 bar, sec.		T / UT	°C	-	WATERFALL PRO	105		
Haze		-	%	not more	ASTM D1003 GOST R 8.829	2,8		
Gloss		T	%	not less	ASTM D2457	85		
Surface tension*		T	mN/m (dyn/cm)	not less	ASTM D2578 ISO 8296	38		
MD – machine direction TD – transverse direction		T – treated side UT – untreated side		* to determine the true value, measure after treatment with n-heptane				

Main characteristics

- activated for printing
- resistant to scratching and abrasion
- low stable coefficient of friction asymmetric, including over heated surfaces
- high hardness
- high gloss
- high transparent

Application

- for wrapping “hard” paper packs of cigarettes, cigarette blocks, tea, marshmallows, sweets, etc.
- for film tightening of packs due to shrinkable properties of the film
- for tightening packs small and medium sizes

For packing

- on the high-speed HFFS packaging machines with a thermotunnel
- on the high-speed HFFS packaging machines without a thermotunnel where the film shrink is able due to heating of the weld seal
- with hot (heat sealing) seal formation
- “hard” paper packs

For printing

- high-quality rotogravure and flexographic print
- with the use of special paints

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 500 mm
- film width in a roll from 90 to 450 mm
- diameter of paper cores (inside) 76 mm

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