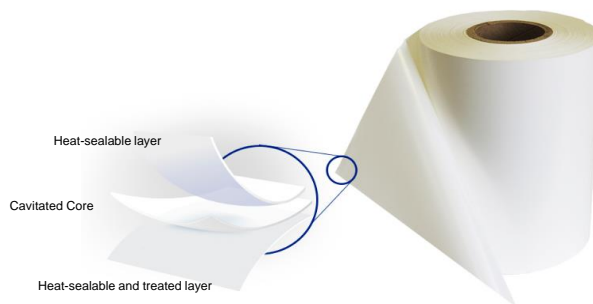


## Main Characteristics

- Both sides heat-sealable, non-treated side from 105°C;
- Surface treatment on inner or outer layer;
- Both sides glossy;
- High-opacity cavitated film;
- Optimum performance in flexographic and rotogravure printers, opposite side designed for application of adhesives and cold seal.

## Typical Applications

- Flexible packaging for food: chocolate bars, bonbons and cookies;
- Flow pack packaging for individual portions.



Properties		Methodology	Unit	Range	19TBPCSL	22TBPCSL	26TBPCSL
<b>Physical Properties</b>							
Nominal Thickness		DIN 53370	µm	Target	25.3	29.3	34.7
				Min.	24.1	27.9	32.9
				Max.	26.6	30.8	36.4
			Gauge	Target	99.7	115.5	136.5
				Min.	94.8	109.7	129.7
				Max.	104.7	121.3	143.3
Unit Weight		ASTM D 4321	g/m <sup>2</sup>	Target	19.0	22.0	26.0
				Min.	18.1	20.9	24.7
				Max.	20.0	23.1	27.3
			lb/ream	Target	11.7	13.5	16.0
				Min.	11.1	12.8	15.2
				Max.	12.3	14.2	16.8
Yield		ASTM D 4321	m <sup>2</sup> /kg	Target	52.6	45.5	38.5
				Min.	50.1	43.3	36.6
				Max.	55.4	47.8	40.5
			in <sup>2</sup> /lb	Target	37004	31958	27041
				Min.	35242	30436	25753
				Max.	38951	33640	28464
Surface Treatment	T	ASTM D 2578	dinas/cm	Target	40		
				Min.	38		
Coefficient of Friction	NT	ASTM D 1894	-	Target	0.30		
				Min.	0.20		
				Max.	0.40		
<b>Optical Properties</b>							
Transmittance		ASTM D 1003	%	Target	29		
				Min.	26		
				Max.	34		
Gloss (45°)		ASTM D 2457	u.b.	Target	85		
				Min.	77		
<b>Mechanical Properties</b>							
Tensile Strength	MD	ASTM D 882	N/mm <sup>2</sup>	Target	80		
	TD			140			
	MD		lb/in <sup>2</sup>	Target	11603		
	TD			20305			
Elongation at Break	MD	ASTM D 882	%	Target	120		
	TD			40			
Shrinkage	MD	ASTM D 1204	%	Target	3		
	TD			1			
Sealing Range	NT	ASTM F 88	°C	Target	105 - 130		
			°F	Target	221 - 266		
Sealing Strength	NT	ASTM F 88	g/25mm or gf/in	Target	650		
				Min.	350		
<b>Barrier Properties</b>							
TPVA   38°C / 90%UR	ASTM F 1249	g H <sub>2</sub> O / (m <sup>2</sup> .dia)	Target	≤ 8.5	≤ 7.5	≤ 7.0	
WVTR   100°F / 90%RH	ASTM F 1249	g H <sub>2</sub> O / (100in <sup>2</sup> .day)	Target	≤ 0.55	≤ 0.48	≤ 0.45	
TPO <sub>2</sub>   23°C / 0%UR	ASTM D 3985	cm <sup>3</sup> O <sub>2</sub> / (m <sup>2</sup> .dia)	Target	≤ 2700	≤ 2500	≤ 2100	
OTR   73°F / 0%RH	ASTM D 3985	cm <sup>3</sup> O <sub>2</sub> / (100in <sup>2</sup> .day)	Target	≤ 174	≤ 161	≤ 135	

1. Acronyms:  
MD: Machine Direction | TD: Transverse Direction;  
NT: Non Treated Layer | T: Treated Layer.

2. Additional:  
The restrained information in this datasheet represent typical data, and does not constitute genuine warranty liability as far as the product process and or application. In case of doubts or development of other thicknesses or applications, consult your dealer or send e-mail to: contato@polofilms.com.br.



## Food Contact Regulations

OPAQUE Family films comply with Mercosul, ANVISA, FDA (Food and Drug Administration) and the European Community legislations for applications involving direct contact with food. Full details are provided in the Declaration of Conformity. Customers intending to use OPAQUE Family films for applications intended to come into contact with food should request a copy of that document from POLO Films. The MSDS (Material Safety Data Sheet), as well as the evaluation of conformity for contact with food from other legislations are also available upon request. Contact your dealer for any questions.

## Storage and Transportation Terms & Conditions

All products are stored and transported in dry, covered and clean environments. It is recommended that storage and transportation take place at temperature around 30°C and 60% relative humidity.

If the temperature and humidity are not as recommended, the following issues may occur:

- Decreased level of surface treatment, leading to printing and/or lamination difficulties;
- Decreased film transparency;
- Too low CoF, making processing and machinability difficult.

BOPP films are recommended to be kept at operating room temperature for 24 hours before use.

## Dimensional Specifications / Product Validity

<b>Width</b>	<b>Minimum: 0 mm   Maximum: 2 mm</b> (from standard width)
<b>Outer Diameter*</b>	<b>Minimum: 30 mm   Maximum: 20 mm</b> (from standard diameter)
<b>Core</b>	<b>Minimum: 1 mm   Maximum: 1 mm</b> (from standard diameter)
<b>Splices per roll</b>	<b>Maximum: 2</b>
<b>% of Splices per order</b>	<b>Maximum: 30%</b>
<b>Shelf Life (after production)</b>	<b>6 months</b>

\* For other dimensional information, consult your dealer.

## Polo Films Nomenclature

Unit Weight or Thickness | Technology | Main Feature | Specialty | Sealing | Treatment

# 19 TBP CSL 32

### Unit Weight/ Thickness

Expressed in g/m<sup>2</sup>. Used for white/opaque films;  
Expressed in µm. Used for transparent, matte and metallized films.

### Technology

T - Tenter | C - Cast.

### Main Feature

BP - Heat-sealable opaque white for printing and/or lamination.

### Specialty

CSL - Face to anchor "Cold Seal".

### Sealing

0 - Not Sealable;  
1 - Sealing on the Inner Face;  
2 - Sealing on the Outer Face;  
3 - Sealing on both Sides.

### Treatment

0 - No Treatment;  
1 - Treatment on Inner Face;  
2 - Treatment on Outer Face;  
3 - Treatment on both Sides.