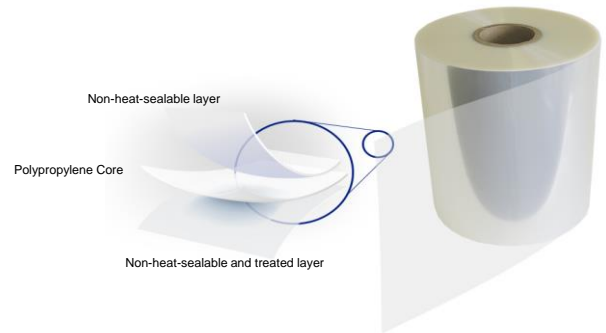


Main Characteristics

- Non-heat-sealable film;
- Surface treatment on inner and/or outer layer;
- Excellent optical properties (gloss and transparency);
- Optimum performance in horizontal and vertical form-fill-seal packing machines.

Typical Applications

- Flexible packaging for food: pastries, coffee, instant chocolate milk, dehydrated soups, nutritional powders;
- Non-food flexible packaging: pet food cardboard lamination and graphical applications in general;
- Continuous labels (WAL Roll Fed), laminate or monolayers and magazine labels (WAL Cut & Stack);
- Developed for HFFS - Horizontal Form Fill Seal and VFFS - Vertical Form Fill Seal filling processes.



Properties	Methodology	Unit	Range	17TPY	20TPY	25TPY	30TPY	40TPY	50TPY	
Physical Properties										
Nominal Thickness	DIN 53370	µm	Target	17.0	20.0	25.0	30.0	40.0	50.0	
			Min.	16.2	19.0	23.8	28.5	38.0	47.5	
			Max.	17.9	21.0	26.3	31.5	42.0	52.5	
		Gauge	Target	66.9	78.7	98.4	118.1	157.5	196.9	
			Min.	63.3	74.8	93.5	112.2	149.6	187.0	
			Max.	70.3	82.7	103.3	124.0	165.4	206.7	
Unit Weight	ASTM D 4321	g/m ²	Target	15.4	18.1	22.6	27.2	36.2	45.3	
			Min.	14.6	17.2	21.5	25.8	34.4	43.0	
			Max.	16.2	19.0	23.8	28.5	38.0	47.5	
		lb/ream	Target	9.5	11.1	13.9	16.7	22.2	27.8	
			Min.	9.0	10.6	13.2	15.8	21.1	26.4	
			Max.	9.9	11.7	14.6	17.5	23.4	29.2	
Yield	ASTM D 4321	m ² /kg	Target	65.0	55.2	44.2	36.8	27.6	22.1	
			Min.	61.9	52.6	42.1	35.1	26.3	21.0	
			Max.	68.4	58.2	46.5	38.8	29.1	23.3	
		in ² /lb	Target	45698	38844	31075	25896	19422	15537	
			Min.	43522	36994	29595	24663	18497	14798	
			Max.	48104	40888	32710	27259	20444	16355	
Surface Treatment	T	ASTM D 2578	dinas/cm	Target	42					
				Min.	38					
Coefficient of Friction	NT	ASTM D 1894	-	Target	0.35					
				Min.	0.25					
				Max.	0.45					
Optical Properties										
Haze	ASTM D 1003	%	Target	1.3						
			Max.	2.0						
Gloss (45°)	ASTM D 2457	u.b.	Target	95						
			Min.	85						
Mechanical Properties										
Tensile Strength	MD	ASTM D 882	N/mm ²	Target	140					
	TD			Target	250					
	MD		lb/in ²	Target	20305					
	TD			Target	36260					
Elongation at Break	MD	ASTM D 882	%	Target	140	150	170	180	190	200
	TD			Target	60					
Shrinkage	MD	ASTM D 1204	%	Target	3					
	TD			Target	1					
Barrier Properties										
TPVA 38°C / 90%UR	ASTM F 1249	g H ₂ O / (m ² .dia)	Target	≤ 7.0	≤ 6.5	≤ 6.0	≤ 5.5	≤ 5.0	≤ 5.0	
WVTR 100°F / 90%RH	ASTM F 1249	g H ₂ O / (100in ² .day)	Target	≤ 0.45	≤ 0.42	≤ 0.39	≤ 0.35	≤ 0.32	≤ 0.32	
TPO ₂ 23°C / 0%UR	ASTM D 3985	cm ³ O ₂ / (m ² .dia)	Target	≤ 2600	≤ 2400	≤ 2200	≤ 2000	≤ 1700	≤ 1700	
OTR 73°F / 0%RH	ASTM D 3985	cm ³ O ₂ / (100in ² .day)	Target	≤ 167	≤ 154	≤ 141	≤ 129	≤ 109	≤ 109	

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

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

PLAIN 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 PLAIN 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

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

* For other dimensional information, consult your dealer.

Polo Films Nomenclature

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

20TPY02

Unit Weight/ Thickness

Expressed in g/m². Used for white/opaque films;
Expressed in µm. Used for transparent, matte and metallized films.

Technology

T - Tenter | C - Cast.

Main Feature

PY - Plain transparent for printing and/or lamination.

Specialty

Not applicable.

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.