



**ATLANTIS-PAK**

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Packaging Solutions

Films **AMISTYLE**

# AMISTYLE BP/CP

Process Operating Manual



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## 1. APPLICATION

This Process Operating Manual describes the procedure for packaging of food products by thermoforming with the use of **AMISTYLE BP and AMISTYLE CP** films.

**AMISTYLE BP/CP** are multilayer heat-shrink vapor- and gas-tight heat-sealable films made of polyamide, polyolefin, polyethylene terephthalate, EVOH and adhesive (modified polyethylene) permitted by the Russian Ministry of Health for use in the food industry. The quality of the raw materials used for production of the film is confirmed by Russian and international quality certificates.

**AMISTYLE BP** serves as the thermoformable bottom film used to make the tray that contains the food product.

**AMISTYLE CP** serves as the lidding film used to seal the tray containing the food product.

The **AMISTYLE BP/CP** films are manufactured according to Specifications TU 22.21.30-052-27147091-2012 and are intended for secondary packaging of various food products (meat-based food, chilled meat, chilled poultry, sausages and delicatessen, chilled fish, cheeses and cheese-based products) by the method of vacuum or MAP thermoforming in order to prolong the shelf life.

The **AMISTYLE BP/CP** films are suitable for processing on various types of thermoformers.

The shelf lives of the food products packaged in the **AMISTYLE BP/CP** films shall be set by the manufacturers and approved following the procedure stipulated by the laws.

## 2. PROPERTIES AND ADVANTAGES

The combination of different polymer materials in the structure, and the biaxial orientation of the **AMISTYLE BP/CP** films provide for:

- excellent sealability of **AMISTYLE BP and AMISTYLE CP** between themselves and with other films within a wide range of temperatures;
- high strength and puncture resistance, which preserves the integrity of the package at the stages of transportation and storage;
- attractive appearance of the packaging material (transparency and gloss), which makes the film virtually invisible on the product;
- high barrier to water vapor and gases (oxygen, nitrogen, carbon dioxide);

The **AMISTYLE BP** films are produced by an innovative method (triple bubble biaxial orientation) that allows stretching during the thermoforming without critical thinning in certain areas.

Thus, the combined **AMISTYLE BP and AMISTYLE CP** films provide for preservation of food products, prolong their shelf lives, and



open the way for packaging of food with the use of high-rate automatic equipment.

The thinness of the **AMISTYLE BP/CP** films contributes to their lower environmental impact due to the reduced amount of polymer wastes.

Absence of chlorine-containing substances makes the **AMISTYLE BP/CP** films more environment-friendly because of their safer disposal of the packaging.

See the technical characteristics of the **AMISTYLE BP/CP** films in the Product Specifications.

### 3. ASSORTMENT

Film	Thickness, $\mu\text{m}$	Application
Amistyle BP-60	60	Bottom film for secondary packaging by the method of thermoforming
Amistyle BP-90	90	
Amistyle BP-110	110	
Amistyle CP-40	40	Lidding film for secondary packaging by the method of thermoforming
Amistyle CP-50	50	

Amistyle CP film width: 100 – 865mm (with 1mm increments).

Amistyle BP film width: 100 – 630mm (with 1mm increments).

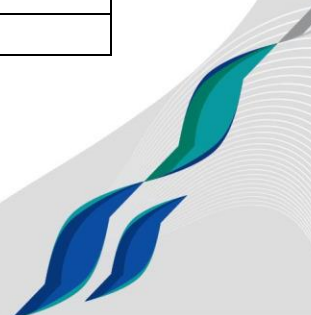
Color: clear

Marking: single-color, multi-color or CMYK printing with inks based on volatile solvents.

Form of supply: rolls on dia 76mm cardboard cores

Standard film length in a roll

Film	Width, mm from	Width, mm to	Length in roll, m
CP-40	100	865	1000
CP-50	100	865	1000
BP-60	100	470	1000
BP-60	475	630	500
BP-90	100	630	500
BP-110	100	630	500



## 4. FILM PROCESSING

### 4.1. Film storage and transportation

4.1.1. Keep the film in enclosed dry rooms at a distance of not less than 800mm from heaters, in the absence of strong-smelling or corrosive substances, at a temperature from + 5 °C to + 35 °C and relative humidity not more than 80 %.

4.1.2. Transport the film at temperatures not exceeding 40 °C, and protect against direct sunlight.

4.1.3. When the film has been stored at a temperature below 0 °C, keep it at room temperature before processing for at least 24 hours without opening the manufacturer's packing.

### 4.2. Food product packaging

Packaging of food products in the **AMISTYLE BP/CP** films shall be made in production rooms meeting the requirements of the applicable food safety regulations and standards.

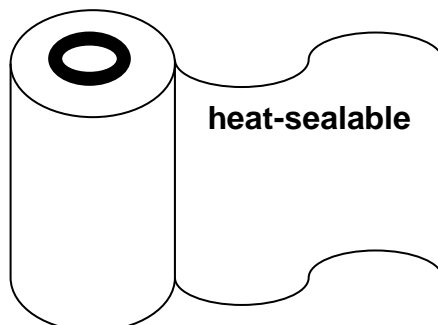
To ensure stability of the packaging process, observe the manufacturer-recommended operating modes for the packaging equipment.

Loading of the film in the automatic equipment must be made in accordance with the instructions of the equipment manufacturer and the loading procedure.

Take care to maintain the film well-tensioned during the operation.

The equipment settings (forming and sealing temperature, packages per minute rate, etc.) shall be selected on a case-by-case basis.

The **AMISTYLE BP/CP** films have a heat-sealable polyethylene (PE) layer on the inward side of the film web.



Packaging of food products with the use of the **AMISTYLE BP/CP** films includes the following stages:

#### **4.2.1. Forming of a tray from the roll of the AMISTYLE BP bottom film**

Trays are made automatically by heating of the rolled **AMISTYLE BP** bottom film and forming of tray shapes by using of vacuum and/or compressed air flow (depending on the thermoformer design).

The maximum depth of a tray formed from the **AMISTYLE BP** film depends on the number of trays formed per cycle of the equipment; the maximum depth may be as great as 10cm for the 1x1 and 1x2 formats.

The maximum depth of the tray formed from AMISTYLE BP depends on the number of trays produced during one operating cycle of the equipment. The maximum tray depth may be as large as 10cm for the 1x1, 1x2 format.

The film thickness should be selected based on the packaged product characteristics and the required film stretching depth.

E.g., when frankfurters are to be packaged in trays 10-30mm deep, Amistyle BP-60/Amistyle CP-40 films are recommended. Sausage chubs 40-50mm in diameter should be packaged in Amistyle BP-90 or Amistyle BP-110 film in combination with Amistyle CP-50.

Film type	Format	Forming depth (mm)
BP-60	1x1	80
BP-60	2x2	60
BP-90	1x1	100
BP-90	2x2	70
BP-90	5x1	40
BP-110	1x1	100
BP-110	3x1	80
BP-110	5x1	50

Recommended thermoforming parameters for the **AMISTYLE BP** film:

Forming temperature: 90-110 °C

Film heating time - 2 - 4 s

Film drawing time 1 - 2 s

Drawing pressure 1.5 bar - 2 bar

#### **4.2.2. Placement of food in the formed tray**

The formed trays are fed by a belt conveyor to the product dosage zone, where the food is placed on the tray automatically or manually.

During the dosage take care to match the product volume with the tray size and shape.



### **4.2.3. Package sealing**

After dosage of the food into the trays, the thermoformer uses the **AMISTYLE CP** lidding film to seal the trays with simultaneous evacuation of air from the packages. Trays are sealed by means of heat-sealing.

The sealing temperature for the **AMISTYLE BP/CP** films varies depending on the equipment operation rate, and lies within the range of 120 – 150 °C.

Take care to prevent the product getting into the film sealing zone, because this may lead to a loss of vacuum.

The depth of vacuum should be preset depending on the product moisture content. The depth of vacuum should be reduced for packaging of high-moisture food.

The seals must be even and continuous, bearing a clear imprint of the sealing bar, without any signs of burn-through.

If the sealing quality is unsatisfactory, check the temperature settings.

### **4.2.4. Cutting of packages**

The sealed packages are conveyed for longitudinal and transverse cutting.

After that the packaged product may be dispatched for weighing, labeling and storage.

## **4.3. Transportation and storage of products**

The products packaged in the **AMISTYLE BP/CP** films shall be transported and stored in accordance with the standard documentation applicable to the product (GOST, TU).

## **5. MANUFACTURER'S GUARANTEES**

The shelf life of the **AMISTYLE BP** film is 2 years from manufacture to processing, subject to compliance with the transportation and storage requirements for the user's warehouse, and provided that the manufacturer's packing remains intact.

The shelf life of the **AMISTYLE CP** film is 2 years from manufacture to processing, subject to compliance with the transportation and storage requirements for the user's warehouse, and provided that the manufacturer's packing remains intact.

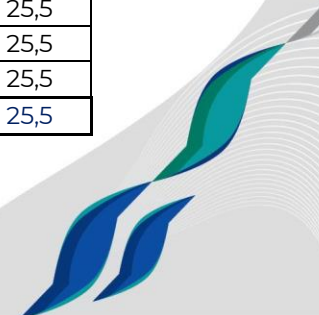


## 6. APPENDICES

Appendix 6.1.

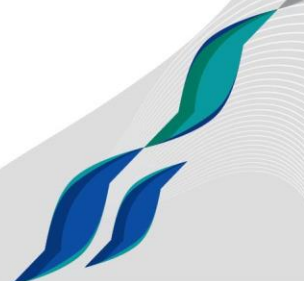
### Calculation table for Amistyle CP films

Film width, mm	Qty in 1 km, sq. m.	CP-50	CP -40	CP-50	CP -40	CP-50	CP -40
		weight of 1 km, kg		length in 1 kg, m		qty in 1 kg, sq. m.	
100	100	4,90	3,92	204,1	255,1	20,4	25,5
110	110	5,39	4,31	185,5	231,9	20,4	25,5
120	120	5,88	4,70	170,1	212,6	20,4	25,5
130	130	6,37	5,10	157,0	196,2	20,4	25,5
140	140	6,86	5,49	145,8	182,2	20,4	25,5
150	150	7,35	5,88	136,0	170,1	20,4	25,5
160	160	7,84	6,27	127,5	159,4	20,4	25,5
170	170	8,33	6,66	120,0	150,0	20,4	25,5
180	180	8,82	7,06	113,4	141,7	20,4	25,5
190	190	9,31	7,45	107,4	134,3	20,4	25,5
200	200	9,80	7,84	102,0	127,5	20,4	25,5
210	210	10,29	8,23	97,2	121,5	20,4	25,5
220	220	10,78	8,62	92,8	115,9	20,4	25,5
230	230	11,27	9,02	88,7	110,9	20,4	25,5
240	240	11,76	9,41	85,0	106,3	20,4	25,5
250	250	12,25	9,80	81,6	102,0	20,4	25,5
260	260	12,74	10,19	78,5	98,1	20,4	25,5
270	270	13,23	10,59	75,6	94,5	20,4	25,5
280	280	13,72	10,98	72,9	91,1	20,4	25,5
290	290	14,21	11,37	70,4	88,0	20,4	25,5
300	300	14,70	11,76	68,0	85,0	20,4	25,5
310	310	15,19	12,15	65,8	82,3	20,4	25,5
320	320	15,68	12,55	63,8	79,7	20,4	25,5
330	330	16,17	12,94	61,8	77,3	20,4	25,5
340	340	16,66	13,33	60,0	75,0	20,4	25,5
350	350	17,15	13,72	58,3	72,9	20,4	25,5
360	360	17,64	14,11	56,7	70,9	20,4	25,5
370	370	18,13	14,51	55,2	68,9	20,4	25,5
380	380	18,62	14,90	53,7	67,1	20,4	25,5
390	390	19,11	15,29	52,3	65,4	20,4	25,5
400	400	19,60	15,68	51,0	63,8	20,4	25,5
410	410	20,09	16,07	49,8	62,2	20,4	25,5
420	420	20,58	16,47	48,6	60,7	20,4	25,5
430	430	21,07	16,86	47,5	59,3	20,4	25,5
440	440	21,56	17,25	46,4	58,0	20,4	25,5
450	450	22,05	17,64	45,3	56,7	20,4	25,5
460	460	22,54	18,03	44,4	55,5	20,4	25,5
470	470	23,03	18,43	43,4	54,3	20,4	25,5
480	480	23,52	18,82	42,5	53,1	20,4	25,5
490	490	24,01	19,21	41,6	52,1	20,4	25,5
500	500	24,50	19,60	40,8	51,0	20,4	25,5
550	550	26,95	21,56	37,1	46,4	20,4	25,5
600	600	29,40	23,52	34,0	42,5	20,4	25,5
650	650	31,85	25,48	31,4	39,2	20,4	25,5
700	700	34,30	27,44	29,2	36,4	20,4	25,5
750	750	36,75	29,40	27,2	34,0	20,4	25,5



### Calculation table for Amistyle BP films

Film width, mm	Qty in 1 km, sq. m.	BP -110	BP -90	BP-60	BP -110	BP -90	BP-60	BP -110	BP -90	BP-60
		weight of 1 km, kg			length in 1 kg, m			qty in 1 kg, sq. m.		
100	100	11,00	9,00	6,00	90,9	111,2	166,7	9,1	11,1	16,7
110	110	12,10	9,90	6,60	82,7	101,1	151,6	9,1	11,1	16,7
120	120	13,19	10,80	7,20	75,8	92,6	138,9	9,1	11,1	16,7
130	130	14,29	11,70	7,80	70,0	85,5	128,3	9,1	11,1	16,7
140	140	15,39	12,59	8,40	65,0	79,4	119,1	9,1	11,1	16,7
150	150	16,49	13,49	9,00	60,6	74,1	111,2	9,1	11,1	16,7
160	160	17,59	14,39	9,60	56,8	69,5	104,2	9,1	11,1	16,7
170	170	18,69	15,29	10,20	53,5	65,4	98,1	9,1	11,1	16,7
180	180	19,79	16,19	10,80	50,5	61,8	92,6	9,1	11,1	16,7
190	190	20,89	17,09	11,40	47,9	58,5	87,8	9,1	11,1	16,7
200	200	21,99	17,99	12,00	45,5	55,6	83,4	9,1	11,1	16,7
210	210	23,09	18,89	12,59	43,3	52,9	79,4	9,1	11,1	16,7
220	220	24,19	19,79	13,19	41,3	50,5	75,8	9,1	11,1	16,7
230	230	25,29	20,69	13,79	39,5	48,3	72,5	9,1	11,1	16,7
240	240	26,39	21,59	14,39	37,9	46,3	69,5	9,1	11,1	16,7
250	250	27,49	22,49	14,99	36,4	44,5	66,7	9,1	11,1	16,7
260	260	28,59	23,39	15,59	35,0	42,8	64,1	9,1	11,1	16,7
270	270	29,69	24,29	16,19	33,7	41,2	61,8	9,1	11,1	16,7
280	280	30,79	25,19	16,79	32,5	39,7	59,5	9,1	11,1	16,7
290	290	31,89	26,09	17,39	31,4	38,3	57,5	9,1	11,1	16,7
300	300	32,99	26,99	17,99	30,3	37,1	55,6	9,1	11,1	16,7
310	310	34,09	27,89	18,59	29,3	35,9	53,8	9,1	11,1	16,7
320	320	35,19	28,79	19,19	28,4	34,7	52,1	9,1	11,1	16,7
330	330	36,29	29,69	19,79	27,6	33,7	50,5	9,1	11,1	16,7
340	340	37,38	30,59	20,39	26,7	32,7	49,0	9,1	11,1	16,7
350	350	38,48	31,49	20,99	26,0	31,8	47,6	9,1	11,1	16,7
360	360	39,58	32,39	21,59	25,3	30,9	46,3	9,1	11,1	16,7
370	370	40,68	33,29	22,19	24,6	30,0	45,1	9,1	11,1	16,7
380	380	41,78	34,19	22,79	23,9	29,3	43,9	9,1	11,1	16,7
390	390	42,88	35,09	23,39	23,3	28,5	42,8	9,1	11,1	16,7
400	400	43,98	35,99	23,99	22,7	27,8	41,7	9,1	11,1	16,7
410	410	45,08	36,88	24,59	22,2	27,1	40,7	9,1	11,1	16,7
420	420	46,18	37,78	25,19	21,7	26,5	39,7	9,1	11,1	16,7
430	430	47,28	38,68	25,79	21,2	25,9	38,8	9,1	11,1	16,7
440	440	48,38	39,58	26,39	20,7	25,3	37,9	9,1	11,1	16,7
450	450	49,48	40,48	26,99	20,2	24,7	37,1	9,1	11,1	16,7
460	460	50,58	41,38	27,59	19,8	24,2	36,2	9,1	11,1	16,7
470	470	51,68	42,28	28,19	19,4	23,7	35,5	9,1	11,1	16,7
480	480	52,78	43,18	28,79	18,9	23,2	34,7	9,1	11,1	16,7
490	490	53,88	44,08	29,39	18,6	22,7	34,0	9,1	11,1	16,7
500	500	54,98	44,98	29,99	18,2	22,2	33,3	9,1	11,1	16,7
550	550	60,48	49,48	32,99	16,5	20,2	30,3	9,1	11,1	16,7
600	600	65,97	53,98	35,99	15,2	18,5	27,8	9,1	11,1	16,7
630	630	69,27	56,68	37,78	14,4	17,6	26,5	9,1	11,1	16,7





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