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Packaging Solutions



AMISTYLE BP-T AND AMISTYLE CP-T FILMS

Process Operating Manual



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1. APPLICATION

This Process Operating Manual describes the procedure for FormShrink packaging (thermoforming and heat-shrinking) of food products with the use of the **AMISTYLE BP-T** and **AMISTYLE CP-T** films.

AMISTYLE BP-T/CP-T 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-T 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-T/CP-T** 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 thermoforming using air evacuation and heat-shrinking in order to prolong the shelf life.

The **AMISTYLE BP-T/CP-T** films are suitable for processing on various types of thermoformers, including ganged up with heat-shrinking stations.

The shelf lives of the food products packaged in the **AMISTYLE BP-T/CP-T** 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-T/CP-T** films provide for:

- excellent sealability of the **AMISTYLE BP-T** and the **AMISTYLE CP-T** films within a wide range of temperatures;
- optimum heat shrinkage, which procures for attractive packages;



- 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 oxygen and water vapor.

Thus, the **AMISTYLE BP-T/CP-T** 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.

Absence of chlorine-containing substances contributes to the environment safety of the **AMISTYLE BP-T/CP-T** films, because disposal of the chlorine-free packaging is more environment-friendly.

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

3. ASSORTMENT

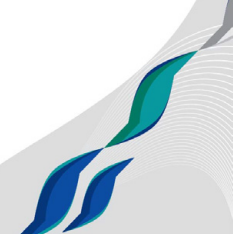
Film	Thickness, μm	Application
Amistyle BP-T-60	60	Bottom film for secondary packaging by the method of thermoforming and heat-shrinking
Amistyle BP-T-90	90	
Amistyle BP-T-130	130	
Amistyle BP-T-90-E	90	Bottom film for secondary packaging, by the method of thermoforming and heat-shrinking, of clipped sausages using the 5 x1 and 5 x2 formats
Amistyle CP-T-45	45	Lidding film for secondary packaging by the method of thermoforming and heat-shrinking
Amistyle CP-T-75	75	

Film width: 200 – 465mm (with 5mm increments).

Colors: clear.

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

Forms of supply: rolls on cardboard cores 76mm in diameter; standard film length in a roll: 500 or 1,000m.



4. FILM PROCESSING TECHNOLOGY

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 is 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-T/CP-T** films shall be made in production rooms meeting the requirements of the applicable food safety regulations and standards.

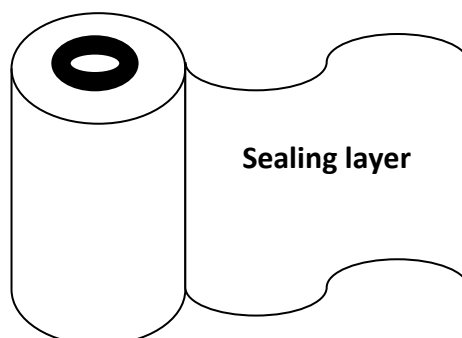
To ensure stability of the packaging process, observe the manufacturer-recommended operating modes for the packaging equipment.

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-T/CP-T** 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-T/CP-T** films includes the following stages:

4.2.1. Forming of a tray from the roll of the AMISTYLE BP-T bottom film

Trays are made automatically by heating of the rolled **AMISTYLE BP-T** 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-T** 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.

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

Forming temperature: 85-105 °C

Film heating temperature: ca. 2-4 s

Film drawing time: 1-2 s

Drawing pressure: 1.5-2.0 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-T** lidding film to seal the trays with simultaneous evacuation of air from the packages. Trays are sealed by means of heat-sealing.

To avoid premature heat-shrinkage of the **AMISTYLE BP-T/CP-T** films in the process of tray sealing, contour sealing plates should be used.

The sealing temperature for the **AMISTYLE BP-T/CP-T** 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.

4.2.5. Heat-shrinking of the finished packages

The food packages are subjected to heat-shrinking in shrink tanks or tunnels by immersion of packages in hot water or exposure to hot water (steam) at a temperature from 85 to 95 oC during 2-3 seconds.

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

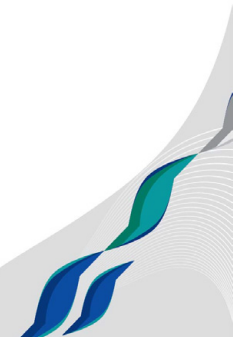
4.3. Transportation and storage of products

The products packaged in the **AMISTYLE BP-T/CP-T** 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-T** 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-T** film is 1 year 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.

Conversion table for the Amistyle CP-T films

Film width	Qty, square meters per 1 km	CP-T-45	CP-T-75	CP-T-45	CP-T-75	CP-T-45	CP-T-75
		Weight of 1-km long film, kg		Qty, length meters per 1 kg		Qty, square meters per 1 kg	
200	200	9,06	15,10	110,4	66,2	22,1	13,2
210	210	9,51	15,86	105,1	63,1	22,1	13,2
220	220	9,97	16,61	100,3	60,2	22,1	13,2
230	230	10,42	17,37	96,0	57,6	22,1	13,2
240	240	10,87	18,12	92,0	55,2	22,1	13,2
250	250	11,33	18,88	88,3	53,0	22,1	13,2
260	260	11,78	19,63	84,9	50,9	22,1	13,2
270	270	12,23	20,39	81,8	49,1	22,1	13,2
280	280	12,68	21,14	78,8	47,3	22,1	13,2
290	290	13,14	21,90	76,1	45,7	22,1	13,2
300	300	13,59	22,65	73,6	44,2	22,1	13,2
310	310	14,04	23,41	71,2	42,7	22,1	13,2
320	320	14,50	24,16	69,0	41,4	22,1	13,2
330	330	14,95	24,92	66,9	40,1	22,1	13,2
340	340	15,40	25,67	64,9	39,0	22,1	13,2
350	350	15,86	26,43	63,1	37,8	22,1	13,2
360	360	16,31	27,18	61,3	36,8	22,1	13,2
370	370	16,76	27,94	59,7	35,8	22,1	13,2
380	380	17,21	28,69	58,1	34,9	22,1	13,2
390	390	17,67	29,45	56,6	34,0	22,1	13,2
400	400	18,12	30,20	55,2	33,1	22,1	13,2
410	410	18,57	30,96	53,8	32,3	22,1	13,2
420	420	19,03	31,71	52,6	31,5	22,1	13,2
430	430	19,48	32,47	51,3	30,8	22,1	13,2
440	440	19,93	33,22	50,2	30,1	22,1	13,2
450	450	20,39	33,98	49,1	29,4	22,1	13,2
460	460	20,84	34,73	48,0	28,8	22,1	13,2
465	465	21,06	35,11	47,5	28,5	22,1	13,2



Conversion table for the Amistyle BP-T films

Film width	Qty, square meters per 1 km	BP-T-60	BP-T-90	BP-T-130	BP-T-60	BP-T-90	BP-T-130	BP-T-60	BP-T-90	BP-T-130
		Weight of 1-km long film, kg			Qty, length meters per 1 kg			Qty, square meters per 1 kg		
200	200	11,88	17,83	25,75	84,2	56,1	38,8	16,8	11,2	7,8
210	210	12,47	18,72	27,04	80,2	53,4	37,0	16,8	11,2	7,8
220	220	13,07	19,61	28,33	76,5	51,0	35,3	16,8	11,2	7,8
230	230	13,66	20,50	29,61	73,2	48,8	33,8	16,8	11,2	7,8
240	240	14,26	21,40	30,90	70,1	46,7	32,4	16,8	11,2	7,8
250	250	14,85	22,29	32,19	67,3	44,9	31,1	16,8	11,2	7,8
260	260	15,44	23,18	33,48	64,8	43,1	29,9	16,8	11,2	7,8
270	270	16,04	24,07	34,76	62,4	41,5	28,8	16,8	11,2	7,8
280	280	16,63	24,96	36,05	60,1	40,1	27,7	16,8	11,2	7,8
290	290	17,23	25,85	37,34	58,1	38,7	26,8	16,8	11,2	7,8
300	300	17,82	26,75	38,63	56,1	37,4	25,9	16,8	11,2	7,8
310	310	18,41	27,64	39,91	54,3	36,2	25,1	16,8	11,2	7,8
320	320	19,01	28,53	41,20	52,6	35,1	24,3	16,8	11,2	7,8
330	330	19,60	29,42	42,49	51,0	34,0	23,5	16,8	11,2	7,8
340	340	20,20	30,31	43,78	49,5	33,0	22,8	16,8	11,2	7,8
350	350	20,79	31,20	45,06	48,1	32,0	22,2	16,8	11,2	7,8
360	360	21,38	32,09	46,35	46,8	31,2	21,6	16,8	11,2	7,8
370	370	21,98	32,99	47,64	45,5	30,3	21,0	16,8	11,2	7,8
380	380	22,57	33,88	48,93	44,3	29,5	20,4	16,8	11,2	7,8
390	390	23,17	34,77	50,21	43,2	28,8	19,9	16,8	11,2	7,8
400	400	23,76	35,66	51,50	42,1	28,0	19,4	16,8	11,2	7,8
410	410	24,35	36,55	52,79	41,1	27,4	18,9	16,8	11,2	7,8
420	420	24,95	37,44	54,08	40,1	26,7	18,5	16,8	11,2	7,8
430	430	25,54	38,33	55,36	39,2	26,1	18,1	16,8	11,2	7,8
440	440	26,14	39,23	56,65	38,3	25,5	17,7	16,8	11,2	7,8
450	450	26,73	40,12	57,94	37,4	24,9	17,3	16,8	11,2	7,8
460	460	27,32	41,01	59,23	36,6	24,4	16,9	16,8	11,2	7,8
465	465	27,62	41,45	59,87	36,2	24,1	16,7	16,8	11,2	7,8

