



ATLANTIS-PAK

Leader In Innovative
Packaging Solutions

Casings 

AMILINE Elite

Process Operating Manual



1. APPLICATION

AMILINE ELITE is a multilayer plastic casing made of polyamide, polyolefin, and an adhesive (modified polyethylene) duly permitted for use in the food industry. The quality of the raw materials used for production of the **AMILINE ELITE** casing is confirmed by Russian and international quality certificates. The distinctive feature of the **AMILINE ELITE** casing consists in the use, in its formula, of polymers with low gas transmission rates, in particular, to oxygen (EVOH). The barrier properties of the **AMILINE ELITE** casing make it possible to manufacture products that preserve, for a long time, their superior consumer properties (freshness, taste, odor, and appearance).

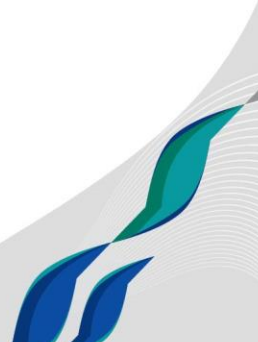
The **AMILINE ELITE** casing is manufactured in accordance with TU 22.21.29-048-27147091-2012 (identical to TU 2291-048-27147091-2012) and designed for production of food with a long shelf life (cooked sausages and hams, liver and blood products, spreads and other products).

The **AMILINE ELITE** casing is intended, above all, for retail trade products sold as whole chubs.

The recommended shelf life of spreads made in accordance with TU 9213-753-00419779-07 in the **AMILINE ELITE** casing is not more than 70 days at the storage temperature from 2 to 6 °C and the air relative humidity of 75%, subject to conformity with the requirements for the sensory, physico-chemical, and safety parameters specified in the regulatory and technical documentation, compliance with the industrial hygiene standards, and positive test reports.

The water vapor and oxygen transmission rates of the **AMILINE ELITE** casing allow extension of the recommended shelf life for cooked sausages made by the traditional thermal processing methods (pasteurization) to 90 days.

The shelf life of the products made by the traditional thermal processing methods (pasteurization) can be extended to 90 days.



2. PROPERTIES AND ADVANTAGES

- 1. High rupture strength** is important in cases where the chubs are molded with the use of high-capacity automatic or semi-automatic clippers.
- 2. Caliber uniformity** plays an important role in the production of portion products with a fixed weight.
- 3. Low permeability to oxygen** inhibits the processes of oxidation of fats and vitamins, and forms the basis for microbiological stability of products with a long shelf life.
- 4. Low permeability to water vapor** provides the following advantages of the casing:
 - zero losses during the thermal processing and storage of meat and sausage products, and an excellent selling appearance (no wrinkles) of the finished products throughout the shelf life;
- 5. The casing is immune to microbiological damage**, since the materials used to make the **AMILINE ELITE** casing are inert to the action of bacteria and mold fungi. This facilitates storage of the casing and improves the hygienic characteristics of both the casing itself, and of the sausage production.

The technical characteristics of the **AMILINE ELITE** casing can be found in the product specification and in TU 22.21.29-048-27147091-2012 (identical to TU 2291-048-27147091-2012).

3. ASSORTMENT

The **AMILINE ELITE** casing is supplied in three versions:

AMILINE ELITE – the recommended overfilling of the casing relative to the nominal caliber is 12-15%.

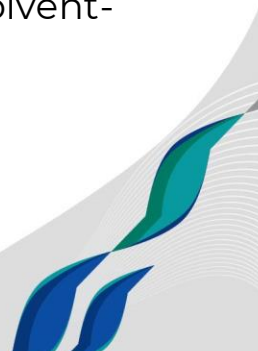
AMILINE ELITE-K – the recommended overfilling of the casing relative to the nominal caliber is 4-6%.

AMILINE ELITE-Ks – the recommended overfilling of the casing relative to the nominal caliber is 8-10%, and the casing peels in spiral.

Casing calibers: 29 – 120 mm.

Colors of the **AMILINE ELITE** casing: as per Catalogue of Colors.

The casing can be used for single- or double-sided multicolor or CMYK printing with the use of UV-cured inks or volatile solvent-based inks.



Printing is made by the flexographic method, the inks are resistant to boiling, grease and mechanical damage.

The casing can be supplied in:

- rolls;
- R2U shirred sticks;

4. CASING USE TECHNOLOGY

4.1. Storage and transportation of the casing

4.1.1. The casing must be stored in the original packing in dry, clean, and cool rooms (at a temperature from 5 to 35 °C and relative humidity of the air not more than 80%) in conformity with the sanitary/hygienic standards for the meat processing industry.

4.1.2. It is recommended to open the manufacturer's packing just immediately before processing of the casing.

4.1.3. During transportation and storage, the casing should not be exposed to high temperature or direct sunlight.

4.1.4. If the casing has been stored at a temperature below zero, then prior to use hold it at the room temperature for at least 24 hours.

4.1.5. Never drop the boxes with casings or subject them to impacts.

4.1.6. Throughout the technological cycle it is important to protect the casing from damage.

4.1.7. Transportation of the casing should be carried out at temperatures not exceeding +40 ° C, direct sunlight is not allowed.

4.2. Preparation of the casing for use

To impart elasticity to the casing and provide for uniform stuffing, pre-soak the **AMILINE ELITE** casing in drinking water (SanPin 2.1.4.1074-01 'Potable Water. Hygienic Requirements for the Quality of Water in Centralized Potable Water Supply Systems. Quality Control. Hygienic Requirements for Safety of Hot Water Supply Systems') at a temperature of 25 – 30 °C.

Water must penetrate the tube and wet both the external and the internal surface of the casing.

Unshirred casings must be cut into sections of required length before soaking. Keep the spool vertical throughout the unwinding to avoid damaging the ends.



Soak shirred casings without removing the net.

Casing soaking time:

- not less than 30 minutes for casings cut into lengths;
- not less than 60 minutes for shirred casings.

If too much casing was soaked, remove it from water, drain the excessive water and leave the casing in the wet condition, away from any sources of heat or air draughts; on the next day, soak the casing again before processing.

Never soak the casing in hot water, because this may start a process of uncontrolled longitudinal and transverse shrinkage leading to reduction of the length and caliber of the casing.

4.3. Preparation of the emulsion

The composition of the emulsion for production of boiled sausages, hams, spreads, liver sausages and other products shall be performed in accordance with the regulatory documents for these products, based on the moisture resistance properties of the casing.

4.4. Molding of sausage products

The **AMILINE ELITE** casing is intended for use on automatic or semi-automatic filling and clipping equipment.

To avoid causing damage to the casing, make sure that there are no burrs on the contacting parts of the equipment.

Never puncture the chubs (perforate the casing). The casing will rupture, if punctured.

During the molding of sausage products, avoid trapping of air in the casing.

Bear in mind that the stuffed caliber of sausages is adjusted by varying of the brake ring compression force, and that the difference between the nominal caliber and the stuffed caliber depends not only on the properties of the casing itself, but also on the consistence and temperature of the emulsion, the stuffing pressure, and the conditions of cooling after the thermal processing.

The clips used must provide for secure holding of the chub ends, without damaging the casing. To ensure the secure fastening of the clips, adhere to the recommendations on the use of the clips (see Table 1)

Table 1

Recommended clip types

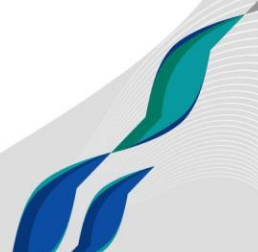
Caliber	POLY-CLIP		TECHNOPACK		COMPO	ALPINA	Corundum
	Clip interval 15 interval 18	Clip series S	Clip series E	Clip series G	Clip series B	Clip interval 15 interval 18	Clip
29 - 45	12-6/4×1,25 15-7/5×1,5 18-7/5×1,75	624 628 735	210 410	175	B1, BP1 B2, BP2	12-6/4×1,25 15-7/5×1,5 18-7/5×1,75	XE 210 2,5×13,6×14
45-55	15-7/4×1,25 15-7/5×1,5 18-7/5×1,75	628	210 212	175	B1, BP1 B2, BP2	15-7-5×1,5 18-7-5×1,75	E210 2,5×13,6×14
55 - 60	15-7/5×1,5 15-8/5×1,75 18-7-5×1,75	628 632 735	212 410	175 370	B2, BP2	15-7-5×1,5 15-8-5×1,75 18-7-5×1,75	E 212 E 220 2,5×13,6×14
65-70	15-7/5×1,5 15-8/5×1,75 18-7/5×1,75	628 632 735	212 410	175 370	B2, BP2	15-7-5×1,5 15-8-5×1,75 18-7-5×1,75	E 212 E 220 2,5×13,6×14
75-80	15-8/5×1,5 15-8/5×1,75 15-9/5×1,75 18-9/5×2,0	632 638 735 844	212 222 410	175 200 370	B2, BP2 B3, BP3	15-8-5×1,75 15-9-5×1,75 18-9-5×2,0	E 222 2,5×13,6×14 2,5×13,6×15
85-100	15-9/5×1,5 15-10/5×2,0 18-9/5×2,0 18-10/5×2,5	632 638 740 844	222 410	200 370 390		15-9-5×1,5 15-10-5×2,0 18-9-5×2,0 18-10-5×2,5	E 222 2,5×13,6×15 2,5×13,6×16
105-120	15-10/5×2,0 15-11/5×2,0 18-10/5×2,5 18-11/5×2,0	740 744 844	222 232 410 420	200 225 370 390		15-10-5×2,0 15-11-5×2,0 18-10-5×2,5 18-11-5×2,0	E 222 2,5×13,6×15 2,5×13,6×16

Note. The POLY-CLIP FCA, TIPPER TIE TT1815, TT1512, SVF 1800 and COMPO KH-501 clippers use blocks, each of which corresponds to a certain clip type indicated in the Table. In order to determine whether the clip matches the block, see recommendations of the manufacturer and the technical description of the clipper.

4.5. Thermal processing

Thermal processing of pasteurized products in the **AMILINE ELITE** casing consists in cooking and cooling. The stages of drying of the casing and roasting can be excluded from the process.

Thermal processing of sausages can be carried out in heat chambers of various types, and in stationary boiling cauldrons.



4.5.1. Cooking

When processing in heat chambers, it is recommended to use either staged cooking, or delta cooking. In either case, it is recommended to start cooking at a temperature of 50 – 55 °C to trigger the coloring reactions. A higher starting temperature may lead to stratification of the batter emulsion and color defects (grey rings).

Staged cooking consists in step-by-step raising of the temperature in the heat chamber, as the temperature in the center of the product reaches the temperature of the heating medium. The number of 'steps' is determined by the product diameter– the greater the caliber, the greater is the number of the steps. The first stages consist in heating at moderate temperatures – 50, 60, 70 °C to ensure slow coagulation of proteins and distribution of heat throughout the volume. The last stage is bringing of the product to cooking readiness (72 °C in the chub core during 10 - 15 minutes).

Delta cooking creates more favorable conditions for uniform heating of sausages. The difference between the chamber temperature and the product temperature in the beginning of the process is 15 – 20 °C, reducing to 5 - 8 °C by the end of the process. Delta cooking in production conditions requires a longer heating, but yields higher quality products. The duration of cooking depends on the cooking readiness point of the product (72 °C in the chub core during 10 - 15 minutes).

For cooking in cauldrons it is recommended to:

- load the chubs in the water at the temperature of 55 – 60 °C, in order to prevent the uncontrollable shrinkage and deformation of the chubs;
- keep the sausages underwater, and move them for uniform cooking;
- before loading each new batch of sausages, reduce the water temperature in the cauldron to 60°C.

4.5.2. Cooling

Upon completion of the cooking process, the sausages must be immediately cooled. The first stage of cooling is spraying with cold water (time-delayed sprayers may be used) to bring the chub core



temperature down to 25 - 35° C. After spraying, the sausage must be air-dried before putting it into a cold store.

4.6. Transportation and storage of sausages

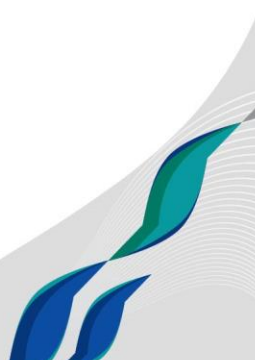
Transportation and storage of sausage products manufactured with the use of the casing **AMILINE ELITE** shall be in accordance with the regulatory documentation for these products.

5. MANUFACTURER'S GUARANTEES

5.1. The Manufacturer guarantees conformity of the casing with the Specification requirements subject to compliance with the required conditions of transportation and storage at the user's warehouse, and preservation of the integrity of the original packing.

5.2. The shelf life of the casing is 3 years from manufacture to the moment of use.

5.3. The shelf life of the R2U casing is 6 months from manufacture to the moment of use.





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