



**ATLANTIS-PAK**

Leader In Innovative  
Packaging Solutions

**Casings** 

# AMILINE Elite

Process Operating Manual



## 1. APPLICATION

The **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** is the use, in its formula, of polymers (EVOH) with a low permeability to gases, in particular, oxygen. 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 the Specifications TU 22.21.29-048-27147091-2012 (equivalent to TU 2291-048-27147091-2012) and is designed for production of foodstuffs with a long shelf life (cooked sausages and hams, liver and blood sausages, spreads and other products).

The **AMILINE ELITE** casing is intended, above all, for retail sale of 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%, based on positive test reports and subject to compliance with the requirements for the sensory, physico-chemical, and safety parameters specified in the regulatory and technical documentation, and the applicable industrial hygiene standards.

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) up to 90 days.

## 2. PROPERTIES AND ADVANTAGES

**1. High tensile strength** is important when the chubs are formed with the use of high-capacity automatic or semi-automatic clippers.

**2. Caliber consistency** plays an important role in the production of fixed-weight portioned products.



**3. Low permeability to oxygen** inhibits the processes of oxidation of fats and vitamins, and provides for microbiological stability of products with a long shelf life.

**4. Low permeability to water vapor** ensures 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 resistant to microbiological damage**, since the materials used to make the **AMILINE ELITE** are impervious to bacteria and mold fungi. This facilitates storage of the casing and improves the hygienic characteristics of both the casing itself, and of the production site.

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

### 3. ASSORTMENT

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

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

Casing caliber: 29 – 120mm.

**AMILINE ELITE-Kc:** the recommended overfilling of the casing relative to the nominal caliber is 8 - 10%, and this casing is spirally peelable.

Casing caliber: 29 – 80mm.

Colors of the **AMILINE ELITE** casing: see the Catalogue of Colors.

The casing can be used for single- or double-side single-color, multicolor or CMYK printing with UV-cured or volatile solvent-based inks.

Printing is applied by the flexographic method. The inks are resistant to boiling, fats, and mechanical impacts.

Forms of supply:

- reels;
- sticks of shirred casing;
- R2U sticks of shirred casing

## 4. HOW TO USE THE CASING

### 4.1. Storage and transportation of the casing

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

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

4.1.3. During storage and transportation, do not expose the casing to high temperatures or direct sunlight.

4.1.4. If the casing was stored at a subzero temperature, then prior to processing hold it in its original packing at 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 entire technological cycle take care not to damage the casing.

4.1.7. The casing must be transported at temperatures not exceeding +40 °C and protected against direct sunlight.

### 4.2. Preparation of the casing for processing

To impart elasticity to the casing and provide for uniform stuffing, pre-soak the **AMILINE ELITE** casing in potable 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. Do not use water of a higher temperature to avoid uncontrollable shrinkage of the casing and reduction of its length and caliber.

Water must penetrate inside the tube and wet both the outer and the inner surface of the casing.

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

The shirred casing should be soaked 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, take it out, drain the excessive water and leave the wet casing away from any sources of heat or air draughts. On the next day, re-soak the casing before processing.

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

### **4.3. Preparation of the forcemeat**

The forcemeat for cooked sausages, hams, spreads, liver sausages or other products shall be prepared in accordance with the regulatory documents for such products, depending on the moisture permeability of the casing.

### **4.4. Forming of sausages**

The **AMILINE ELITE** casing is suitable for automatic or semi-automatic stuffing and clipping equipment.

To avoid damaging the casing, make sure that there are no burrs on the equipment parts in contact.

***Never prick the chubs (puncture the casing). The casing will burst, if punctured.***

When forming sausages, take care to stuff the casing without any air trapped inside.

Bear in mind that the stuffed caliber of sausages can be adjusted by varying 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 consistency and temperature of the emulsion, the stuffing pressure, and the conditions of cooling after thermal processing.

The rate of overfilling of the **AMILINE ELITE-K** casing relative to the nominal caliber should be 4 - 6% on the average.

The rate of overfilling of the **AMILINE ELITE-Kc** casing relative to the nominal caliber should be 8 - 10% on the average.

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

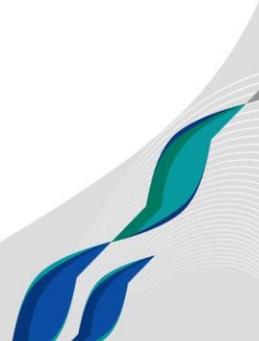
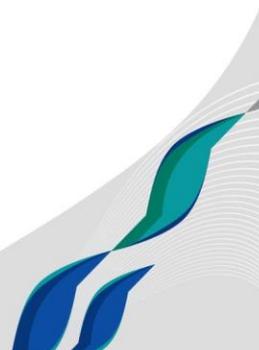


Table 1

## Recommended clip types

Caliber	POLY-CLIP		TECHNOPACK		COMPO	TIPPER TIE	CORUND
	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 2.5×13.6×1 4
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 2.5×13.6×1 4
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 2.5×13.6×1 4
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 2.5×13.6×1 4
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 2.5×13.6×1 4 2.5×13.6×1 5
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 2.5×13.6×1 5 2.5×13.6×1 6
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 2.5×13.6×1 5 2.5×13.6×1 6

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 the manufacturer's recommendations and the technical description of the clipper.



## 4.5. Thermal processing

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

Thermal processing of sausages can be made in heat chambers of various types, or in stationary boiling cauldrons.

### 4.5.1. Cooking

When treating in heat chambers, use either staged cooking, or delta cooking. In either case, start cooking at the temperature of 50 – 55 C to trigger the coloring reactions. Higher starting temperatures may cause stratification of the 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 core of the product reaches the temperature of the heating medium. The number of 'stages' is determined by the product diameter– the greater the caliber, the greater is the number of stages. The first stages consist in heating at moderate temperatures – 50, 60, 70 °C to ensure a slow coagulation of proteins and redistribution of heat throughout the volume. The last stage is bringing of the product to consumption readiness (72 °C in the chub core during 10 - 15 minutes).

**Delta cooking** provides more favorable conditions for uniform heating of sausages. The difference between the chamber temperature and the product temperature in the beginning of the process should be 15 – 20 °C, decreasing 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 consumption 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 to avoid any uncontrollable shrinkage and deformation of the chubs;
- keep the sausages underwater and move them for uniform cooking;

- before loading of each new batch of sausages, decrease 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 moving it into a cold store.

#### **4.6. Transportation and storage of sausages**

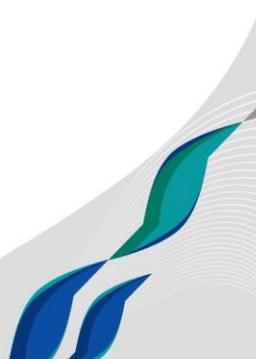
Transportation and storage of sausages in the **AMILINE ELITE** casing shall be in accordance with the regulatory documentation applicable to such products.

### **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 the date of manufacture to the start of processing.

5.3. The shelf life of the R2U casing is 6 months from the date of manufacture to the start of processing.





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