



**ATLANTIS-PAK**

Leader In Innovative  
Packaging Solutions

**CASINGS** 

# AMISMOK KS

Process Operating Manual



## 1. APPLICATION

The **AMISMOK KS** casing is designed for production of processed sausage-shaped cheeses made by technological processes that involve the stage of smoking.

The **AMISMOK KS** casing is made according to the Specifications TU 2290-005-27147091-98 from blends of high-quality synthetic and natural materials.

The **AMISMOK KS** casing is covered by the Sanitary-Epidemiological Report No. 61.ПЦ.10.229.П.000143.01.09 of 15 Jan. 2009 issued by the Federal Consumer Rights and Human Well-Being Supervision Agency.

In accordance with GOST R 52685-2006, processed cheeses must be stored at the temperature of  $2\pm 2$  °C and air relative humidity not higher than 85%. The shelf life of processed cheeses shall be fixed by the manufacturer in accordance with SanPiN 2.3.2.1324-2003 and approved in the prescribed manner.

## 2. ADVANTAGES OF PRODUCT

### 2.1. Advantages of he casing

- 2.1.1. Smoke permeability** makes it possible to impart to the products a smoked taste and flavor, and contributes to formation of the smoked crust and glossy surface.
- 2.1.2. Caliber consistency** makes it possible to produce chubs of standard sizes, including preset-weight chubs, when automatic equipment is used.
- 2.1.3. High mechanical strength** of the casing makes it possible to mold the chubs not only by manual tying, but also with the use of high-capacity clipping equipment of various types.
- 2.1.4. High elasticity** of the casing makes it possible to overfill the **AMISMOK KS** casing relative to the nominal caliber, thus reducing the specific consumption of the casing per unit of product .
- 2.1.5. Low permeability to oxygen and water vapor** compared with cellulose films and protein casings makes it possible to extend the shelf life of the finished products
- 2.1.6. High heat resistance** makes it possible to carry out smoking at higher temperatures in comparison with the cellulose films and protein casings
- 2.1.7. No microbiological degradation**, because the polymers used for production of the casing are impervious to microorganisms.

## 3. ASSORTMENT OF PRODUCTS

The available calibers for the **AMISMOK KS** casing are 29 to 90mm.

The casing colors are selected in accordance with the catalogue: brown, salmon, claret, light smoke, smoke, light brown, light brown 1, dark brown, orange, cream, clear.

The casing is suitable for single- or double-side printing. The number of print colors varies from 1 to 6; the options include CMYK printing with permeable inks, and self-adhesive labels.



The **AMISMOK KS** casing is supplied in 1000m reels or in 38m or 50m shirred strands in sticks.

Special services can be ordered:

- shirring: sticks with a loop under the rear clip;
- bespoke length of the stick or casing.

## **4. HOW TO USE THE CASING**

### **4.1. Storage and transportation of the casing**

4.1.1 The casing must be stored in the original packing in closed dry and clean rooms conforming to the sanitary-hygienic standards for the relevant sector of the food industry, at a distance of not less than 1m from heating devices, and in the absence of any strong-smelling or corrosive substances, at a temperature not exceeding 25 °C and the air relative humidity not more than 50-60%.

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

4.1.3 Open the manufacturer's packing just before processing of the casing. If the integrity of the manufacturer's packing is compromised during storage, exclude any possibility of premature humidification (wetting) of the casing during the subsequent storage, since it may cause adhesion of the casing in the process of drying and rupture during the processing.

4.1.4 If the casing was transported or stored at a temperature below zero, then prior to use hold it at room temperature for not less than 24 hours .

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

4.1.6 Never stack casing reels without cardboard spacers between the reel ends.

### **4.2. Preparation of the casing for processing**

Preparation of the **AMISMOK KC** casing for processing consists in the following:

Bring the casing to the production shop from the store room, put it on a dry surface (floor, table), then open the manufacturer's packing immediately before use of the casing.

The casing is supplied ready to use, i.e. no pre-soaking is needed for stuffing.

### **4.3. Cheese mass composition**

The composition of the cheese mass and the sequence of operations for the production of smoked processed sausage-shaped cheeses shall be in accordance with the applicable regulatory documents: GOST R 52685 or Specifications (TU).



#### 4.4. Forming of sausage-shaped cheeses

The **AMISMOK KC** shirred casing in sticks is best suited for stuffing with hot cheese mass.

Start the use of the **AMISMOK KS** casing with inspection the equipment and the work table.

Make sure that there are no burrs on the equipment parts, or sharp objects, indentations, or rough areas on the working surface of the table, in order to avoid damage to the casing.

The **AMISMOK KS** casing is equally suitable for manual tying of chubs, and for the automatic and semi-automatic clipping equipment.

Never prick (puncture) the casing of frankfurters and wieners. The casing will burst, if punctured.

To obtain smooth-surface chubs of processed sausage-shaped cheese without wrinkles or folds, it is recommended to overfill the casing with the cheese mass by 10-15% relative to the nominal caliber of the casing. Thus, when the 45mm nominal caliber casing is used, the recommended stuffed caliber should be 50.0 - 52.0mm. This provides for the desired appearance of the finished product and reduction of the specific consumption of the casing per unit of product.

If the ends of the chub are clipped, follow the recommendations on the use of the clipping equipment for secure fastening of the clips (see Table below).

#### Recommended clip types

Caliber	POLY-CLIP		TECHNOPACK		COMPO	ALPINA
	Clip interval 15 Interval 18	Clip series S	Clip series E	Clip series G	Clip series B	Clip interval 15 Interval 18
29-65	15-07/4*1.25 15-07/5*1.5 15-07/5*1.75 18-07/5*1.5 18-07/5*1.75	524 528 625 628	210 410	175 370	B1 BP1	15-07/5*1.5 15-07/5*1.75 18-07/5*1.5 18-07/5*1.75
70-90	15-08/5*1.5 15-07/5*1.75 18-07/5*1.5 18-07/5*1.75	628 632	212 220 410	175 200 370	BP2 B2	15-08/5*1.5 15-07/5*1.75 18-07/5*1.5 18-07/5*1.75

In case of manual tying of cheese chubs, pay special attention to the quality of the tying material, and pre-soak the string, whenever necessary, to soften the hard inclusions and prevent damage to the casing.

#### 4.5. Thermal processing

Choose the smoking conditions based on the following.

Never smoke wet chubs. Smoking of wet chubs makes the products look opaque, dull, sometimes spotty. After forming, it is recommended to cool the products down to the temperature of 30 °C on the surface of the chub (approximately 4-5 hours from filling of the casing with the cheese



mass). This is the best way to prepare the chub surface for subsequent smoking.

The stage of drying precedes smoking. The drying temperature may vary from 50 to 55 °C during 15 - 20 minutes at the air relative humidity less than 50%. As the drying cycle progresses, the temperature is gradually raised to 65 - 75 °C.

This stage is followed by smoking. To achieve the best quality of the product and the stronger smell, smoking should be carried out in a heat chamber at a temperature above 70 °C.

To obtain the characteristic crust on the finished product, smoking should be combined with air circulation for uniform distribution of moisture in the heat chamber and the most effective evaporation of moisture off the surface of the cheese chub.

For the selection of the mode (program) of smoking, consider not only the sensory characteristics, but also the adhesion of the casing to the cheese mass, and peelability. The combination of excessive temperatures (80 - 90 °C) and very low humidity (20%) may lead to poor peelability of the finished product.

The duration of smoking and the optimum humidity will depend on the type of the smoking unit. The higher is the smoke density in the unit, the shorter is the smoking time (from one to several hours).

Adjustment of the temperature, humidity, and duration of the smoking process makes it possible to vary the thermal processing losses, the color, and the taste of the product.

### **Thermal processing in stationary shaft-type smoking chambers**

The conventional hot-smoking chambers have no control systems. The smoke mixture rises in parallel to the product surfaces, i.e. in the most unfavorable direction. Therefore, the velocity of the mixture must be rather high to form turbulent flows. But as the smoke flow velocity increases, more smoke will escape from the chamber and the smoke density will be insufficient to form the smoke crust, flavor and taste. The optimal smoking velocity is 0.12 – 0.25 m/s.

We recommend the following smoking mode for caliber 50mm smoked sausage cheeses:

<b>Process stage</b>	<b>Temperature, °C</b>	<b>Stage duration, min..</b>
Drying	50-55	20-40
Smoking	65	30
Smoking	70	30
Smoking	75	40

### **Smoking in universal heat chambers**

The optimal heat treatment conditions are achieved in programmable hot smoking units.

The universal heat chambers provide for easy control of all process parameters: humidity, smoke intensity, and temperature.



Smoking in the universal heat chambers can be achieved by means of:

- smoke and air mixture (convection smoking);
- steam and smoke mixture, when the steam is heated to the desired temperature and passed through wet sawdust;
- spraying of liquid smoke.

All these methods can yield good results. However, the latest studies have shown that the smoke produced by smoldering sawdust greatly varies in its qualitative composition, depending on the smoke generation temperature, the stack draft, which in its turn depends on the atmospheric conditions, and on the temperature and humidity of the inlet air. The amount of moisture contained in the smoke is critically important.

At present the experts think that steam smoking or spraying of liquid smoke is better than convection smoking, for a number of reasons:

- first, such smoking ensures a stable composition of the smoke, and reduced content of harmful substances, such as benzpyrenes;
- second, the way that the smoking substances penetrate the surface of the casing (dissolved) is more effective than during convection smoking;
- third, lower temperatures can be used, and the thermal processing time can be reduced, since steam transfers heat several times faster than air. The result is reduced losses due to evaporation of moisture off the surface of the product;
- fourth, weight losses become lower, because the atmosphere is saturated with steam.

However, steam smoking requires a longer drying stage to give the time for the formation of the characteristic crust on the surface of the product.

### **Convection smoking**

Convection smoking is the most common method of sausage cheese smoking. The first stage, which is drying, can be divided into two sub-stages - preheating, and drying proper with the temperature being gradually raised from 55 to 65 °C, at the relative air humidity less than 50%. The drying lasts 30 - 40 minutes (another option is preheating during 15 - 20 minutes followed by 15 - 20 minutes of drying). At this stage coagulation of the surface proteins occurs with release of moisture, therefore it is desirable to use exhaust ventilation to maintain the humidity gradient between the product and its environment.

The next stage is smoking at a temperature of about 65-70 °C and the relative air humidity of 40-60% with the exhaust ventilation running, because the product still releases moisture. The duration of smoking should be at least 40-60 minutes at the maximum smoke intensity.

Any parameter of this process can be varied, depending on which is the more preferable - formation of the characteristic colored crust, or reduction of losses during the thermal processing.





#### **4.6. Storage of finished products**

Transportation and storage of cheese products manufactured with the use of the **AMISMOK® KC** casing shall be in accordance with the relevant regulatory documents (GOST, TU).

To prevent moisture losses during storage, it is recommended to use secondary packaging in the form of a polyethylene insert bag inside the corrugated box (a suitable insert is the bag for butter pieces). This will significantly reduce the cheese dry-up losses during the standard shelf life for the finished product, and keep the secondary packaging costs to the minimum.

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

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.

The guaranteed shelf life of the casing is 2 years from the date of manufacture, subject to integrity of the manufacturer's packing.





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