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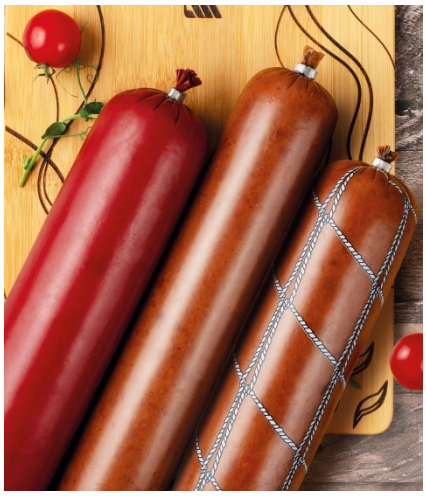
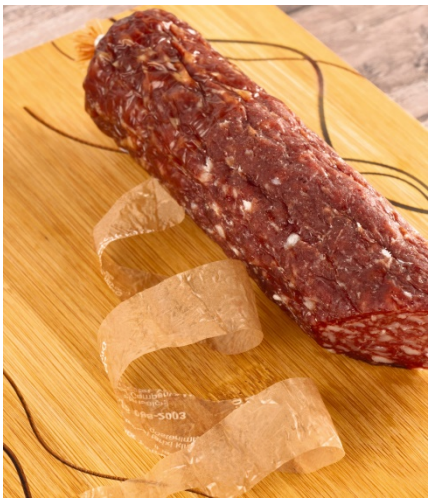
Casings FIBROCEL

FIBROCEL

Process Operating Manual





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1. APPLICATION

The **FIBROCEL** casing is intended for the production, packaging, storage and sale of semi-smoked, cooked-and-smoked, raw-smoked and air-dried sausages.

The **FIBROCEL** casing is made with a proprietary formulation from polyamides and pigments duly permitted for use in the food industry. The quality of the raw materials used to manufacture the casing is confirmed by Russian and international quality certificates.

The **FIBROCEL** casing complies with the requirements of the Technical Regulation of the Customs Union 005/2011 (Safety of Packaging) as confirmed by duly approved and registered declarations of conformity.

The production, use, storage and transportation of the casing pose no hazard for the environment or human health.

2. CONSUMER PROPERTIES AND ADVANTAGES

2.1. Advantages of the FIBROCEL casing

2.1.1. The smoke-permeable **FIBROCEL** casing allows roasting and smoking, which imparts to the products the traditional pleasant taste and flavor of smoke, and contributes to the formation of a coagulated protein crust and glossy surface of the product under the casing.

2.1.2. The high mechanical strength of the **FIBROCEL** casing makes it possible to use high-capacity automatic and semi-automatic clippers to ensure a high production rate and product shape consistency.

2.1.3. The high elasticity of the casing makes it possible to overfill the **FIBROCEL** casing by up to 15%.

2.1.4. The high oxygen barrier properties compared with collagen and viscose-reinforced casings provide for the following advantages:

– reduction of oxidation processes, in particular, rancidification of fats;

– preservation of the individual flavor of spices in the finished products throughout the shelf life, regardless of whether secondary packaging is used.

2.1.5. The high heat resistance of the polymers used for production of the **FIBROCEL** casing significantly extends the temperature range of processing of this casing in comparison with collagen and viscose-

reinforced casings. The casing is not only stable at high smoking temperatures (up to 75-78 °C), but is also resistant to prolonged effect of such temperatures.

2.1.6. The microbiological resistance of the **FIBROCEL** casing is due to the use of polymers impervious to bacteria and mold fungi. This improves the hygienic characteristics of both the casing, and the finished products.

2.1.7. Spiral peelability facilitates removal of the casing off the product by the end user, and preserves the good appearance of the sliced sausage at the selling outlets – there is no "run" along the chub.

2.2. Basic characteristics of the FIBROCEL casing

Table 1 – Assortment of the FIBROCEL casings

Casing description and type	Casing caliber, mm	Characteristics
Fibrocel	45 - 120	Opaque permeable casing with an increased thickness for forming of semi-smoked, cooked-and-smoked, raw-smoked and air-dried sausages

Colors of the **FIBROCEL** casings: clear, smoke, light smoke, red, cherry, mahogany-1, mahogany, orange 10, salmon, light brown, pink.

The color range of the casing is subject to change.

The **FIBROCEL** casing can be used for single- or double-side printing. The number of print colors is 1 + 1. The only printing options available are bleed printing or printing of elements without any semantic charge (no text).

Forms of supply of the **FIBROCEL** casing:

– reels on cardboard cores: 500m±2% or 1000m±2% (only 500m±2% for printed casing);

– 'sticks' of shirred casing, each stick containing a string of 31m.

Orders are also accepted for the following options:

– sticks with a loop under the rear clip;

– bespoke (upwards only) stick or casing length;

– bespoke calibers.

3. HOW TO USE THE CASING

3.1. Storage and transportation of the casing

3.1.1. The casing must be stored in its 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 no less than 800mm from any heaters, in the absence of strong-smelling or corrosive substances, at a temperature from 5 °C to 35 °C, and the air relative humidity not exceeding 80%.

3.1.2. It is recommended to protect the casing at storage and during transportation against exposure to direct sunlight or high temperatures.

3.1.3. Open the manufacturer's packing just before processing of the casing.

3.1.4. If the casing was stored at a subzero temperature, then prior to use hold it in its original packing at room temperature during no less than 24 hours.

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

3.2. Preparation of the casing for processing

Preparation of the casing for processing consists in the following:

Bring the casing in a suitable container from the store to the production room and put it on a dry surface (floor, table); open just before the processing.

Pre-soak in potable water only. Do not use hot water for soaking, otherwise the casing may shrink even at soaking.

Casing supplied in reels should be cut into sections of required length before soaking. When sticks of shirred **FIBROCEL** casing are used, take care to keep the sticks completely underwater. Water must freely penetrate inside the tube, driving out the air.

Pre-soak the casing for 1-3 minutes just before stuffing and forming. The water temperature should be 20-25 ^{0}C.

Never soak the casing in warm or hot water (above 25 ^{0}C). Failure to comply with the specified soaking time and temperature will result in changes in the casing characteristics and impede the use of the casing.

After pre-soaking, drain the residual water from the tube and put the casing over the stuffing horn.

The casing has a high elasticity, which substantially facilitates the process of stuffing and provides for uniform filling of the chub along its entire length.

3.3. Preparation of the forcemeat

When semi-smoked or cooked-and-smoked sausages are made with the use of the **FIBROCEL** casings in accordance with GOST or other regulatory documents (Specifications), the moisture content of the minced meat may remain the same as for the collagen and viscose-reinforced casings.

When new recipes are developed according to the regulatory documentation (Specifications), the quantity of the added water should be determined with regard to the moisture-retaining properties of the gelling agents used (such as carrageenans, plant proteins, animal proteins, milk proteins, etc.), and the relevant instructions on use must be followed to avoid formation of water and fat pockets.

3.4. Forming of sausage products

Forming of the **FIBROCEL** casings should start with inspection of the equipment and the work table.

To prevent any damage to the casing, 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.

Avoid any friction of the end parts of the reel against various uneven surfaces in the processing of the casing.

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

The **FIBROCEL** casings should be stuffed with an up to 15% overfilling rate depending on the forcemeat temperature and consistency.

Compliance with the recommended stuffed caliber ensures a good appearance of the finished products, increases the stuffing capacity, and reduces the risk of water and fat pockets.

The clip used must securely hold the ends of the chub, without damaging the casing (see Table 2 below).

Table 2 – Recommended clip types

Caliber	POLY-CLIP			ALPINA	TECHNOPACK		KOMPO
	Clip step 15 step 18	Clip series S	R-ID Clip	Clip step 15 step 18	Clip series E	Clip series G	Clip series B, BP
45 - 50	15*8/5*1,75 18*7/5*1.75	628 735	M07-150 M08-175 L07-150	15*8/5*1.75 18*7/5*1.75	210 410	175 370	B 2, BP 2
55 - 60	15*9/5*2 18*9/5*2	628 632 735	M07-150 M08-175 L07-150	15*9/5*2 18*9/5*2	210 410	175 370	B 2, BP 2
65 - 70	15*9/5*2 18*9/5*2	628 632 735	M08-150 L07-150	15*9/5*2 18*9/5*2	210 220 410	175 370	B 2, BP 2
75 - 80	18*9/5*2.0 18*10/5*2.5	632 638 735 844	M09-175 L09-200	18*9/5*2.0 18*10/5*2.5	220 410 420	175 200 370	B 2, BP 2 B3, BP3
85 - 100	18*10/5*2.5	740 844	M10-200 L09-200 L10-250	18*10/5*2.5	220 420	200 370	B3, BP3
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	-	-	220 230 420	200 225 370 390	-

3.5. Thermal processing

Thermal processing of all types of semi-smoked and cooked-and-smoked sausages in the **FIBROCEL** casings produced with the use of technologies that involve smoking (smoke roasting) is performed in universal heat chambers.

The manufacturers should choose their individual thermal processing modes, because the equipment capacity is all important in this process.

We recommend the classical thermal processing, which includes the stages of settling (4 -12 hrs), reddening (heating of the product), drying (color formation), smoking, and cooking.

Heating should start at the temperature of 50 - 55 °C. As the cycle progresses, the temperature is gradually raised to 60 - 65 °C. At this stage coagulation of the emulsion proteins occurs, and the 'protein crust' is formed.

The next stage is smoking at the temperature of 70 - 75 °C. At this stage the crust is consolidated and colored with the smoke components.

Then the product is cooked at the air humidity of 100% and the temperature of 75 - 80 °C until ready for consumption.

After completion of the cooking process, it is recommended to carry out a short drying during 5-10 minutes at the temperature of 65 °C.

The process of drying and smoking significantly influences the quality of the finished product. By adjusting the temperature, the smoking moisture content, and the duration of these stages, the thermal processing weight losses, the crust thickness, the color and the taste of the product can be controlled.

The best thermal processing conditions are achieved when programmable units are used for drying, smoking, cooking and cooling.

Examples of thermal processing modes for semi-smoked sausages are shown below.

Example 1 (see Table 3 below).

Table 3 – Thermal processing mode in a Maunting heat chamber (stuffed product diameter: 52mm)

Process stage	Temperature, ˚C	Time, minutes	Preset humidity, RH,%	Circulation rate
Heating	50	15	55	1
Drying	60	15	20	2
Drying	65	20	20	2
Ignition	70	7	30	1
Smoking	72	10	30	1
Drying	70	5	20	2
Smoking	75	10	40	1
Cooking	83	To 72 °C in chub core	85	1
Drying	65	5	5	2
Total time		≈ 95 minutes		

Example 2 (see Table 4 below).

Table 4 – Thermal processing mode in an AGROS heat chamber (stuffed product diameter: 57mm)

Process stage	Temperature, ˚C	Time, minutes	Preset humidity, RH,%
Reddening	50	10	60
Drying	55	15	25
Drying	65	15	25
Smoking	70	15	25
Smoking	73	15	35
Cooking	80	To 72 °C in chub core	98
Total time		≈ 85 minutes	

3.6. Cooling

Upon completion of the thermal processing, the products in the **FIBROCEL** casing must be immediately cooled. Cooling may be carried out under running water or shower, or by means of time-delayed sprayers, or in universal cooling chambers until the chub core temperature is down to 25 - 32 °C.

Never use cold air for cooling. Exclude any exposure of the finished products to air drafts during the storage, because this will cause accelerated evaporation of moisture from the surface of the product and eventual surface wrinkles.

4. MANUFACTURER'S GUARANTEES

The Manufacturer guarantees conformity of the casing with the Specifications subject to compliance with the required conditions of transportation and storage at the user's warehouse.

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

5. APPENDICES

There are no appendices to the present document.

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