PENTOPAK
ТОВ "ПЕНТОПАК УКРАЇНА"

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Instructions for Use
Multilayer Synthetic Heat-Shrink Casing
PentaFlex® Extra N® (No Soaking)
for Meat Products Packaging

Purpose

PentaFlex® Extra N® casing is manufactured in accordance with TU U 25.2-20620489-006-2003 and is intended for packaging all types of cooked sausages, blood sausages, liver sausages, pâtés, fats, aspics, non-molded cooked hams, minced meat (chilled and frozen), and other similar products.

The properties of PentaFlex® Extra N® casing allow its use in the production of sausages in jelly, aspic products, pâtés, molded hams, poultry sausages with a high content of additives, and other similar products.

Advantages

Compared to viscose-reinforced, natural, and collagen casings, PentaFlex® Extra N® features:

biological inertness;
high barrier properties;
high mechanical strength;
elasticity;
low oxygen and water vapor permeability;
operating temperature range of the product in casing from –30°C to +115°C;
no weight loss during thermal processing;
extended shelf life of sausages up to 60 days at temperatures from +0°C to +6°C.

Storage at the Facility

Casings must be stored in the manufacturer's original packaging, in clean, dry warehouse premises free from foreign odors and aggressive substances, protected from direct sunlight, at a distance of at least 1 meter from heating devices, at an ambient temperature not exceeding +25°C and relative humidity not exceeding 80%.

The casing must remain in the manufacturer's packaging until use to prevent premature moistening inside the reel. Failure to comply with this requirement may result in casing sticking inside the reel.

The guaranteed shelf life of the casing is 36 months.

It is strictly prohibited to drop cartons with casing or subject them to impacts.

The casing is frost-resistant and withstands temperatures down to –30°C.

Mechanical friction of the casing must be avoided.

Casings stored at temperatures below 0°C must be kept at room temperature for at least 24 hours before opening the packaging.

Preparation of the Casing for Use

During preparation (unwinding the reel—recommended in a vertical position, cutting into lengths), it is necessary to avoid friction of the reel edges and casing surface against uneven or rough objects.

PentaFlex® Extra N® casing does not require pre-soaking, which significantly reduces preparation time.

Cutting must be performed outside the production area, as high humidity may cause sticking inside the reel and tearing during unwinding.

After cutting, remaining casing on reels must be stored in the original packaging (mandatory polyethylene bag).

During use (cut lengths, shirred sticks), the casing may come into contact with wet surfaces (equipment, tools, hands, etc.).

The casing is designed for industrial production and is moisture-resistant; its physical and mechanical properties remain unchanged, ensuring all required parameters throughout each technological cycle.
PentaFlex® Extra N® casing may also be used with pre-soaking.
In this case, soaking parameters must comply with the standard instructions for PentaFlex® Extra N® casing with soaking.

Technological Recommendations for Sausage Production Using Polyamide Casings
Sausage production technology must strictly comply with the applicable technological instructions.
Due to the gas and moisture impermeability of PentaFlex® Extra N® casing, no moisture loss occurs during thermal processing.
To prevent broth-fat pockets and casing rupture during thermal treatment, it is necessary to strictly comply with the technological instructions for sausage production and the use of functional additives.
Forming and clipping are critical processes, during which the casing frequently contacts equipment parts. Ensure that equipment components are in good condition, free of damage or burrs, and that the clip size corresponds to the casing diameter to prevent casing damage.
To prevent clip slippage during clipping, fill the casing to 90–91%.
Initially, the sausage ends will have coarse folds gathered before the clip.
Within 5–10 minutes, the casing activates, folds smooth out, fill with meat batter, and the sausage diameter increases.
When selecting the overfilling percentage, it is important to consider:
casing properties;
type of equipment used;
clip size;
formulation of the meat batter, especially protein additives with swelling properties.

To prevent casing rupture during thermal processing, it is recommended to strictly control overfilling relative to the nominal caliber and, if necessary, slightly reduce it.
Control of the recommended filling diameter should be carried out periodically by measuring the sausage diameter with a calibrated tape. If required, adjust meat batter dosing on stuffing-dosing equipment.
Compliance with the recommended filling diameter ensures:

good product appearance;
increased filling capacity;
reduced risk of broth-fat pockets;
higher yield of finished products.

Clipping
PentaFlex® Extra N® casing is suitable for use on:
automatic equipment (POLI-CLIP, ALPINA, TECHNO-PACK);
semi-automatic equipment;
manual clippers;
all types of KOMPO clippers.
During clipping, ensure correct clipper adjustment and proper clip selection according to casing type and diameter.
Clips must provide firm closure of casing ends, must not shift sideways, and must not damage the casing.

Thermal Processing
Thermal processing must be carried out according to the approved technological instructions using the following scheme:
Preheating – Cooking – Showering – Cooling
Due to the gas impermeability of the casing, the roasting stage is excluded.
To ensure proper color formation, stepwise cooking must be applied, involving gradual temperature increase.
Cooking should begin at 50–55°C with 100% humidity.

The final stage is cooking until readiness—achieving an internal sausage temperature of 72°C for 10–15 minutes.
The number of temperature steps depends on sausage diameter: the larger the diameter, the more steps required.
Heating step duration is determined by the enterprise based on technological requirements and equipment capabilities.
It is prohibited to cool sausages with cold air immediately after cooking, as rapid air cooling may dry the casing and cause wrinkling.
Avoid drafts until sausages are completely cooled.

Cooking in Boilers

Sausages may also be cooked in boiling kettles, observing technological instructions:
load sausages into water at +55°C to +60°C;
loading into water at +80°C is strictly prohibited, as it may cause premature casing shrinkage and deformation;
sausages must be fully submerged;
increase water temperature gradually in intervals;
when loading subsequent batches, water temperature must not exceed +60°C;
sausage readiness is achieved at an internal temperature of +72°C.

Cooling
Cooling is carried out in two stages:
Stage 1: shower cooling with tap water until internal temperature reaches +25°C to +30°C.
Stage 2: air drying at ambient temperature, followed by cooling in chambers at 0°C to +6°C.
Stepwise cooling ensures uniform shrinkage of both casing and meat batter, preventing surface wrinkling.
Due to casing properties, the showering process may be omitted.
In this case, surface wrinkling does not occur.
The decision to omit showering is made by the enterprise based on sanitary requirements.

Slicing and Casing Removal
PentaFlex® Extra N® casing is easily removed from the sausage.
Before slicing, both clips must be cut off to prevent casing tearing and excessive tension.

Packaging and Storage of Sausages
After cooling, sausages are transferred to storage for distribution.
Storage temperature must comply with technological instructions for the specific product type.
Sausages with a clean and dry surface are packed into sanitized containers, observing maximum permissible net weight, and stored accordingly.
Large temperature fluctuations during storage must be avoided to prevent condensation on the sausage surface.
In retail outlets, sausages must be removed from transport packaging and placed in refrigerated display cases or storage units.