The Story Behind Sausage Skins

A visit to Kalle, Wiesbaden

Dr. Carsten Heldmann, President and CEO, took over the reigns of the Kalle Group almost two years ago. Ian Healey visited him at the company’s headquarters in Wiesbaden, Germany, to find out more about the science behind sausage skins.

The production of skins for processed meat products is a complex business. The casings need to look good and perform better. Since the casings are filled with a lot of valuable product the cost of inefficiency or bursting can be very high. Kalle casings are very reliable, which is a positive sales argument. Manufacturers in the food industry understand premium products. Kalle’s latest developments include the range of value added products, which will supplement the standard range.

Casings come in different sizes and shapes up to 300mm diameter and can be made of various natural and synthetic materials depending on customer requirements. Potential requirements may be the transfer of smoke or flavors, moisture control and even the attaining of a specific color for the final product. This can save steps – and costs – in meat processing. It is also possible to speed up the maturing and drying processes.

Kalle Group is an internationally operating, long established company with the core business lines casings for processed meat products, functional food ingredients and sponge cloths. The Group has about 1,600 staff worldwide. Turnover in financial year 2014 was €263 million, with a strong presence in Western Europe and North America and significant growth in South America and the Asia-Pacific regions.

The Group’s headquarters are located in Wiesbaden. Central management, the center for global sales and marketing activities, significant parts of the production as well as central administration are located there. With a highly modern innovation and application center, the Wiesbaden site additionally serves as the Group’s R&D center.

Functional Ingredients

As Kalle works very closely with its clients, it has also developed a wide knowledge in ingredient technology. This includes know-how in blending as well as experience in the use and development of starter cultures and thickening agents. This core knowledge is integral to the company’s plan to grow, and thus supports customers technologically whilst at the same time building up a deeper understanding between supplier and client.

The Kalle Group distributes functional ingredients as well as high-quality aromas, essences and flavoring components for the meat processing industry – currently in selected markets through the Dutch subsidiary Foodpack. These
include phosphates, Smoke condensates, smoke, grill and brown-
ing aromas, Proteins, Dipping substances and other ingredients such as starter cultures.

**NALO · Seamless**

For more than 80 years, Kalle has been producing casings for processed meat products. It started in 1929 with the first seamless cellulose tube – made from renewable raw materials – which, in an almost unchanged form, is still successful worldwide as the “Nalo” casing today. “Nalo” comes from “nahtlos”, the German word for “seamless”.

In 1938, the cellulose-fibrous casing was introduced; here, viscos was combined with an extremely moisture and tear-resistant paper, underlining the casing’s stability and diameter consistency.

In the 1990s, polymer casings in particular were developed, which attract attention by their high quality print designs and high food safety characteristics.

Kalle with its Nalo portfolio of products offers the right solution for just about every application. Clean label is an important industry trend at present. It is possible to color meat products without using chemicals or unnatural flavors.

<table>
<thead>
<tr>
<th>Casings</th>
<th>Characteristics</th>
<th>Transfer Options</th>
<th>Range Of Transfer Varieties</th>
<th>Diameter / Flat Width Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>NaloColor</td>
<td>Water vapor permeability</td>
<td>Color</td>
<td>Light to medium intensity</td>
<td>From 60 to 165 mm</td>
</tr>
<tr>
<td>NaloSmoke</td>
<td>Water vapor permeability</td>
<td>Smoke</td>
<td>Light to medium intensity</td>
<td>From 49 to 165 mm</td>
</tr>
<tr>
<td>NaloPro G1</td>
<td>Barrier function</td>
<td>Color, smoke, flavor</td>
<td>Very light to medium intensity</td>
<td>From 75 to 165 mm</td>
</tr>
<tr>
<td>NaloProtex G2</td>
<td>Barrier function</td>
<td>Color, smoke, flavor</td>
<td>Light up dark intensity</td>
<td>From flat width 38 to 187 mm</td>
</tr>
<tr>
<td>NaloSpice</td>
<td>Water vapor permeability</td>
<td>Spices</td>
<td>Finely ground and coarsely ground spices</td>
<td>From 55 to 176 mm</td>
</tr>
<tr>
<td>NaloPro Spice</td>
<td>Barrier function</td>
<td>Spices</td>
<td>Finely ground and coarsely ground spices</td>
<td>From 89 to 115 mm</td>
</tr>
</tbody>
</table>

**Value Added Casings**

Nalo Value Added Casings are the latest generation in the long tradition of Kalle casings. These feature a valuable added benefit which goes far beyond the classic casing characteristics. Value added casings come with important production steps already included, allowing you to transfer smoke, color or even spices from the casing directly onto the surface of the processed meat products during cooking. Entire production steps and the associated costs can be avoided. Furthermore, the one-step process increases product safety, because the processed meat is only subject to a single production step and remains in its casing until it is peeled and sliced.

At IFFA 2016 you’ll find:

– pioneering concepts for greater economic efficiency
– new automation solutions
– innovations for enhanced quality and food safety
– the latest trends of the food industry 4.0

You’ll also discover fresh ideas around the themes of sustainability and energy efficiency. Meet the Best – all market and technology leaders under one roof.

www.iffa.com
Processed meat products with a smoked edge or those with spices on the outside normally have to be peeled after cooking. Only then can they be smoked, caramelized or coated with the spice blend. In a further process step the coating is fixed, usually through additional thermal treatment. Now the processed meat is ready to be packaged in a synthetic case before being stored until it reaches the slicing station.

Using Kalle’s value added casings companies can dispense with these steps. This saves costs and increases product safety: from cooking to slicing, the product remains protected by the casing, because these production steps are no longer necessary.

**Saving up to 20% production costs**

It is possible to save up to 20% in process costs, depending on the process currently being used, since losses through cooking and other process steps are eliminated. These advantages have already been positively received in the market. Value-Added-Casings are a positive new opportunity for the customer.

**Nalo Polymer Casings**

Nalo Polymer Casings are extruded from plastic granulates and nowadays are usually co-extruded in multiple layers. The various layers influence the special characteristics of the individual polymer casing and determine in particular the different barrier effects. The multi-layer production influences the shrinking and expansion as well as the stability of the polymer casings. For certain applications, mono-layer polymer casings complete the product range.

The Nalo Polymer Casings are distinguished by their barrier casings and smoke-permeability characteristics. This includes cylindrical or moulded casings, such as ring or oval shapes or polymer casings with a special matt finish.

Polymer casings have been traditionally used to cook meat. Until now, they have not been considered to help in the maturing process, especially where there is a significant water loss. But you cannot stop progress: Kalle have developed a polymer product which is so water permeable that it can be used in making dry processed meats.

The permeability can be adjusted with such precision that meat in NaloFerm casings can be dried under the same conditions as meat in natural or collagen casings without differences in quality. This makes the process easier and at the same time using NaloFerm reliably avoids mold growths without any additional casings or immersions.

**Nalo Cellulose Fibrous Casings**

Probably the ultimate proven, traditional product of Kalle remains the Nalo Cellulose Fibrous Casing, known simply as “The Fibrous Casing”. Contrary to pure cellulose casings, the Nalo Fibrous Casings incorporate a special long-fiber paper in the production process. This special paper is highly resistant to wet tearing and additionally reinforces the fibers allowing precision-millimeter diameters of the casings. This ensures uniform slices – one like the other. Options include very good meat cling to easy peel with impregnations of various degrees.

Equally important is the shrinking capacity of the cellulose fibrous casings, which allows them to adapt to the changing volume of the processed meat product during drying. And just as remarkable is the membrane aspect, as the casing’s major permeability to water-vapor allows the cellulose fibrous casings to dry accordingly in a uniform way.

**Nalo Cellulose Casings**

Nalo Cellulose Casings have been produced almost without any modifications since 1929 and are the foundation for the “Nalo Casings” tradition. The cellophane, originally produced as a film, was “converted” into a seamless casing using ring-shaped nozzles. Developed as a real innovation and alternative to the natural gut, Nalo Casings were used for just about every type of processed meat product.

Nowadays, pure cellulose casings, due to their excellent transparency and permeability to smoke, are very popular amongst manufacturers of traditional processed meat products – either in ring, bladder or oval shape. A particular specialty are mid to large size diameters.
Textile Casings

Textile Casings complete the casing portfolio of the Kalle Group. Depending on coating and characteristics, the textile casings can be used for almost any processed meat product. Whether woven-reinforced with “viscose” (textile casings are also made of cellulose) or - brand-new to the range – polyester, they enhance the professional presentation of your meat products. The highlights include the first production of the seamless (“Nalo”) casing made of cellulose hydrate in 1929. In 1963 production of seamless plastic casings based on polyester commences. 1967 saw the origins of NaloTop, a fibre-reinforced cellulose casing with an inner barrier. Success continued in the 1990s when the production of plastic casings based on polyamide (“NaloFlex”) began.

The company was founded by Dr. Paul Wilhelm Kalle in 1863 as Kalle & Co. in Wiesbaden-Biebrich, Germany, initially as a chemical plant for the production of dyes.

In 1907 Kalle & CO. AG joins the existing syndicate comprising Farbwéäerei Hoechst AG and Leopold Casella GmbH on the basis of reciprocal equity participation. Hoechst acquires a majority interest in Kalle in the process. The business around casings for processed meat products and sponge cloth manufacturing is spun off from Hoechst AG in 1995 and becomes an independent entity 1997. International expansion is accelerated following the founding of subsidiaries – both as sales and production companies - in key international markets. The early 2000s saw the acquisition of the German Oskuda Group, producer of specialized textile and polyamide casings for processed meat products and Texda GmbH, a supplier of a specialized range of textile-based casings for processed meat products.

The company successfully expanded into the USA in 2007 by setting up its own production capacity and strengthening the local sales organization. Thanks to an outstanding performance by the Kalle organization, the company becomes the market leader in the US in 2009. Following the acquisition of JifPak, Vista, California, highly innovative casings and nettings for processed meat products were added to the Kalle Group’s product portfolio.

Since 2009 the financial investors Silverfleat capital have been majority shareholders in Kalle. Kalle produce enough casings which could stretch around the world more than 21 times, so there are plenty to fit every need!

Summary

There are many applications for casings from Kalle and each has its own particular technology. The following list is not exclusive, but serves as an overview. Dry processed meat products, which are generally manufactured with raw meat and fat, go through a maturing process and are subject to a more or less stronger drying process. Scalded processed meat products are manufactured with raw meat and fat and approximately 20 to 30 % water (ice). They come smoked or unsmoked, always pasteurized, and sometimes even sterilized. Semi-dry processed meat products are more or less dried scalded products, which have a longer shelf-life due to a higher weight loss. The drying process takes place under pasteurization temperatures. Cooked processed meat products are generally manufactured from pre-cooked raw materials and in many cases are spreadable. These products are always pasteurized and often sterilized. Cured cooked processed meat products consist of either whole or connected pieces of muscle. Usually, they are pasteurized, sometimes autoclaved, often smoked or refined with spices around. Cured dry processed meat products are generally made from whole parts and are cured and matured. In this case, casings are rarely used with the most common product being the rolled fillet of ham. Cheese products.

Kalle casings are also suitable for dairy and vegetarian products as well as for pet food applications.

The printing quality is very high, especially in South America where some extraordinary results have been achieved.

The Net Casings are available in 3 versions. The closely-knit polyester material CasingNet is the basic type and is available in 7 different pattern variations. Additionally, UltraKote and FlavorKote have been provided with an easy peel coating for ultimate peelability and performance. FlavorPro transfers flavors or colors onto the surface of ham and poultry products and is available in two different pattern versions. These Net Casings are supplied by Kalle subsidiaries, Oskutex and JifPak.

Key No. 87530