



VISCOSE CASINGS

CASINGS BASED ON NATURAL RAW MATERIALS

CONTENTS

VISCOSE CASINGS

Nalo Cellulose Casings	08-09
Nalo Fibrous Casings	10-15
NaloTop – the fibrous casing with barrier	16-17
NaloNet – the fibrous casing with net	18-19
NaloFashion – sewn fibrous casing	20-21
NaloSmoke/NaloColor – smoke and colour transfer	22-23



VISCOSE CASINGS – ASSOCIATED WITH NATURE.

CARING FOR THE FUTURE THROUGH SUSTAINABLE SUPPLIES OF NATURAL MATERIAL

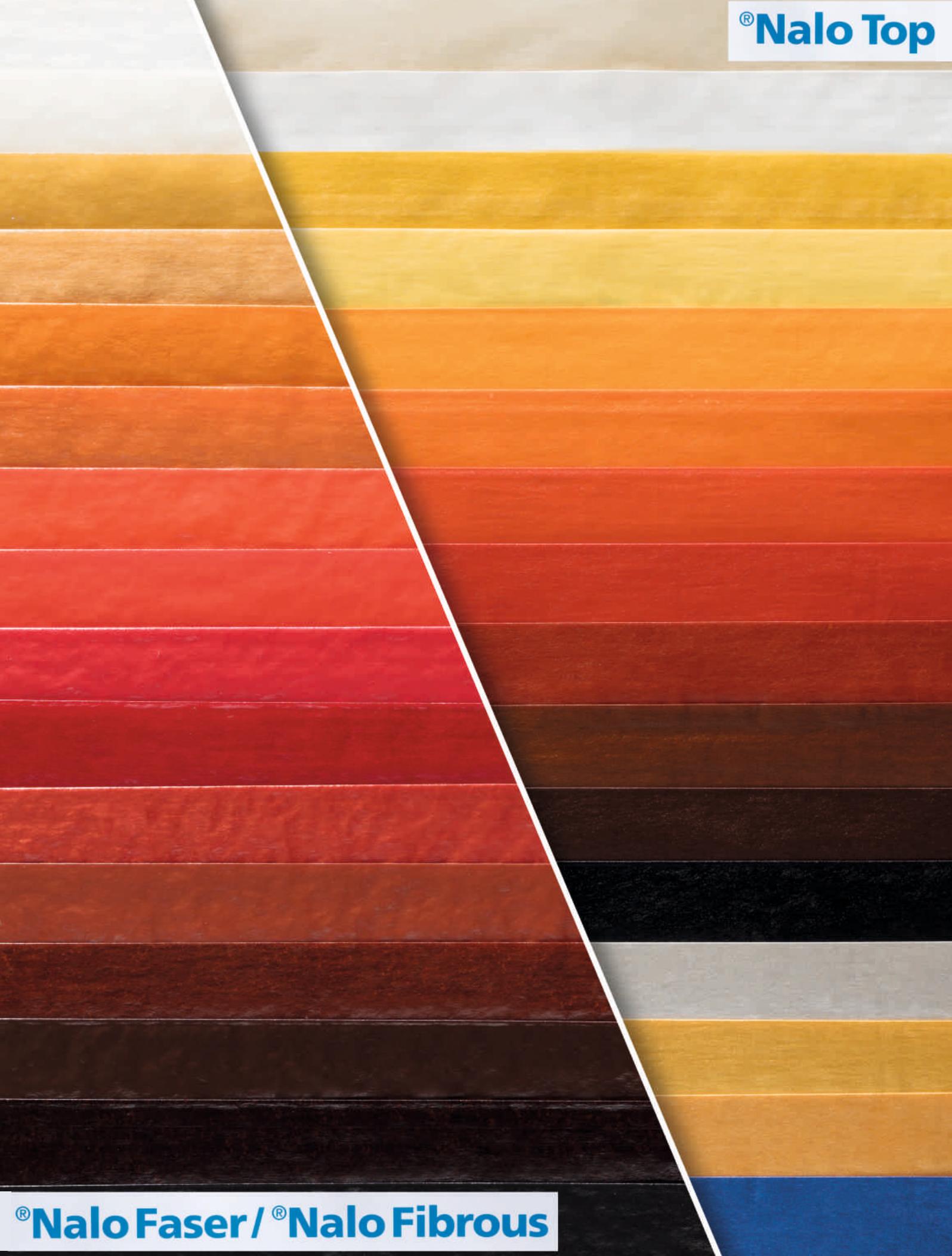
Kalle Viscose Casings start and finish their material-cycle in a close partnership with Nature. The starting point is cellulose, a natural product derived from wood. Cellulose has to meet defined requirements in respect to physical properties and strength, combined in a natural manner with a fibrous paper to form the Kalle Fibrous Casing.

Sustainability through innovation – Kalle is committed to continuous innovation for the benefit of our customers. By rigorously improving technologies and processes, we are also protecting the environment to develop a sustainable economy. Kalle has invested heavily in the development of an integrated environmental, recycling and waste management concept that covers our manufacturing processes.

Wherever possible, we collect production waste within the respective process and recycle it immediately. For example, regeneration baths, are fed back into the process via an evaporation stage. Waste water is recycled in a modern treatment plant in the Kalle-Albert Industrial Park.

Through these and other measures, we have increased energy efficiency and productivity whilst also conserving natural resources. Our environmental concept is widely regarded as a model for the future and gives us a benchmark for the industry worldwide.

Therefore, the product cycle ends where it began - with every respect for Nature.



VISCOSE CASINGS

COMPETENCE WITH A BROAD FUNDAMENT

It all started way back in the 1920's with the world-famous cellophane based on viscose and well-known as a packaging film. In 1929 the extrusion process was developed by seamless, tubular casings which were produced for the first time. This was also the origin of the name Nalo – an abbreviation of the German word for seamless. The fibre-reinforced viscose casing featuring exceptional stability has been available since 1938 and finally in 1967 was the year in which the first cellulose barrier casing was manufactured.

Kalle has a long tradition of casings and the latest casing generations have been shaped and characterized by a number of developments to add further value to the products, improve the quality of the sausage and helping to increase customer processes in the sausage factories. These feature valuable added benefits which go far beyond the classic casing characteristics.

Kalle can offer today more than 5000 casings types in the Viscose Casings sector.

The quality and food safety policies laid down by Kalle management re-inforce the belief in quality leadership and in particular the part played by our company in the food chain. Customer satisfaction is the measure of the quality of our products and service. All company employees are duty bound to follow the target of consistent high quality.

Since January 1993, Kalle GmbH has been certified according to DIN ISO9001 and since April 2013 according to FSSC22000.

» **Nalo Cellulose** Casings, transparent, permeable casings for spreadable dry products, smoked cooked products as well as semi- dry processed meat products. Kalle is the only producer worldwide for cellulose ring casings (Nalo Kranz).

» **Nalo Fibrous**, smoke-permeable, reliable casings for delicious meat products, with high mechanical strength for dry sausage, smoked scalded and cooked meat products as well as cured processed and cooked meat products. With excellent shape retention and diameter consistency the perfect choice for sliced products and portions. Tailor- made cling and peel versions are our standard.

» **NaloTop** – the cellulose fibrous casing with barrier offers the perfect combination of an extremely attractive appearance and the highest product safety. Ideally suited for unsmoked scalded and cooked sausage. Freshness you can see and touch!

» **Printing** up to 6 colours is standard (more colours available on request).

» Casings with attached netting = **NaloNet**

» Fibrous sewn in different designs
= **NaloFashion**

» Casings with transfer properties **NaloSmoke** and **NaloColor** complete the Viscose Casing program.

» A wide range of **converting possibilities** are provided.



® Nalo Cellulose Casings

PRODUCT INFORMATION

PRODUCT DESCRIPTION

Transparent, smoke-able, cylindrical or ring-shaped cellulose casing with varying levels of elasticity. Different colours can be applied to make the processed meat products appear more appetising.

APPLICATION

Ideal for spreadable dry sausage, smoked scalded products, semi dry processed meat products and a wide range of cooked ham products.

PRODUCT ADVANTAGES

- » Highly transparent and glossy = appetising appearance
- » Excellent shrink
- » Uniform smoke transfer and impermeable to grease
- » Ready-to-fill shirred strands

SUSTAINABILITY

All Nalo Cellulose Casings are made from renewable raw materials

PRINTING

Nalo Cellulose Casings can be printed with up to 6 colours on both sides.

STORAGE / PROCESSING

Always store the casing in their original packaging in a cool and dry place. Protect them from frost. By observing these recommendations, a storage time of 24 months can be achieved for tied and cut pieces, 6 months for shirred material.

Tied and cut pieces are briefly soaked (approx. 10 seconds, 20°C -40°C fully submerged)

Further information please refer to separate product information

Casing form	Cellulose-casing type	Diameter in mm	Colours	Converted forms
Cylindrical	Nalo Schmal N	30 - 50	Clear, light brown, brown "smoke", brown "stock"	Reels, shirred strands, tied pieces
	Nalo Schmal O		Clear	Tied pieces
	Nalo M	59 - 100		Reels, Shirred strands, tied pieces
Ring	Nalo Kranz	32 - 47	Clear, tinted, salmon, brown "smoke"	Tied and cut Pieces
Stretchable	Nalo ML	50 - 140	Clear	Tied pieces
	Nalo GLI	45 - 75	Clear, salmon, brown "smoke"	Shirred strands
	Nalo BG	45 - 65	Red orange	
	Nalo BIG		Clear	



® Nalo Fibrous Casings

PRODUCT INFORMATION

PRODUCT DESCRIPTION



Cellulose-fibrous casing with defined meat cling and good smoke permeability, made of renewable raw material.

APPLICATION

» Smoked dry, scalded and cooked processed meat products, cooked hams and processed cheese.

PRODUCT BENEFITS

- » Very good maturing properties
- » Defined meat cling
- » Excellent shrink properties
- » Uniform smoke transfer
- » Excellent shape retention
- » High mechanical strength
- » Precise diameter consistency

COLOURS

For the colours of our NaloFibrous casings please go to www.kalle.de



PRINT

Nalo Fibrous casings can be printed on both sides with up to 6 colours.

DIAMETER RANGE

From **32 mm** to **165 mm**

CONVERTED FORMS

Reels, bundles, shirred strands, tied and cut pieces

PRESTICKING

- Presticking sizes » Fine, medium, large
Presticking pattern » Single 13x26 mm
 » Double 13x13 mm

Shirred casing is only available in “fine” and “medium” pattern.

STORAGE/PROCESSING

Always store in the original packaging in a cool and dry place. Protect casing from frost. Maximum recommended storage time is 24 months, 6 months for pre-moistened casings.

RECOMMENDED SOAKING TIMES

- » 15 minutes for tied pieces
- » 30 minutes for shirred strands (higher shirring density requires longer soaking time)
- » 60 minutes for printed casings
- » Water temperature; 20°C to 40 °C . (Ideal temperature 28°C) The casing should be completely submerged.
- » The casing properties can be affected by inappropriate water temperature and/or soaking time
- » Only use fresh unsalted drinking water

For further details please refer to separate product information.

NALO FIBROUS CASING RANGE

NaloFibrous I

EXCELLENT MEAT CLING

The general casing for dry sausage. Due to its very good meat cling, the casing adheres tightly to the product during the entire maturing and drying phase. The very good shrink capacity also ensures perfect adhesion during the drying process. The single viscose coating provides a brilliant, glossy look to the final sausage.

NaloFibrous N

EASY TO PEEL

The casing is well suited for sliced processed dry products, such as pepperoni sausages, other pizza toppings, cooked and dry hams. Due to the low adhesion, it can be peeled easily without tearing. The high diameter consistency ensures equal size of the slices – each one consistent to the other.

NaloFibrous P

Very easy to peel

NaloFibrous P is the ideal casing for slicing application. Due to its extremely smooth peeling capabilities it is the ideal casing for slicing application, especially for scalded and dry processed meat products as well as cooked hams.

NaloFibrous S

STRONG MEAT CLING AND MICRO-FINE ROUGH SURFACE

NaloFibrous S offers excellent maturing properties and is therefore the ideal casing for high-quality long matured dry meat products. The micro-fine rough surface gives the product a high-matt appearance.

NaloLine I

MEAT CLING, NATURAL MATT APPEARANCE

Ideal casing (cal. 45-65) for smoked dry and semi-dry processed meat products with natural matt appearance comparable to collagen casings.

NaloFibrous ND, ID and PD

HIGHEST SHAPE RETENTION

The "D" stands for double viscose casings of the N, I, and P versions. These have been coated on both sides of the special paper and feature especially high shape retention, even higher mechanical strength and very good shrink properties. This makes them suitable especially for slicing (cooked or dry). One like the other – same diameter, same weight.

PROVIDING DIFFERENT, DEFINED LEVELS OF MEAT ADHESION FOR NALO FIBROUS CASINGS

IMPREGNATION-PLATFORM FOR FIBROUS CASINGS EFFICIENT SOLUTIONS AND CONSTANT HIGH QUALITY

Meat cling will always depend on the recipe of the individual meat and sausage product. However, with our range of impregnations from strong to light adhesion, Nalo Fibrous Casings offer solutions for any processed meat application.

	NaloFibrous S	NaloFibrous I	NaloFibrous N	NaloFibrous P
With meat cling impregnation (very good), matt appearance	■			
With meat cling impregnation (very good to light adhesion)		■		
No impregnation (light adhesion to easy peel)			■	
With peeling impregnation (easy peel to very easy peel); Primarily used for hams				■

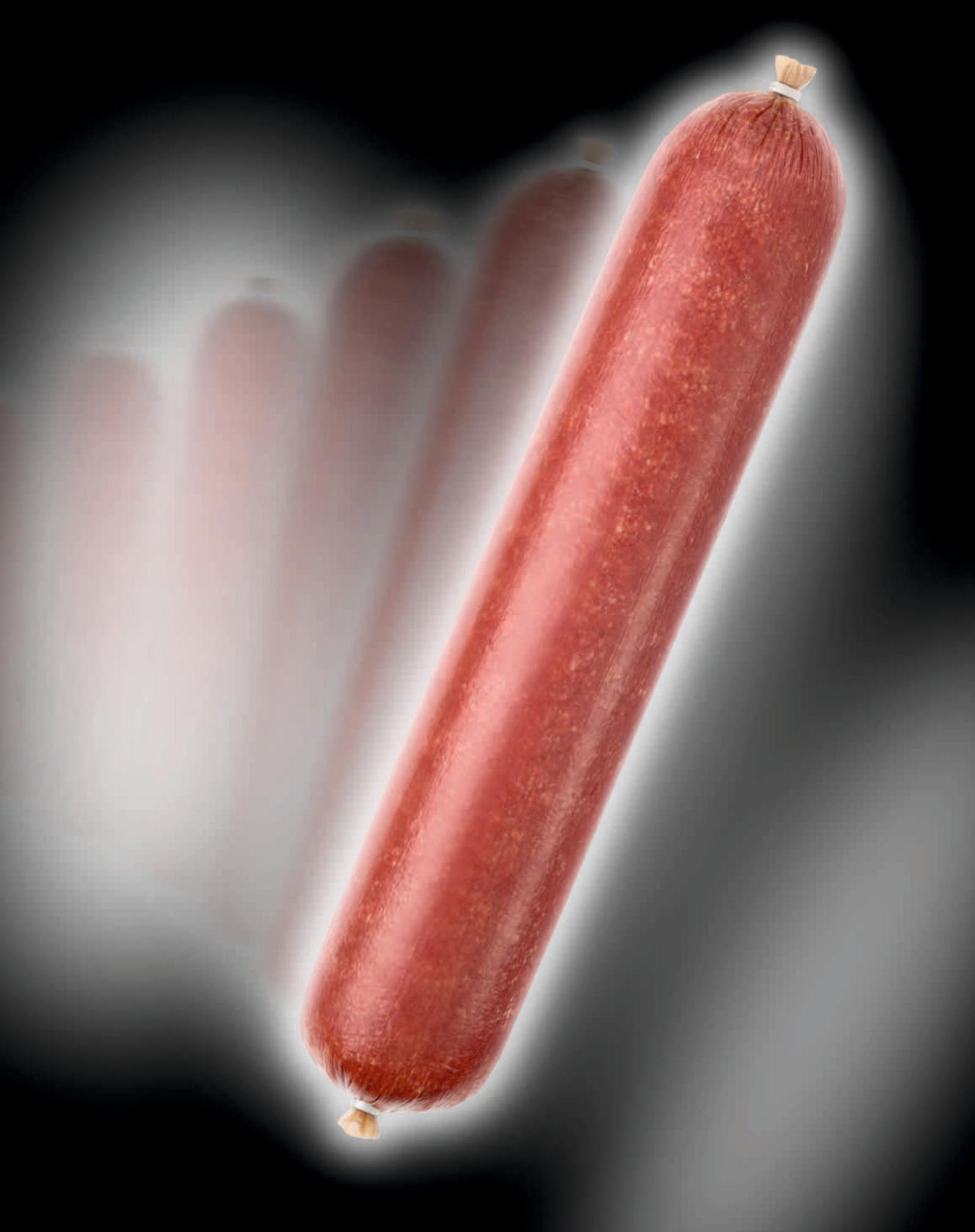
Also available as double-viscose casings (Fibrous ID, ND, PD)



The adhesion capabilities of the base types can be adjusted according to applications and processes, a multitude of cling and peel possibilities are available. Working with our product experts, yield, quality and productivity can be improved considerably.

EXAMPLES OF TAYLOR MADE SOLUTIONS

Dry sausage sliced, scalded sausage sliced with casing on, dry sausage such as Italian Salami (naturally matured and dried) as well as hard salami packed in bags, pre-cooked dry sausage as Pepperoni for automatic peeling application. NaloSmoke with excellent peel characteristics for cooked hams and many more.



® FibrousProtect

Kalle`s anti-mould concept

Despite improved production and maturing conditions, dry sausage manufacturing can often remain a challenging environment. Specifically, it can mean impaired product quality, production chain disruptions, lower productivity and higher costs.

Our FibrousProtect concept offers maximum protection and can be combined with all Kalle fibrous casings – with and without labelling.

FibrousProtect is a two-component system.

» Casing and Advice

This innovative product concept comes with customised advice from Kalle specialists to make the best possible protection for your application.

FibrousProtect ADVANTAGES

- » Consistently high quality
- » Greater productivity
- » Superior Kalle fibrous casing combined with additional mould protection

FibrousProtect offers maximum protection and can be used in varying degrees with all Kalle standard fibrous casings.





® NaloTop - the fibrous casing with barrier

PRODUCT INFORMATION

PRODUCT DESCRIPTION

The cellulose fibrous casing with barrier

APPLICATION

Ideally suited for unsmoked, scalded and cooked sausage. NaloTop offers the perfect combination of an extremely attractive appearance with highest product safety.

PRODUCT BENEFITS

Water vapour barrier

= Firm, fresh sausages with no weight loss

Oxygen barrier

= No oxidation and no discoloration of the meat

Aroma barrier

= Full, unadulterated taste

Natural, matt appearance, high shrink properties, good diameter consistency, perfectly cylindrical sausages and simple and safe processing are further benefits.

DIAMETER RANGE

From **40 mm** to **120 mm**. Also available as portioned sausage for the service counter.

CONVERTED FORMS

Reels, bundles, shirred strands, tied and cut pieces

PRINTING / COLOURS

» The Nalo standard print motifs can be found on the Kalle website under Casing / Customization / printing (click on "Nalo Lieferprogramm").

www.kalle.de / druckmotive

We would be also be happy to create print motifs according to your individual requirements wishes. Up to 6 colours are possible on both sides.

STORAGE

Always store in the original packaging in a cool, dry place. Protect from frost, Maximum storage period

Maximum storage period:

- » Reels = 6 month
- » Shirred strands = 12 month
- » Tied and cut pieces = 24 month

PREPARING

» Soaking: Cut pieces = 15 minutes
Shirred strands > 30 minutes, printed casings 60 minutes.

Further information please refer to separate product.





EXAMPLES OF TYPE OF NET



Net WN 8



Net WN 6



Net RN 4
3,0 x 3,0 cm



Net RN 10
3,0 x 1,5 cm



Net RN 10
3,0 x 3,0 cm



Net RN 20
1,5 x 1,5 cm



Net SN 4

® NaloNet – the fibrous casing with net

PRODUCT INFORMATION

PRODUCT DESCRIPTION

NaloNet consists of Nalo fibrous casing with strongly anchored, rigid polyester net in 4 versions.

Honeycomb Net (WN) – attractive in shape and cut

Rectangular Net (RN) – perfect size for small households, out and about at sport and play

Chain Net (KN) – traditional net optic

String Net (SN) – decorative net for sales promotions of portion sausages

APPLICATIONS

Smoked dry and scalded products, cooked ham and processed cheese.

PRODUCT BENEFITS

- » Excellent shape due to rigid net = appetising appearance
- » Easy to handle + net in one step
- » Defined meat cling – and easy to peel

NEW

NaloNet String Net (SN)

Filling diameter = Nominal diameter

Cal. 50/55 mm

COLOURS

Types of net: white, green, blue, green-white, red

CONVERTED FORMS

- » Shirred strands and tied pieces

IMPREGNATIONS FOR DEFINED MEAT CLING

NaloNet is available from high meat cling to easy peel in various grades:

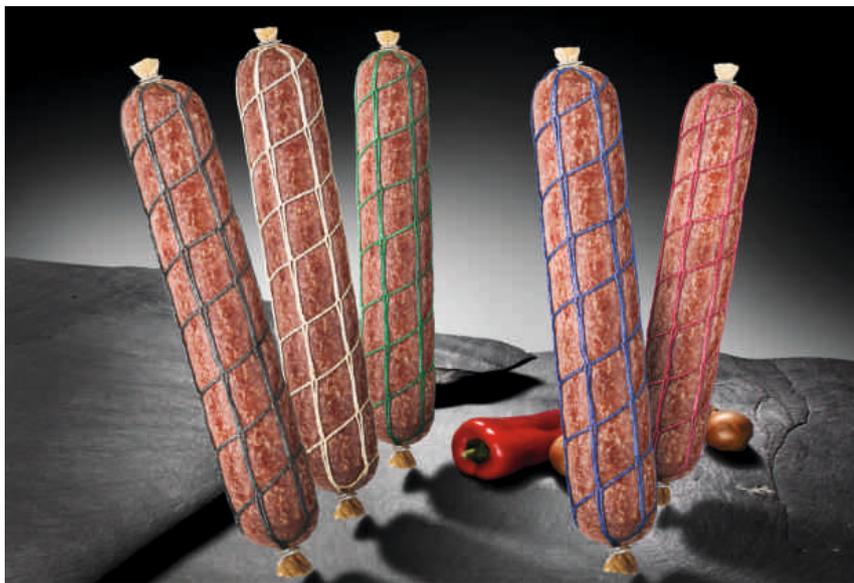
NaloNet I = with meat cling from high meat cling to easy peel in various grades

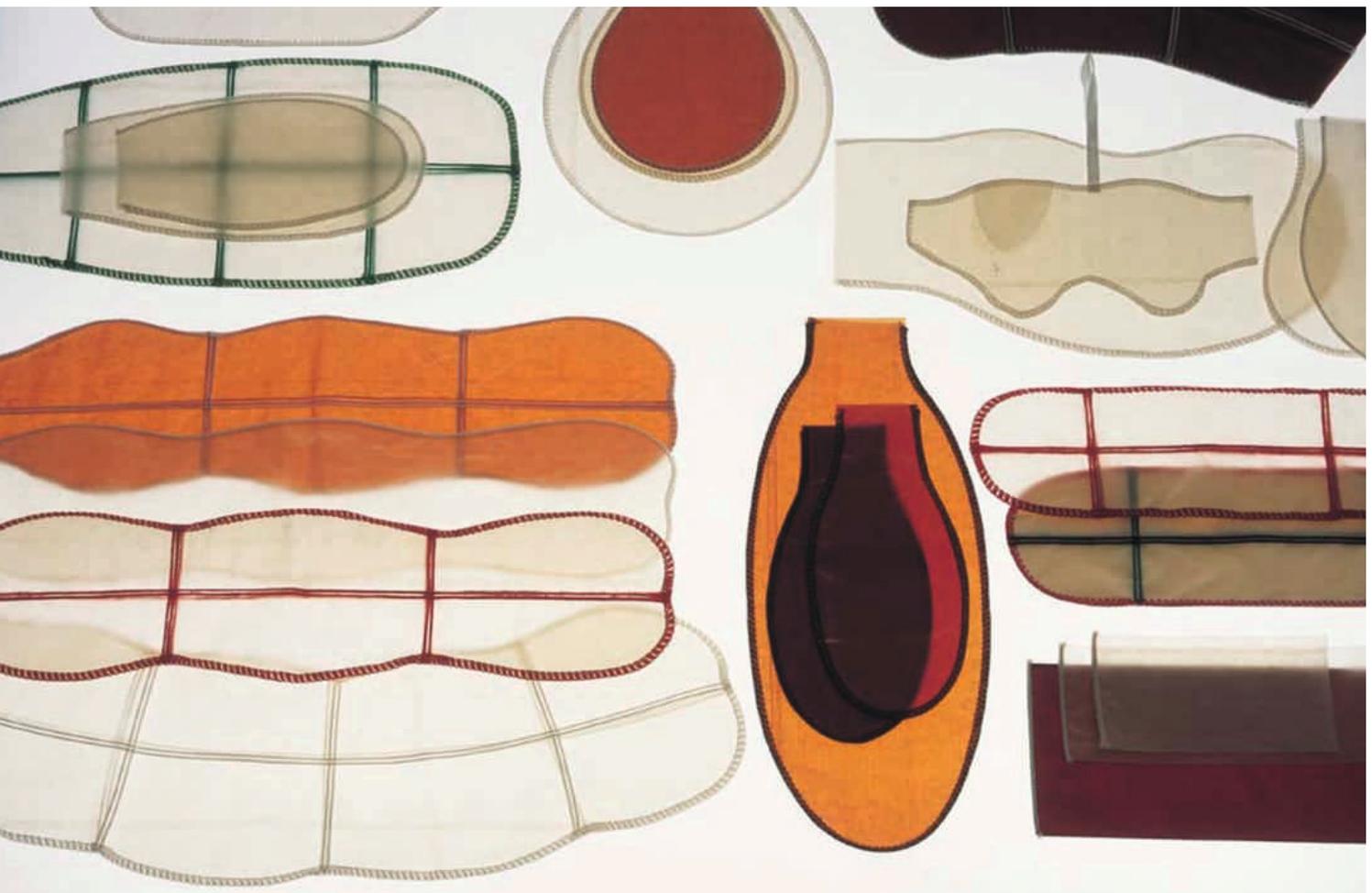
NaloNet N = no impregnation

NaloNet P = with peeling impregnation

COLOURS

- » Casing colour = clear
- » Net colour white. Other colours are available on request





® NaloFashion

Specially sewn designs made from fibre-reinforced cellulose casings

PRODUCT INFORMATION

APPLICATION

Sewn fibrous casings are well suited for scalded, scalded semi-dry, cooked and salted sausages, dry and spreadable dry processed meat products.

NaloFaser I = good meat cling

NaloFaser N = easy peel

NaloFaser P = extreme easy peel

NaloFaser S = good meat cling,
rough casing surface

DIAMETER RANGE / CONVERTED FORMS

Detailed information can be found in our **NaloFashion** program, material supplied in sewn pieces

STORAGE CONDITIONS

Always store **NaloFashion** casings in a cool and dry place using the original packaging. Protect from frost! Maximum storage period 24 month.

SEWN FIBROUS CASINGS

® NaloFashion

A DISTINCTIVE BUTCHER TRADE AND RUSTIC LOOK TO INCREASE THE VALUE OF YOUR PROCESSED MEAT PRODUCTS

ADVANTAGES

- » Wide variety of forms and colours
- » Attractive double-laced-seam (DLS)
- » Butcher trade and rustic appearance based on the natural look of the special sewn designs.
- » Printable up to a maximum of 6 colours
- » Especially well suited as an Easter or Christmas product, or even as a gift.

» The special seam reduces fat penetration (mainly for dry and spreadable dry sausage)

» Made from the already proven Nalo Fibrous Casings of course!

PRINTING

Printable with up to maximum of 6 colours with one of our designs or with a distinctive design / logo of your own choice.

The wide variety of **NaloFashion** creates buying incentives and improves the appearance of every product.

PROCESSING NOTES

PREPARING AND SOAKING

NaloFashion formed casings are slightly perforated because of their seam. You must adhere exactly to the recommended soaking time in order to prevent bursting of the casings. We therefore recommend that bundles are soaked for 10 minutes in luke-warm water.

FILLING AND CLOSURE

- » Fill tightly with remote pressure and without air.
- » With all conventional clipping machines and tying methods.



® NaloSmoke

® NaloColor

PRODUCT INFORMATION

PRODUCT DESCRIPTION

The cellulose – fibrous casing which transfers smoke and colour to the surface during the cooking process, eliminating processing steps such as frying and roasting.

APPLICATIONS

» Smokes scalded processed meat products, cooked hams as well as smoked processed cheese.

ADVANTAGES

- » Smoke- or colour transfer directly during cooking process onto the surface of the product.
- » Elimination of the conventional smoking process.
- » High diameter consistency ensures high-precision slicing.
- » Ready-to-fill shirred strands and all-in-one process for high food safety.
- » Environmental and financial advantages
 - › No expensive cleaning of smoke-house needed
 - › No costly neutralization of cleaning water needed
 - › Disposal cost savings

DIAMETER RANGE

- » **NaloColor** Cal. **60 mm** to **165 mm**
- » **NaloSmoke** Cal. **49 mm** to **165 mm**

CONVERTED FORMS

Reels and ready-to-fill shirred strands, presticking possible.

SMOKE TRANSFER

- B1** – light smoke colour » Poultry ham
- B2** – medium smoke colour » Scalded meat products and poultry ham
- H5** – Dark smoke colour » Cooked ham
- H6** – Very dark smoke colour » Cooked ham

COLOUR TRANSFER

- CB3** – The optic for the crisp brown “roasted look”
- CB5** – The choice for delicious, savoury smoked rind
- CB7** – An intensive smoke colour appearance

STORAGE

Always store products in a cool and dry place using the original packaging. Protect from frost. By observing these recommendations, a storage time of 6 months can be achieved.

Further information, such as cooking process guidelines, please refer to separate product information document.

» KALLE.DE



VISIT OUR WEBSITE.

THE COMPANY

Based in Wiesbaden, Germany, the Kalle Group is a leading supplier of industrially produced sausage casings. As an innovative partner for both the industrial and the butchery sector, Kalle is the market leader in value-added casings. This is a new segment created by Kalle based on delivering value in the form of colour, flavour and spice particulate transfer which subsequently provides gains to processors in efficiency, yield and food safety. Furthermore, it leads the world in fibrous and cellulose casings, to go along with a strong position in the polymer casing segment.

In addition to its innovative range of value-added casings, Kalle creates a steady stream of new and customized solutions for the manufacture of new products. Over the past 20 years, the company has enjoyed consistently strong growth.

The core business is making casings for sausages and other foodstuffs. However, Kalle also produces sponge cloths and supplies functional ingredients, high-quality aromas and flavours for the food industry.



ANY FURTHER QUESTIONS?

If you have any questions about our products, your Kalle sales team will be happy to provide you with comprehensive advice. You can also visit us on the internet and find out more about our wide range of products.

This information is based on our present knowledge and is intended to provide general notes on our products and their uses. Recommendations are not legally binding. Our general terms of business apply. Unauthorized duplication is a violation of applicable law.



May 2016

KALLE GROUP
info@kalle.de
www.kalle.de

Kalle GmbH | Casings
Rheingastr. 190-196
65203 Wiesbaden / Germany
Tel. +49 (0) 611 / 962-07
Fax +49 (0) 611 / 962-9373

Kalle
KALLE GROUP