

## **Fibrous Casing Paper**

#### Sustainable solutions for fibrous casing Discover our full range of products

With decades of experience in the manufacturing of fiber-based materials, Ahlstrom-Munksjö has been continuously innovating to be at the forefront of solutions for meat packaging.

The composition of our fibrous casing paper, made from natural and renewable long cellulosic fibers, mainly Abaca, is established and enables highest quality applications. Viscose impregnation is used to bond the fibers together, leading to a unique and outstanding offering on the market place. Fibrous casing paper is a sustainable and environmentally friendly product as it uses plant based renewable natural resources, compared to animal-derived collagen or plastic, which is oil based.

The product design enables excellent smoke permeability, consistent mechanical strength and tube diameter control for smoked and air-dried meat products.

Ahlstrom-Munksjö fibrous casing paper features excellent machinability and uniformity which allows the material to fully adapt to high speed operations. The fiber-based technologies using natural, renewable raw materials offer a high level of tube burst strength and improved yields. The high permeability of our grades helps to achieve consistent and superior performance during the smoking and air-drying cycles, meeting the critical demands of the processed meat industry.

#### Why choose Ahlstrom-Munksjö fibrous casing paper?

- High burst strength by using Abaca fibers
- Excellent diameter control due to controlled water release
- Unique quality of finished products due to viscose-impregnation
- Wide range of fibrous casing paper for a variety of meat processing applications
- Technology based on renewable natural resources

#### End-uses and applications – The right solutions to your needs

Ahlstrom-Munksjö fibrous casing paper offers consistent and efficient quality to manufacturers of meat casing, so that they can assure full reliability to producers of a complex variety of processed meat products.

Thanks to the controlled levels of meat adhesion, smoking and drying features, our fibrous casing paper finds ideal use in a variety of meat packaging applications.

Industrial customers with a high level of automation benefit from the high strength properties of fibrous casing paper compared to cellulose or collagen casings. This is especially relevant for automatic slicing and peeling of long sausages, up to 1.3 meters in length.

#### Air-dried sausages (dry and semi dry products)

Our products are suitable for sausages made fresh, salted and air-dried for weeks or months, depending on the finished type. These include:

- Chorizo Pepperoni
- Coppa Mortadella
- Salami



# Ahlstrom-Munksjö K-paper – Viscose bonded fibrous casing paper

#### Our unique, high performance, superior quality casing technology

Our exclusive K-Paper is designed using long cellulosic fibers bonded with viscose - a regenerated cellulose binder - allowing efficient, sustainable and consistent meat processing.

The wide basis weights, ranging from 17 to 28 gsm, offer different features and performances, allowing our customers to select the most appropriate technology to meet their specific needs.

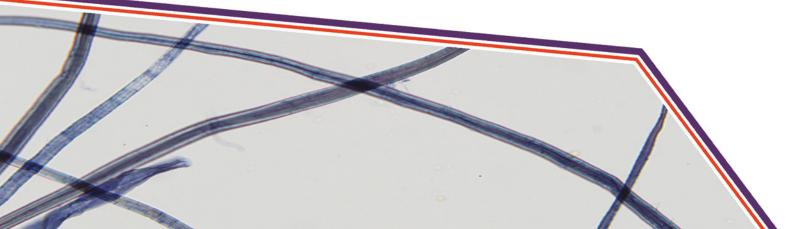
All components of the different grades comply with the relevant FDA and BfR food regulations.

#### Features and benefits

- Made of exotic natural long fibers (mainly Abaca)
- Even viscose penetration during the tube forming process due to consistent absorbency
- Excellent tube diameter control combined with high strength and high caustic tensile strength
- Food-approved wet strength agent

#### **Technical properties**

GRADE	Basis Weight (gsm)	Wet Tensile MD (N/m)	Wet Tensile CD (N/m)	Wet Elongation CCD (%)	Wet Elongation SCD (%)	Wet Elongation ECD (%)	Caustic Tensile MD (N/m)	Caustic Tensile CD (N/m)	Air Permeability (l/min/100 cm²)
5682	17	400	330	12	12.8	13.3	135	100	1800
5683	19	460	380	12	12.7	13.5	160	120	1500
5681	21	540	440	11.5	12.2	12.9	185	140	1300
5684	23.75	600	500	11.4	12	12.7	220	165	1100
5680	25.5	670	550	11.6	12.4	13	252	200	1000
5782	28	796	652	11.5	12.2	12.7	308	240	850



#### Discover our grades complementing K-Paper standard offering

In addition to our standard K-Paper, Ahlstrom-Munksjö offers tailormade technologies for the most demanding meat casing requirements.

Our Ultracor and K/M grades offer different properties and characteristics, allowing our customers to choose the most suitable fibrous reinforcement for their sausage casing needs.

All components of our grades comply with the relevant FDA and BfR food regulations.

### Ahlstrom-Munksjö Ultracor and K/M – modified fibrous casing paper

Ultracor is a 24.5 gsm grade comprised of a blend of abaca fibers and a percentage of polyester fibers, bonded with a regenerated cellulose binder.

#### **Features and benefits**

Flatter wet elongation profile which improves printing and converting processes of the finished casing. Better cross profile with lower stretch at the edges compared to other technologies and improved converting and printing of the finished casing

#### **Technical properties - Ultracor**

GRADE	Basis Weight (gsm)	Wet Tensile MD (N/m)	Wet Tensile CD (N/m)	Wet Elongation CCD (%)	Wet Elongation SCD (%)	Wet Elongation ECD (%)	Caustic Tensile MD (N/m)	Caustic Tensile CD (N/m)	Air Permeability (I/min/100 cm²)
2267	24.5	605	495	12	12.6	13	238	184	1045

K/M paper is produced with a base weight of 23.75 and 25.5 gsm and with a modified viscose treatment.

#### **Features and benefits**

Increased stiffness for better processing during viscose impregnation

Suitable for processing of wider codes

#### Technical properties – K/M

GRADE	Basis Weight (gsm)	Wet Tensile MD (N/m)			Wet Elongation SCD (%)	Wet Elongation ECD (%)	Caustic Tensile MD (N/m)	Caustic Tensile CD (N/m)	Air Permeability (I/min/100 cm²)
2423	23.75	677	555	12.1	12.7	13.6	286	215	1100
2426	25.5	712	584	12.4	12.9	13.7	305	250	950

### Fibrous casing paper: innovative by nature

Our sustainable alternative for meat packaging solutions

Fibrous casing paper: our contribution to a healthier planet



Made from renewable raw material

Plastic-free grades



Suitable for vegan food

### Green material, the key to our fibrous casing paper

Our commitment is towards a more sustainable development. This is why our resources are based on natural, renewable and biodegradable raw materials. Abaca being one.

Abaca is considered the longest and strongest of all natural fibers. It is renewable and biodegradable at the same time.

Compared to synthetic fibers like rayon, polyester and nylon, abaca fiber possesses comparable tensile strength and lower elongation in both wet and dry states.

Abaca is strong, flexible and sustainable, and the reason why this fiber is at the core of our fibrous casing solutions.

## Sustainability is at the heart of our business

Ahlstrom-Munksjö's offering contributes to a more sustainable everyday life by providing renewable materials and solutions that make end products more sustainable.

Our innovation platform allows us to select lower impact materials in our sourcing, improve production processes, and empower customers to create more sustainable fibrous casing solutions.

#### Fibrous casing paper: our journey towards more sustainable meat packaging solutions

We source our Abaca as fibers, which are then transformed into Abaca pulp at our Radcliffe, UK facility.

This business is characterized bv long-lasting relationships with our suppliers, based on trust and loyalty. All supply chains are under scrutiny from a broader perspective sustainability for compliance with social, environmental, economic and responsibility matters.

Ahlstrom-Munksjö is a global leader in fiber-based materials, supplying innovative and sustainable solutions to its customers. Our mission is to expand the role of fiber-based solutions for sustainable everyday life. Our offering include filter materials, release liners, food and beverage processing materials, decor papers, abrasive and tape backings, electrotechnical paper, glass fiber materials, medical fiber materials and solutions for diagnostics as well as a range of specialty papers for industrial and consumer end-uses. Our annual net sales are about EUR3 billion and we employ some 8,000 people. The Ahlstrom-Munksjö share is listed on the Nasdaq Helsinki and Stockholm.

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