Fachsenröder



NATURE
TECHNOLOGY
INNOVATION
FUTURE







HIGH-TECH MATERIALS MANUFACTURED USING NATURAL FIBRES

INNOVATION

MADE BY SACHSENRÖDER.

_ GUSTAV SACHSENRÖDER INVENTED CONTINUOUS VULCANIZED FIBRE.

Innovation is the power to create something new. This capacity has a long history at Sachsenröder. Only a short while after establishing the company, Gustav-Heinrich Sachsenröder manufactured continuous vulcanized fibre at the beginning of the 20th century in a factory beside the river Wupper. He was the first to successfully use a sulphuric acid process.

_ SAVUTEC® AND GESADUR® IN USE ALL OVER THE WORLD.

More innovations were to follow. In over 125 years of company history, a broad range of vulcanized fibre products now with the brand name SAVUTEC® has been developed. These are used in a variety of industries and applications all over the world. The product line is complemented by high-density thermosetting plastics under the brand name GESADUR®.

EXPERIENCE AND RENEWABLE RAW MATERIALS.

The development department constantly works on optimizing our high-yield products. The Sachsenröder company can rely on the technical competence and the vast experience of its employees and utilizes high-tech products one of the most important resources of our times in a precisely targeted way: *renewable raw materials*. Materials made by Sachsenröder are high-tech from nature – sustainable, pioneering and innovative by nature.



SAVUTEC®

THE EXTREME NATURAL FIBRE.

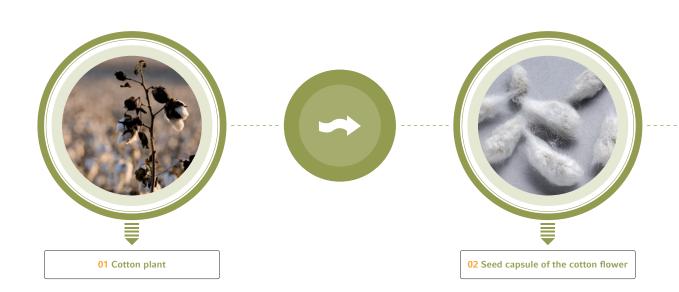
The basic material for vulcanized fibre products is cotton fibres. They belong to the group of renewable raw materials. The raw paper that is made out of the plant fibres is then parchmentized and thus becomes the vulcanized fibre SAVUTEC®. Sachsenröder manufactures SAVUTEC® in a variety of qualities, precisely tailored to the application in question.

GESADUR®

THE NATURAL POLYMER.

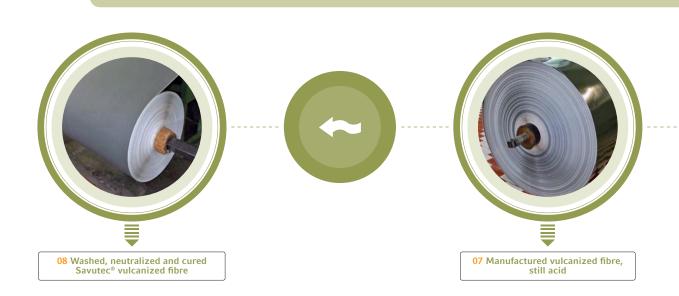
60 % of GESADUR® consists of natural fibre that Sachsenröder uses for making a homogeneous polymer based on high-density thermosetting plastics. During the curing process its structure becomes extremely solid so that it can no longer be deformed. GESADUR® WN is a material of choice in the manufacture of support rollers in the wire stranding industry.

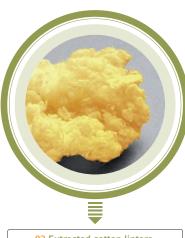
SAVUTEC® FROM PLANT FIBRE TO VULCANIZED FIBRE.



THE PRELIMINARY STAGE // RAW PAPER.

The basic material of the vulcanized fibre SAVUTEC® is cotton, and it is the cotton fibres that are processed or, more precisely, the 3-5mm long linter fibres. These consist of cellulose that is gained from the seed hair of the cotton flower. After the harvest, the cotton linters are mechanically cleaned, cooked and bleached. The paper machine then forms the actual paper structure: For this purpose the cellulose is dissolved in water and made into a paper pulp. This pulp, which in the beginning consists of 99 % water, runs over an endless screed that dehydrates the pulp step by step. The rolled up raw paper sheet is parchmentized at Sachsenröder.











04 Cotton linters, bleached and cleaned

PARCHMENTIZING // SAVUTEC® VULCANIZED FIBRE.
For parchmentizing, one or several layers of raw paper are pulled through a bath with concentrated sulphuric acid, wrung out and subsequently washed out in several baths with decreasing concentration. The acid ensures that the fibres of the cotton tie together anew. »Hydrate cellulose« forms on the surface. The sulphuric acid serves as a catalyser which is washed out completely (neutral pH factor). Subsequently, the vulcanized fibre Savutec® is cured, rolled up and packaged.









06 Parchmentizing process





05 Raw paper sheets

SAVUTEC®

REDISCOVER PROVEN MATERIAL.

PROVEN MATERIAL ON A NATURAL BASIS.

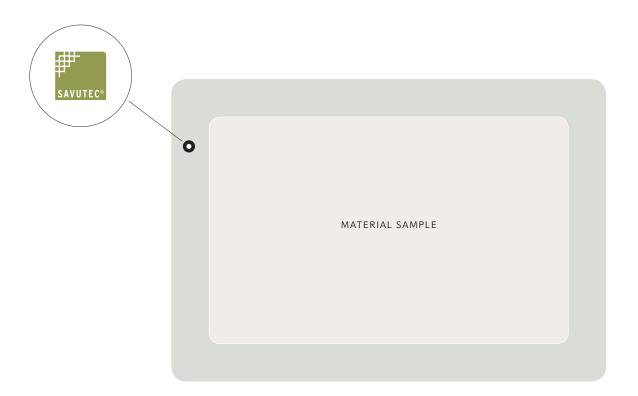
Vulcanized fibre - the name originated from the vulcanization of natural rubber to make hard rubber which is a process similar to parchmentizing raw paper. Vulcanized fibre has been known since 1855, but as a material on a natural basis it is increasingly becoming the focus of industry.

_ QUALITY IN MANY QUALITIES.

With SAVUTEC® Sachsenröder offers a vulcanized fibre of the highest quality and with various qualities. The material properties are determined by the fibre quality and the set up of parchmentizing - tailored to any application. Upon request, SAVUTEC® is also available in matching colours.

_ EXPERTISE AND EXPERIENCE.

Vulcanized fibre has thus proved to be one of the most flexible materials that exist. However, its many possible variations can only be exploited if you have special knowledge and the corresponding experience. Sachsenröder provides this expertise - collected, expanded and refined since 1881.





SAVUTEC®

SO STRONG. SO FORMABLE. SO VARIED.

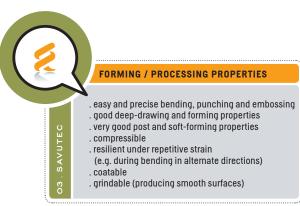
_ A VARIETY OF PROPERTIES.

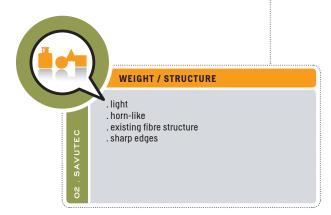
SAVUTEC® is a strong, horn-like material that is very easily formed. The proprietary vulcanized fibre is hard, tough and wear-resistant. It convinces with its high mechanical strength and an extreme tear resistance.

_ A VARIETY OF APPLICATIONS.

What you can do with SAVUTEC® is no less impressive: The material can be worked by bending, embossing, punching, cutting, drilling, milling, grinding, planing and glueing. The applications are equally varied. SAVUTEC® is particularly suitable as a carrier for abrasives and ensures that wood veneers do not peel off. It can be used in gaskets or serves as an insert in X-ray raster screens to focus the rays.







Savutec® with corrugation







AFFINITY TO WARMTH / HEAT

- . high thermal stability even after treatment
- . low thermal conductivity . high ignition point
- . flame burns slowly and evenly
- . clearly defined combustion beard



ELECTRICAL PROPERTIES

- . good electrical properties
- . non-conducting, electrical insulator
- . anti-static





AFFINITY TO WATER / HUMIDITY

- . capillary effect . impregnation possible
- . optimal hygroscopic properties (retaining humidity)
- . suitable for osmotic purposes



STORAGE

. storable

. suitable in sealings

SAVUTEC® SM / SMS BASIS FOR HIGH-YIELD GRINDING.

BEARS RESPONSIBILITY.

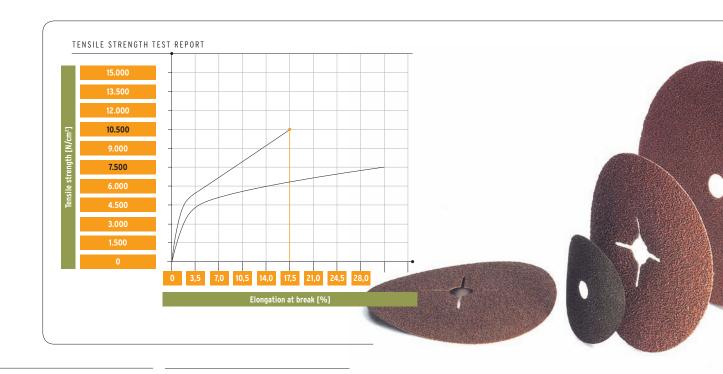
If you wish to increase your performance to its peak you need a solid foundation. The leading manufacturers of flexible grinding services are fully aware of this. They appreciate SAVUTEC® SM/SMS as a carrier as it bears responsibility.

FOR HIGH-YIELD ABRASIVE DISKS.

SAVUTEC® SM/SMS forms the basis for corundum coating of abrasive disks that achieve a circumferential speed of 80 m/sec. This means high demands on the tensile and adhesive strength as well as on the thermal resistance of the material. No problem with SAVUTEC® SM/SMS! The values of the branded vulcanized fibre clearly exceed the standards required by the »Deutscher Schleifscheibenaussuss« [German Committee for Abrasive disks - DSA.]

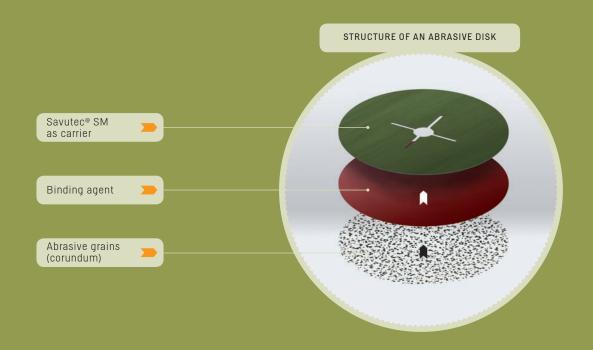
WHAT SAVUTEC® SM/SMS OFFERS TO USERS:

- high stability after thermal treatment for resin curing
- _ high efficiency: structural stability allows making abrasive wheel with low percentage of vulcanized fibre
- high flexibility because of good re-climatizing properties
- eco-compatible because it is a pH neutral hydrate cellulose product





ABRASIVES AND ABRASIVE DISKS



SAVUTEC® N SEALING AND INSULATION IN ANY FORM.

MULTIPLE USES.

A large variety of applications is the key feature of the SAVUTEC® products. SAVUTEC® N serves as the best example. Vulcanized fibre is a component in many sealing and insulation elements that are in turn used in many different industrial areas. And the root cause is not least that SAVUTEC® N has manifold processing options.

_ ELECTRICAL INSULATION AND FORMABLE.

It is its excellent physical and dielectric properties that distinguish SAVUTEC® N. The versatile vulcanized fibre is not only electricity-insulated but it can also be bent, punched and embossed easily and precisely. The fact that the requirements pursuant to DIN 7737 are not only met but even exceeded in terms of values is part of the natural quality features of SAVUTEC® N vulcanized fibre.

WHAT SAVUTEC® N OFFERS TO USERS:

- complies with DIN 7737
- _ type VF3111 for general and mechanical purposes
- _ type VF3121 for electric purposes
- suitable for sealings and insulation
- suitable for bending, punching and embossing
- _ colours // blue-grey (standard), red, black





SEALING AND INSULATION

TECHNOLOGY IS A LANGUAGE WITH THE DISCIPLINE OF A GRAMMAR.
 YOU CAN USE LANGUAGE AS PROSE IN DAILY LIFE.
 AND IF YOU ARE VERY GOOD YOU CAN BE A POET.

LUDWIG MIES VAN DER ROHE

SAVUTEC® DF

COMPOUND AND TOOL FUNCTIONS.

EXCELLENT PROPERTIES.

Coloured decors make furniture, doors and car interiors more attractive. A special compound is needed to achieve the required effect: SAVUTEC® DF – the vulcanized fibre for top decors that Sachsenröder provides in several qualities.

_ CARRIER, SEPARATING FOIL, CONTINUOUS LAMINATE.

SAVUTEC® DF is suitable as a compound for laminates and decors or as a separating foil for deep-drawn elements. The flexible vulcanized fibre decor is available in the qualities Vulkament, ZL-Vulcanized fibre and smooth fibre. All products boast very favourable post and soft-forming properties, good deep-drawing suitability as well as high thermal resistance. Furthermore SAVUTEC® DF can be used for making continuous laminates.

WHAT SAVUTEC® DF OFFERS ALL USERS:

- SAVUTEC® DF / VM AND SAVUTEC® DF / ZL
- especially suited for making shaped surfaces
- _ also suitable as separating foil for surface design
- $_$ in particular for decorative surfaces made on melamine resin and phenol resin base
- material thickness from 0.08 0.50 mm
- _ high adhesion
- _ good forming properties
- _ very good deep-drawing properties
- good thermal resistance, also after processing
- high mechanical and thermal interlaminar strength
- _ standard colours // white, light brown, brown, black

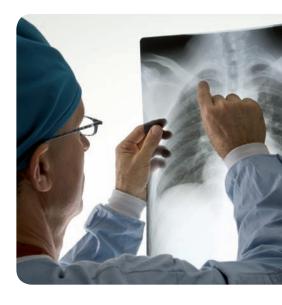






SAVUTEC® SMOOTH FIBRE SOLUTIONS IN MEDICAL TECHNOLOGY.

SAVUTEC® smooth fibre features very good compound properties. This allows the manufacture of interesting material mixes that are used for the numerous purposes in medicine.



SAVUTEC® FT INTERESTING PROPERTIES IN FILTRATION.

SAVUTEC® FT features special characteristic properties that are used in many areas of filtration applications. For example, SAVUTEC® FT plays an important role in Osmosis filtration in particular (known as the Lenzing procedure).



FUTURE MARKETS

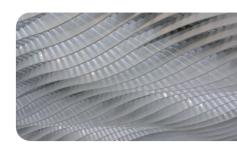
WHAT YOU CAN DO WITH SAVUTEC®!

_ INNOVATIONS FOR THE MARKETS OF THE FUTURE.

Sustainable, efficient, flexible: SAVUTEC® has everything that a modern company can wish for from a material. This is why vulcanized fibre products are successfully used in many industrial areas. But that is not all SAVUTEC® can do. SAVUTEC® offers enormous potential for development in new applications, uses and product ideas. In the industrial or technical field, in design or the craft sector - with SAVUTEC® future topics become innovative solutions for the markets of the future.



FURNITURE DESIGN SOUND PROOFING THERMAL INSULATION









LAMP SHADES
SPECIAL PACKAGING



TECHNOLOGY FASHION

• VISIONS OF A NEW ECONOMY, ENTREPRENEURIAL SPIRIT AND THE COURAGE TO DO SOMETHING NEW IS A CREATIVE PROCESS.

ULRICH DIETZ



IDEAS TRANSFER

FOR WHICH APPLICATION DO YOU NEED A SOLUTION?

SAVUTEC® - a material that provides plenty of food for ideas. Write down your wishes and requirements and find out together with Sachsenröder what can be made out of them.



GESADUR®

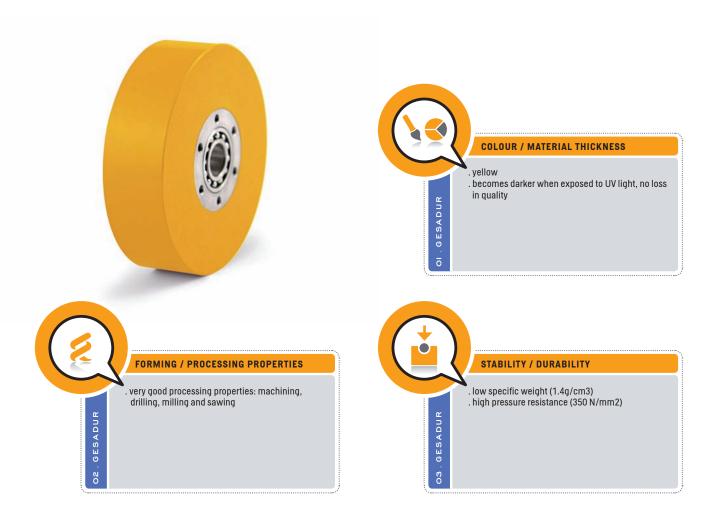
THE NATURAL POLYMER.

POLYMER WITH NATURAL FIBRE.

To call GESADUR® a »natural polymer« may seem contradictory at first glance. But if you analyse this high-yield material more closely it very soon becomes clear: GESADUR® consists of 60 % natural fibre. This means that the second Sachsenröder product line is also made on the basis of renewable raw material.

_ STRONG ARGUMENTS FOR GESADUR

GESADUR® is at its strongest when it needs to show strength: GESADUR® can withstand tremendous forces! The reason for this strength is its three-dimensionally linked structure that forms during the curing process of the thermosetting plastic. With GESADUR® Sachsenröder provides a homogeneous, extremely compact material based on high-density thermosetting plastics, material that has proved itself in world-wide use.







04.GESADUR

AFFINITY TO WARMTH / HEAT

- high thermal stability even after treatment
- . high ignition point . good thermal insulator
- . dimensional stability in great heat
- . stable in any climate



ELECTRIC PROPERTIES

- good dielectric properties
- electricity insulation, electrical insulator antistatic because of GESACLEAN



OG. GESADUR

STORAGE

- . storable . no ageing
- . resistant to termites
- . resistant to tropical climates
- . becomes darker in UV light, no loss in quality



AFFINITY TO WATER / HUMIDITY

- water and oil-repellent
- . dirt-repellent because of GESACLEAN

UNDERROLLERS MADE OF GESADUR® WN

REDUCE RUNNING NOISE, INCREASE ROTATION SPEED.

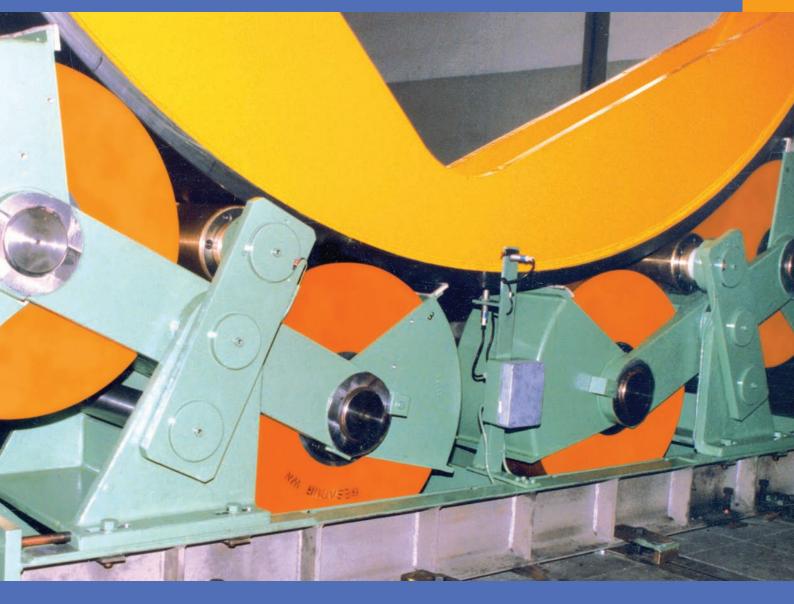
NO DEFORMING OF THE UNDERROLLERS.

Underrollers made of moulded laminates or steel show a high degree of wear and tear. During a prolonged shutdown of a machine the rollers may break or become deformed. Loud running noise and vibrations develop - the machine works inefficiently!

MORE EFFICIENCY WITH GESADUR® WN.

With GESADUR® WN a memory effect starts working: When machines start up again after a prolonged shutdown, the underrollers go back to their original shape. This means that rollers made of GESADUR® WN do not flatten! GESADUR® WN allows you to increase the rotation speed of your machine and at the same time it reduces running noise.





MOULDS

Max. width // 207 | 234 | 262 | 287 | 322 | 362 | 407 | 412 | 492 | 552 | 632 | 707 | 1012 Max. width // 130 | 130 | 150 | 150 | 150 | 170 | 200 | 200 | 200 | 280 | 280 | 280 | 370

TECHNICAL DATA

Pressure resistance // 350 N/mm² | Dimensional stability Martens | 130° C

Bending strength // 80 N/mm 2 | Dielectric strength, processed | 15,5 kV (4 mm) Tensile strength // 45 N/mm 2 | Surface resistance, processed | > 10 9 < 10 10 Ohm

(crosswise to pressing direction)

Tensile strength // 7000-8000 N/mm² | Abrasion value dry, against steel | 0,21

Specific weight // 1,4 g/cm² | Abrasion value depending on lubricant | 0,21

Water absorption // 80 mg

pursuant to DIN 53495/32

SPINNING ROLLERS MADE OF GESADUR® WN

BEST FORMING RESULTS.

FOR SPUN PARTS WITH EXCELLENT SURFACES.

Spinning and profiling rollers made of GESADUR® WN are designed for applications on high-yield machines as they are used in the manufacture of mirror-finish aluminium reflectors and spun parts made of ductile material. Using rollers made of GESADUR® WN on your machines guarantees spun parts with excellent surfaces.

_ LONGER SERVICE LIFE.

Sachsenröder manufactures its spinning rollers on state-of-the-art CNC-lathes – with the highest precision. The high-density polymer GESADUR® WN provides a high surface quality and run true precision of 0.01 millimetres. Should GESADUR® WN spinning rollers show wear and tear, they can easily be reworked – and thus increase their service life significantly.





 THE VALUE OF A PIECE OF WORK IS DEFINED BY OUR OWN BENCHMARKS AND STANDARDS.

KLIRT WEIDEMANN

SACHSENRÖDER

INNOVATION IS OUR TRADITION.

FOUNDED IN 1881 IN WUPPERTAL.

On 19 June 1881 Gustav-Heinrich Sachsenröder concluded a service agreement with parchment master Theodor Biesenkamp to set up a parchment paper factory. The factory commenced operations on 1 February in today's Wuppertal.



INNOVATIVE PRODUCTS FROM WUPPERTAL.

Production started with parchment paper for packaging and decoration. But Gustav-Heinrich Sachsenröder soon recognized the particular advantages of hydrate cellulose and soon began to manufacture multi-layered parchment. This innovative power inspired his son Gustav Sachsenröder who became a pioneer. He was the first who managed to make continuous vulcanized fibre.

Award »Living company culture«. Awarded by Peter Jung, Mayor of the City of Wuppertal.

CLOSELY TIED TO WUPPERTAL.

In the 3th generation Gustav-Adolf Sachsenröder and Günther Sachsenröder continued developing new material: they enlarged the vulcanized fibre product range with the now branded SAVUTEC® and continued to expand the production facilities of GESADUR®. Since 1996 Dirk Sachsenröder has been managing the family business in the 4th generation. Just like his predecessors he feels strongly tied to »his« City of Wuppertal. With great personal commitment Dirk Sachsenröder promotes and supports the city and the industry location along the river Wupper.

ENTREPRENEURIAL AND SOCIAL COMMITMENT.

In influential functions Dirk Sachsenröder promotes development and networking of the industry location along the river Wupper. In the Federation of Entrepreneur's Associations (VBU) he is Chairman of the Board of the Employer's Association of the chemical industry in the region Bergisches Land. He is a shareholder in the Technology Centre Wuppertal (W-tec) and member of the Committee for Industry and Environment of the Chamber of Industry and Commerce Wuppertal, Solingen, Remscheid. Furthermore Dirk Sachsenröder is socially active at the Rotary Club Wuppertal-Süd.





ECONOMY AND ECOLOGY

PRODUCTION IN HARMONY WITH NATURE.



ECO-FRIENDLY SULPHURIC ACID PROCEDURE.

In contrast to the widespread zinc chloride process, the more sophisticated sulphuric acid process uses high-quality and renewable raw fibres. The sulphuric acid serves a catalyst in the parchmentizing process and is subsequently washed out of the final product completely. Thus, SAVUTEC® is 100 % free of residues and equipped with particularly good mechanical material properties.

RESPONSIBILITY FOR MAN AND NATURE.

As a family business it is only natural for Sachsenröder to assume responsibility for people and their environment. This entails both quality products that are made in good working conditions and maintaining the basis of life for the next generation. This is the reason why Sachsenröder manufactures its vulcanized fibre products with the eco-efficient sulphuric acid procedure – as the only company worldwide.





• PROTECTING THE ENVIRONMENT IS AN OPPORTUNITY AND NOT A BURDEN WE HAVE TO CARRY.

HELMLIT SIHLEE

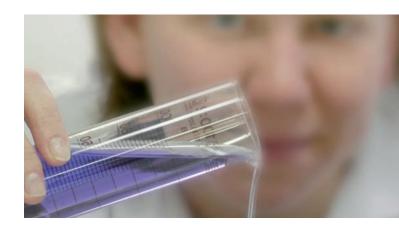
QUALITY MANAGEMENT

THE MAXIM FOR THINKING AND ACTING.

CERTIFIED PURSUANT TO DIN EN 9001.

The basis for highest customer satisfaction is a consistent focus on quality work. It determines thinking and acting at Sachsenröder. All business processes are tied into a quality assurance system that is certified pursuant to DIN EN ISO 9001. The quality of products and services is thus confirmed and documented in every phase – from development to delivery.





HIGH PRODUCT QUALITY, HIGH AVAILABILITY.

The trained employees in the quality assurance department make sure that product quality remains high. They immediately consistently detect. analyse and eliminate even the smallest deviations from predetermined parameters. Sophisticated statistical methods for assessing raw material, production and the final product guarantee thorough control in any production phase. The most modern measuring technology ensures that stringent quality standards are being met. Materials management and logistics are controlled by state-ofthe-art technology. This ensures our high availability and reliable delivery of SAVUTEC® and GESADUR®.



• QUALITY IS NEVER A COINCIDENCE. IT IS ALWAYS THE RESULT OF HIGH GOALS, SINCERE EFFORT, INTELLIGENT PROCEDURE AND SKILFUL EXECUTION.

WILL A FOSTER

THE INNOVATION LABORATORY

RESEARCH PARTNERSHIP WITH UNIVERSITY OF WUPPERTAL.



BENEFITTING FROM THE POTENTIAL OF SAVUTEC®.

Embarking on new paths – Sachsenröder puts this motto of innovative companies into practice. University of Wuppertal and Dirk Sachsenröder jointly founded the innovations laboratory. Its aim is to further optimise the production process of SAVUTEC® and to fully exploit the enormous potential for development of SAVUTEC® vulcanized fibre.

JOINT DEVELOPMENTS.

Furthermore the laboratory is an ideal platform for development partnerships: All companies that wish to utilize SAVUTEC® for their applications are able to research and test these applications here. Sachsenröder shapes the future – jointly with its partners.



University of Wuppertal



YOU SEE THINGS AND ASK »WHY?«
 BUT I DREAM OF THINGS AND SAY »WHY NOT?«

GEORGE BERNARD SHAW

INTERNATIONAL FOCUS SACHSENRÖDER IS THERE FOR YOU, WORLDWIDE.

Your contact persons for SAVUTEC® and GESADUR® are available worldwide. Please find a list of our sales representatives on the internet under »www.sachsenröder.com« under the menu item Contact/Sales Representatives.



Would you like to develop new solutions together with Sachsenröder or learn more about the company and its products SAVUTEC® and GESADUR®? Just call us. Dirk Sachsenröder and his team are looking forward to talking to you.

SACHSENRÖDER GMBH & CO. KG

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