

LANXESS AG
Germany

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The driving force in the field of
specialty chemicals

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- Johannesburg/ZA
- Merebank/ZA
- Newcastle/ZA
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Contents

Preface	5
LANXESS – At the very heart of the chemical industry	8
Performance polymers – a century of know-how for a 21st century market	
Butyl Rubber (BTR) – from high performance tires to chewing gum	12
Performance Butadiene Rubbers (PBR) – versatile performance specialists	13
Technical Rubber Products (TRP) – heat-resistant, tear proof, age-resistant	14
Semi-Crystalline Products (SCP) – traditional products with a future	16
Advanced Intermediates – premium quality for customer added value	
Basic Chemicals (BAC) – based on the principle of quality	20
Saltigo (SGO) – the finest of fine chemicals	22
Performance Chemicals – patents, problem-solvers, precision	
Functional Chemicals (FCC) – specialty chemicals with high added value	26
Inorganic Pigments (IPG) – colors for life	27
Ion Exchange Resins (ION) – a clean performance in water purification	28
Leather (LEA) – a specialty product	30
Material Protection Products (MPP) – delivering all-round protection	32
Rhein Chemie (RCH) – additives are indispensable	34
Rubber Chemicals (RUC) – everything rubber needs	35
Sustainability – a promise that we deliver	
Sustainability drives innovation. Chemicals for the future and a future for the chemical industry.	38
Key markets and products	40



Dear Readers,

LANXESS is a specialty chemicals group at the very heart of the chemical industry which specializes in the production of polymers, intermediates and performance chemicals. Chemical expertise, applications know-how, flexible asset management and proximity to customers all over the world are essential to achieve success in these segments of the industrial chemicals market. These are the segments where LANXESS operates and we know this business. We are committed to manufacturing innovative and high quality products to meet the specific requirements of our many different customers.

All 44 of LANXESS' production facilities and offices around the world effectively combine their strengths to produce an optimum result. This applies to our products and services, our processes and our hardworking staff, who are one hundred percent committed to driving our organization forward. The LANXESS corporate philosophy is inherent in the company name, a combination of the French word "lancer", meaning "to thrust forward", and success. This name represents our unrelenting determination to achieve and our readiness to embrace continual change.

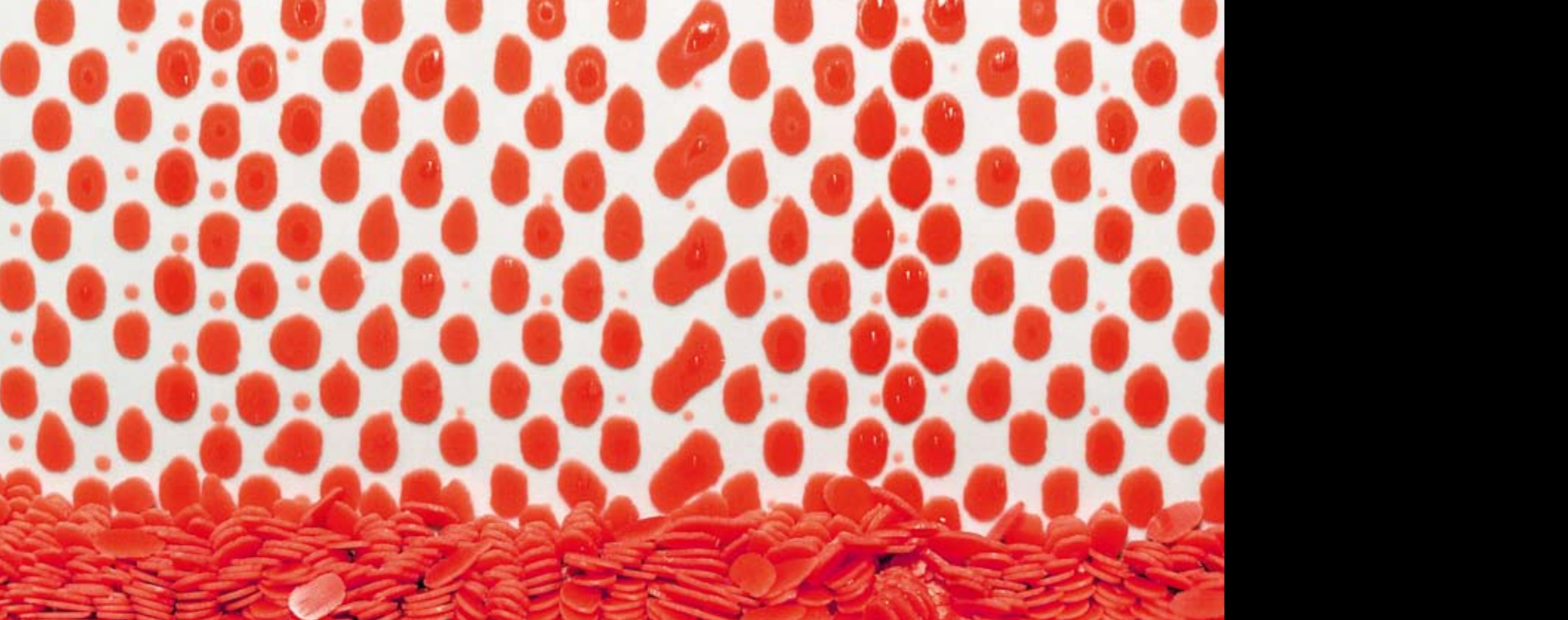
The following pages provide you with information about our 13 business units, the products they manufacture and the benefits they provide to customers.

Sincerely,

Dr. Axel C. Heitmann
CEO of LANXESS AG

"You have to know that you can depend one hundred percent on specialty chemicals – from development to production to punctual worldwide delivery, always maintaining the highest quality."





LANXESS

At the very heart of the chemical industry

LANXESS is a leading global chemicals group with a unique positioning in its industry. It is young yet experienced and traces its roots to Germany while enjoying international presence. LANXESS is perfectly positioned at the heart of the chemical industry, where it focuses on premium business. The specialty chemicals provider's comprehensive portfolio of products and services is geared to polymers, intermediates and specialty chemicals.

A global player with strong roots

LANXESS' worldwide business operations are built on tradition and experience dating back to 1863. It was spun off from the Bayer Group's chemicals and polymers division and went public, as an independent company, on January 31, 2005.

Synthetic rubber – 100 years old and still going strong

One of the important milestones in the history of chemicals was the invention of synthetic rubber 100 years ago, not far away from LANXESS' current headquarters in the German city of Leverkusen. It was thanks to this new kind of rubber that automobiles became a global phenomenon. Although LANXESS is inspired by this invention, it is fully aware of the associated responsibilities. Today, LANXESS develops innovative rubber products for the tire industry and many other applications, both technological and everyday applications, which satisfy increasingly rigorous customer requirements. LANXESS innovations will continue to have major significance in the future.

Strong in development, production and distribution

LANXESS produces thousands of premium products for customers all over the world, including active ingredients for the pharmaceuticals industry, ion exchange resins for industrial water treatment, products for the semiconductor industry, household products, performance polymers and state of the art technologies for the automotive and electrical/electronics industries. LANXESS' products are incorporated into many household and leisure articles, in synthetic rubber for tires and in many other items. Our operations in all of the world's key markets ensure that we are always

close to our customers. We tailor our products and services to the specific requirements of regional markets. Fast development cycles and outstanding flexibility enable us to implement made-to-measure solutions for our customers. We are committed to improving processes as a means of further optimizing our quality and cost structures.

We subscribe to the principle of sustainable development

LANXESS chemical products are an integral part of our everyday lives. They contribute to shaping our living environments and they deliver added value. This is one of LANXESS primary goals. Our Group subscribes to the principle of sustainable development and acts with responsible care, thereby contributing to the well-being of mankind – today and in the future. We implement the principle of sustainable development on a day-to-day basis guided by our global HSEQ (Health, Safety, Environmental Protection, Quality) Management policy.

You can find further information about our products and services in this brochure and on our website at www.lanxess.com.



"If you want modern performance polymers, talk to the heirs of the man who invented synthetic rubber."

Butyl Rubber

From high-performance tires to chewing gum

Over 80 percent of the synthetic butyl rubber produced in the world is used by the tire industry. Butyl rubber is a genuine mass-produced product, which is absolutely indispensable to modern tire manufacturing. It has the special advantage of being impermeable to air, which is why it plays an important role in the optimization of products and the development of new applications. As a result, butyl rubbers – isobutylene polymers with a small proportion of isoprene – and their brominated and chlorinated derivatives, the halogenated butyl rubbers, are ideal for many applications where gas-impermeability is a prerequisite.

Close cooperation with customers

The Butyl Rubber (BTR) business unit is one of the global leaders in production volume in the butyl rubber market. This LANXESS business unit manufactures high-performance and high-quality products based on decades of development and production experience. Our production facilities in Belgium and Canada work to an advanced technological standard. In order to fully satisfy customer requirements, the BTR business unit works in close cooperation with them – with a strong focus on major tire

manufacturers. Consumption of butyl and halobutyl rubbers has developed differently in the past. Halobutyl, which is predominantly used in the production of tire innerliners, accounts for the majority of consumption and experts believe that this trend will continue. The halobutyl rubber market represents a key growth market. LANXESS has responded to this development by establishing pro-active market support structures.

Even small markets need innovation

Butyl rubber is one of the products that enables LANXESS to focus on smaller markets with attractive margins. We are successful in each one of these markets as a result of our flexibility, our cooperative spirit and our innovative approach. Rubber is also a product, which can be very effectively marketed in extremely attractive niche markets, where it is used to make products such as chewing gum, protective clothing or chemical plant and pipe linings. We also market other types of rubber, in addition to butyl rubber, in all of these markets. The production of pharmaceutical closures is a different story. Halobutyl rubbers are widely used in pharmaceutical products because they ensure that closures and membranes are impermeable to gases and liquids and are also puncture-proof. These properties make halobutyl rubber ideal as the basis for safe and reliable closures for sterile injection solutions. Similarly high safety requirements are associated with flask seals; injection plunger seals and infusion pump seals.

In the long-term, China is an extremely attractive market for pharmaceutical closures production and for the production of many other rubber products. Chinese pharmaceutical closures are already at the forefront of the world pharmaceutical closures market.

Performance Butadiene Rubbers

Versatile performance specialists

The LANXESS Performance Butadiene Rubbers (PBR) business unit specializes in the production of versatile polybutadiene and high performance solution styrene-butadiene rubbers (S-SBR). We manufacture them in an ultra-modern solution polymerization process (S-SBR = Solvent SBR). Our product portfolio also includes general purpose E-SBR (emulsion polymerized styrene-butadiene rubber). Tire manufacturers around the world appreciate the first-rate quality and reliability of these products.

E-SBR has been available for decades as a classic tire rubber and is one of the most widely used polymers available today. LANXESS manufactures this elastomer in a cost-effective process, which has been optimized over many decades. Polybutadiene rubbers are produced with the assistance of neodymium, cobalt or lithium catalysts. They are also predominantly used for tire production. By effectively refining the properties of the rubber, we achieve considerable performance enhancements. For example, our neodymium polybutadiene rubber products make modern automobiles considerably safer and more economical. As a result of being far more elastic than many other tire rubbers, they bring about a marked improvement in wear characteristics. Our modern S-SBR rubbers are used in high performance tire tread compounds because they reduce rolling resistance and improve wet grip.

Golf ball cores and shoe sole grips

A substantial amount of performance butadiene rubber is used for polymer modification, which means it is used as an additive in the process of making high impact polystyrene (HIPS) for injection molding applications. Further applications include golf balls, shoe soles, conveyor belts and drive belts.

- **Buna® CB and Taktene® – Polybutadiene rubbers are highly elastic and have excellent resistance to dynamic stress, retaining these properties even at low temperatures.**
- **Buna® VSL – S-SBR rubbers produced by solution polymerization. This extremely flexible technology makes it possible to specifically influence a range of the elastomer's key parameters.**
- **Emulsion polymerized styrene butadiene rubber (E-SBR) is still the most versatile "multipurpose product" for a wide range of applications.**

Technical Rubber Products

Heat resistant, tear proof and age-resistant

LANXESS delivers solutions for the rubber processing industry. Its Technical Rubber Products (TRP) business unit is one of the leading global suppliers of specialty elastomers for a broad spectrum of products and applications. The automotive industry is currently one of the most important customer segments, accounting for roughly 46 percent of TRP sales. TRP products and know-how are also used by the construction industry, the machine and plant construction industry, in oil exploration, aviation, the electronics industry and by manufacturers of household products and shoes. Resistance to abrasion, heat and aggressive environmental influences are just three of the distinguishing properties of LANXESS' technical rubber products.



Diverse applications and reputable brands

The product portfolio includes different polymer classes and an extensive range of brands:
chloroprene rubber (CR): Baypren®
nitrile rubber (NBR): Krynac®, Perbunan®, Baymod® N
ethylene-propylene(diene) rubber (EP(D)M): Buna® EP
hydrogenated nitrile rubber (HNBR): Therban®
ethylene-vinyl acetate rubber (EVM): Levapren®, Levamelt®, Baymod® L

Our experienced staff guarantees timely product delivery and competent technical service. Production facilities in Germany, France and the United States, plus sales offices around the world enable us to provide our customers with local service. World-scale high tech installations ensure efficiency and first-rate quality. That is how the TRP business unit – working with its customers – is able to deliver solutions for a continuous stream of new challenges and drive the targeted development of its products.

Nobel prize-winning technology

One of business unit's key competencies is the development of new products and applications to sustain success.

Example 1 – Therban® (hydrogenated acrylonitrile-butadiene rubber) is a LANXESS high performance elastomer which combines heat, media and dynamic fatigue resistance. The main applications for Therban® are found in the automotive, oil, gas and geothermal heating industries. A new low-viscosity Therban®-AT grade is based on Nobel Prize-winning technology and provides LANXESS with access to many new fields of application.

Example 2 – Levapren® is an EVM rubber offers extremely high heat resistance (up to temperatures of 175 degrees Celsius) and is ideal for fuel hose covers. It is also oil and ozone resistant, which means that it satisfies the highest automobile industry standards. This halogen-free rubber also demonstrates superior characteristics in the production of FRNC (flame retardant non-corrosive) cables and foams for safety-relevant applications and innovative adhesive films.

Example 3 – One of our chloroprene rubber (CR) products, Baypren® is used for the innovative application of producing air spring bellows. In principle, air spring bellows are extremely robust rubber tubes, which inflate radially while contracting in length when exposed to high internal pressure. The extent of contraction depends on pressure and filling volume. Air spring bellows are used to move heavy loads safely, quickly and precisely, even under ex-protection conditions. With suitable transmissions, these units can also function as vehicle drive trains, such as those installed in a trike prototype. In this trike, the linear movement of the air spring bellow is efficiently permuted into the rotating movement of a cam. This kind of air spring bellow can withstand many millions of load changes – over a billion in smaller versions – without damage.

- **The low viscosity HNBR rubbers in the Therban® AT family are the new high-performance elastomers.**
- **Levapren® withstands temperatures of up to 175 degrees Celsius.**
- **Baypren® for the production of air spring bellows.**

Semi-Crystalline Products

Traditional products with a future

The Semi-Crystalline Products (SCP) business unit's product portfolio includes two product lines based on polyamide (PA) and polybutylene terephthalate (PBT). For more than half a century, the Durethan® brand has stood for reinforced and non-reinforced polyamides (PA6, Co-PA and PA66 grades). The PBT product line, Pocan®, is also an internationally established brand. Both product lines are predominantly used in the automotive, electrical and electronics industries.

LANXESS' compounding and application developments have a first-rate reputation around the world. The same applies to our concepts for the optimization of topological structural components. Computers are used to iteratively remove unnecessary material from a virtual block of plastic to create a customized structural component of minimal weight. Our processes have proven effective in practice for the production of automotive front ends, roof frames and brake pedals.

The world's automotive manufacturers trust hybrid technology

The intelligent bonding of plastic and metal enables the cost-effective production of highly rigid yet lightweight automobile parts. We are also developing interesting concepts for our customers' "under the hood" plastic applications, where intake hoses, oil modules and oil sumps made of Durethan® grades demonstrate high heat resistance and durability. Effective flame retardant concepts make Durethan® and Pocan® the preferred material for entertainment/office electronics and electrical household appliances.



High tech – even in fishing lines

Often, when we are in the process of opening up new markets for polymers, materials and technologies are developed concurrently. Water injection technology (WIT), for example, is used to make thermoplastic molded parts with functional cavities which provide economic and technical advantages such as shorter cycles and high quality surface finishes. Another process called laser direct structuring (LDS), permits the cost-effective production of mechatronic components and three-dimensional injection molded interconnect devices (3D MIDs) made of polyesters. LANXESS has developed special Pocan® grades for this application. Polyamide monofilaments are marketed under the traditional LANXESS brand names of Perlon®, Atlas® and Bayco®. They are used to make highly durable fishing-lines, cords, ropes, textiles and sports articles. Two important applications for Perlon® and polyester monofilaments are press felts and paper machine

clothing. Raw materials are one of the LANXESS SCP business unit's core product bases. The production facilities for cyclohexanol, cyclohexanone, caprolactam, adipic acid and glass fibers in Krefeld-Uerdingen and Antwerp are among the largest of their kind.

- **Durethan® with maximum heat resistance and durability.**
- **Laser direct structuring (LDS) for the cost-effective production of 3D injection molded interconnect devices in polyester.**
- **Perlon® and polyester monofilaments play a pioneering role in press felt and paper machine clothing production.**



”Competent research and development are of the utmost importance if you want to produce competitive and reliable advanced intermediates.“

Basic Chemicals

Quality is the basis for excellence

The LANXESS Basic Chemicals (BAC) business unit is one of the world's leading suppliers of high-quality industrial chemicals. It has a comprehensive portfolio of products and the aromatic compounds we produce guarantee our customers' long-term success. The comprehensive family tree of aromatic, nitrated, hydrogenated, phosgenated and chlorinated compounds are manufactured in a unique integrated network of production plants. This "Aromatenverbund" or Aromatics Network, which is the name we have given to our integrated plant network, has existed for over one hundred years now. It manufactures chlorotoluenes, cresols, chlorobenzenes, nitrochlorobenzenes, isocyanates, nitrotoluenes and their derivatives. LANXESS has special expertise in the selective and/or specific creation of certain positional isomers of these aromatic compounds. Aromatic chemical products are already more than just intermediates. One example is Baynox®, a biodiesel stabilizer which prevents the premature oxidation of this eco-fuel.

Know-how is the basis for success

The Basic Chemicals business unit is a leading manufacturer of amines, amino alcohols, benzyl derivatives, fluorine compounds, oxidation products such as phthalic acid and maleic acid anhydride, plus polyols such as trimethylolpropane and hexandiol. Its portfolio also includes inorganic basic chemicals such as hydrofluoric acid, sulfur-containing products such as sulfuric acid and oleum, sodium bisulfite, thionyl and chlorosulfonic acid.

Over the last four decades, LANXESS has acquired extensive knowledge in the field of calcium sulfate binders for screed made on the basis of the calcium sulfate which is a by-product of hydrofluoric acid production. LANXESS is the supplier of first choice for conventional calcium sulfate screed and for calcium sulfate floating screed. The standardized calcium sulfate binder CAB 30 and the extensive range of screed additives can be found in practically all calcium sulfate screed systems.

Market orientation is the basis for the future

Many years of experience in the production of high quality basic chemicals are the framework for our solid partnerships with customers. Over the years, the business unit's market and competitive position have continually improved. Today, we are a competitive player in all key business segments. Strict focus on the market and the capability to recognize trends and new potential as they emerge are the basis for our success – now and in the future.

- **A comprehensive family tree of aromatic, nitrated, hydrogenated, phosgenated and chlorinated compounds.**
- **Baynox®, a biodiesel stabilizer which protects the fuel against premature oxidation.**
- **Greater engagement in the floating plaster floor market.**





saltigo

sector, Saltigo produces active ingredients as the basis for important pharmaceutical products such as antibiotics, antidepressants, and cardiovascular and cancer medications. Saltigo also produces additives for polymers and electronic chemicals, fuel additives and substances for cosmetics.

Exclusive and close to customers

Saltigo is one of the world's leading custom manufacturing and custom synthesis partners, using a comprehensive array of synthesis technologies and processes. These technologies and processes are continually optimized so that we can meet customer preferences and market requirements especially those of innovation-driven industries which manufacture products for diverse technological applications. Custom synthesis takes place in ultra-modern multipurpose plants. Through the use of state of the art technology, we can supply a few kilograms or several thousand metric tons of our products. The plants at the Leverkusen site, which operate according to CGMP (Current Good Manufacturing Practices), have FDA (Food and Drug Administration), DIN ISO 9001: 2000 and DIN 14001 certification. The production output of active ingredients and registered intermediate products is over 200 metric tons per annum.

In January 2008, the LANXESS Group opened a new plant in Redmond near Seattle, in the U.S. state of Washington. These CGMP conforming plants are where Saltigo focuses on the early lifecycle phases of active ingredients, which are initially required in laboratory and pilot batch quantities.

One of many examples is the active ingredient for insect repellent, Saltidin[®], which combines effective protection with cosmetic properties and is suitable for products such as sun creams with insect repellent effect. Saltidin[®] offers protection against mosquito, tick and horse fly bites, plus diseases such as borreliosis or early summer encephalitis.

- **Custom solutions tailored to customer requirements.**
- **A reliable exclusive custom synthesis partner worldwide.**
- **State of the art technologies and plants.**

Saltigo

The finest of fine chemicals

Saltigo GmbH is a wholly owned subsidiary of LANXESS, which has been operating as an independent entity in the fine chemicals market since April 2006. Saltigo GmbH's proven expertise and many years of experience make it one of the leading companies in the field of custom synthesis.

Versatility is a good starting point

The intermediate products and active ingredients that Saltigo produces for its customers form the basis for a wide range of pharmaceuticals, agrochemicals, polymers and specialty chemicals which play a decisive role in our everyday lives. They are incorporated in crop protection products such as herbicides, insecticides and fungicides. In the pharmaceuticals



"LANXESS performance chemicals deliver a fascinating variety of custom solutions."

Specialty products with high added value

The Functional Chemicals (FCC) business unit has three product groups: phosphorous chemicals, polymer additives and colorants. It has German production facilities in Leverkusen and Uerdingen and a plant in Mexico. The most important, yet by no means the only customer segment, is the plastics manufacturing and processing industry. FCC also manufactures water treatment chemicals and it boasts a product portfolio of specialty chemicals, which deliver high added value. Some of them, such as organic phosphorous compounds for flame-retardants in plastics or plasticizers, have extensive patent protection.

Phosphorous chemicals – FCC has one of the world's largest production networks for phosphorous compounds, extending from phosphorous chlorides to diverse phosphates and phosphonates. This network guarantees efficient production, global availability and high delivery reliability. Halogen-free flame-retardants are one product, which is going to be considerably more significant in the future. Levagard® DMPP has a high phosphorous content of over 20 percent to satisfy the new EU fire protection standards for composite elements made of rigid polyurethane foam. The products in the Baypure® range comprise special complexation and dispersing solutions for water treatment, which prevent or slow the formation of not readily soluble calcium salts. Other applications include cleaning agents, laundry detergents, washing liquids and tunnel drainage systems. The Baypure® products in this category have already received several environmental awards.

Polymer additives – The polymer additives product group includes plasticizers, bonding agents, modifiers and secondary alane sulfonates. The comprehensive range of special plasticizers includes monomer and polymer products such as Adimoll® (adipate) and Ultramoll® (polyadipate). The polymer additive Mesamol® (alkyl sulfonate ester), is an effective alternative in connection with the increasingly heated debate on phthalate-free plasticizers. Our business unit is one of the world's leading providers of bonding agents for technical textiles coating. It also manufactures specialty products for PVC modification based on ABS/SAN under the Baymod® brand.

Organic dyes – The Macrolex® brand has an excellent reputation among its customers worldwide. The products in this line conform to the strict requirements of the American Food and Drug Administration (FDA) on dyes for polyethylenterephthalate (PET), the most significant material for the production of lightweight, breakproof beverage bottles. Our range includes over 20 dyes, which produce brilliant colors for the globally increasing volume of tinted PET bottles

Macrolex® colorants and Bayplast® pigments give LANXESS a comprehensive portfolio of plastics tinting products in terms of color diversity, purity, availability and reproducibility. Levanyl® Gran and Levanox® Gran are innovative, ecologically produced pigment preparations for paints, printing inks and many other applications. The wide range of dry pigment preparations was specifically developed for a variety of special coloring applications. Our products effectively solve problems and extensive technical competence is necessary to market them.

- **One of the largest phosphorous chemical production networks.**
- **Conformity with new EU fire protection standards.**
- **Environmental awards and extensive patent protection.**

Inorganic pigments

Color for life

LANXESS' Inorganic Pigments (IPG) business unit is driving the development of inorganic pigments. The Inorganic Pigments business unit's iron oxide and chromium oxide pigments are distinguished by their excellent quality and their standard-conforming and environmentally friendly processing properties. Its biggest customer segment is the construction industry, followed by the paints and coatings, plastics and paper industries.

Production facilities in Australia, Brazil, China, Germany, the United Kingdom, Spain and the United States ensure that the IPG business unit is close to customers across the globe. The clear focus is on signal colors, from yellow through orange and red to green, brown and black. LANXESS' Bayferrox® product line's pigments and its chromium oxide pigments have proven their suitability for coloring a wide range of products. The construction industry is the biggest customer group, accounting for roughly 50 percent of IPG sales revenue. It predominantly uses our pigments for concrete structural components and roof tiles.

Our products have been reliable components of paints and coatings, plastics, paper and special pigments for toners and other applications for decades. The business unit's iron oxide and chromium oxide pigments, which go by the brand names of Bayferrox®, Bayoxide®, Bayscape®, Colortherm® and Chromoxidgrün, are global industry standards. They deliver excellent lightfastness, weatherproofness and resistance to chemicals. The synthetic iron oxide in the Bayferrox® product family is available in powder, granulate and compact pigment form. Our microgranulates have excellent dust-free processing properties and offer a considerably higher bulk density than powder products. LANXESS produces a comprehensive range of technical oxides for special applications. These are iron and chromium oxide-based products for the production of airbags, brake linings or refractory ceramics, photocopier and printer toners and adsorbers for drinking and wastewater purification.

Construction industry – LANXESS offers a broad range of inorganic pigments which deliver optimum results in colored concrete products. LANXESS iron oxide pigments offer customers added value and material improvements.

Paints and coatings – High-performance pigments comprise micronized red, yellow and black pigments with narrow tolerances in terms of color shade and strength and excellent wettability. There are also specialty products which help overcome the limitations of conventional iron oxide pigments.

Artificial lawns – Colortherm® pigments are inexpensive, extremely lightfast and weatherproof. They have UV light absorbing properties which prevent the plastic from degrading due to sunlight exposure. It's practically impossible to differentiate between the color of artificial lawns and the genuine thing with Colortherm® phthalocyanine compounds.

- **High standards of quality and ecological processing.**
- **Iron oxide pigments with excellent lightfastness, weatherproofness and resistance to chemicals.**
- **It is practically impossible to differentiate between the color of artificial lawns and the genuine thing with Colortherm® phthalocyanine compounds.**

Ion Exchange Resins

A clean performance in water purification

Roughly one third of the ion exchange resins that LANXESS manufactures are used for industrial water treatment. The main application is the production of process water for many different sectors of industry: boiler feed water for power stations, dilution water for the chemicals industry and rinsing water for the metal processing industry among others. The LANXESS Ion Exchange Resins (ION) business unit is a reputable leading manufacturer of ion exchange resins, adsorbers and functional polymers. These are used in many different industries for the treatment of water and other liquids.

We guarantee utmost purity

Another key application for our ion exchange resins is ultra pure water (UPW) for the production of microelectronic products such as semiconductor components. The food industry uses our ion exchange resins to turn brown cane sugar into the white product we are all familiar with, and to clean substances such as gelatin and glycerin solutions. They are also used as catalysts for brewing water production. The oxygen, which is released in the process, reacts with the hydrogen to form water in strict compliance with the German purity law. This prolongs the product's shelf life after filling. Many potable water filters also function according to this principle.

Ion exchange resins are also very significant as industrial catalysts in other applications, such as the production of input products for the polycarbonate that is used to make data media such as CDs and DVDs.

Processes to remove uranium, arsenic and heavy metals from groundwater and for groundwater processing, or to obtain small quantities of softened water for household use often require ion exchange resins with a highly specific action.

The Ion Exchange Resins business unit has been manufacturing ion exchange resins for all of these applications under the Lewatit® brand name for many years. This brand name is synonymous with quality and efficiency globally. Further products are marketed under the Ionac® brand.

The LANXESS ION business unit regularly sets new technological standards. Its highly efficient countercurrent technology, such as the fluidized bed, rinse bed, lift bed and multistep processes, is based on a patented development by LANXESS. These are now standard processes for modern industrial water treatment and food applications. The introduction of Lewatit® MonoPlus monodispersed ion exchange resins has enabled us to further enhance the efficiency of these processes because smaller reaction containers and lower quantities of regenerant chemicals are required. The lower volume of wastewater used improves environmental performance and the ultimate quality of the water.

Our product portfolio is supported by a comprehensive package of services. It extends from product training for user groups, including advice on specific applications, to prompt problem solving. Visit the website at www.lewatit.com for further information.

LANXESS has production facilities in Leverkusen and Bitterfeld. In 2010, another production facility will go into operation in Jhagadia, India.

- **Process and potable water treatment and ultra pure water.**
- **Preparation of solutions in the food industry.**
- **Chemical processes from synthesis, through isolation and purification of products to waste water treatment.**
- **Preparation of fermentation broths.**





This business unit produces leather chemicals at sites in Argentina, China, Germany, India, Italy and South Africa, close to the most significant markets and the raw material supplies. LANXESS owns the entire supply chain for mineral tanning agents, extending to a chromite mine in South Africa.

The LANXESS product assortment is extended and enhanced by a cooperation with the Rohm and Haas Company. Our portfolio is regularly adapted and optimized to reflect changing fashion trends or environmental regulations. We are committed to the chemical industry's Responsible Care initiative, and to the economic necessity of leather production without compromising on quality. The Leather (LEA) business unit delivers customer-oriented solutions, from standard products to high tech systems, and it also provides on-site technical services.

Closer to the market

The Leather business unit introduced a global business concept for its leather activities many years ago so that it could get closer to its key markets. The logistics teams continually optimize their services to reflect local customer needs. Customers around the world benefit from the LANXESS' leather team's comprehensive portfolio of regional services.

Brands such as Aquaderm®, Bayderm®, Baykanol®, Baygen®, Chromosal®, Euderm®, Eukanol®, Isoderm®, Levacast®, Retingan® and Tanigan® are appreciated by the leather industry for their high quality and they meet the industry's requirements of chemicals throughout the entire leather production chain.

Leather

A specialty product

Experience in high quality chemicals for leather tanning, dyeing and finishing ensure that the final product looks as natural as possible. LANXESS delivers this quality on the basis of many years of experience, intensive research, continuous development and competent service.

Today, the shoe industry is by far the leather industry's biggest customer group. Over 50 percent of all rawhide is processed into leather uppers. The automobile and upholstery industries also use large quantities of leather produced with the help of LANXESS leather chemicals.

Fashion, quality and environmental protection

Leather is one of only a few materials which has to satisfy changing and increasingly demanding requirements from season to season. In order to do this, leather producers need a competent and dependable partner, a partner who will help them to guarantee that their leather's structure, color and feel will reflect the very latest trends. LANXESS is one of the few leather industry suppliers with a complete portfolio of all the products used in leather manufacturing, including inorganic and synthetic tanning products, preservation and fat liquoring agents, colorants, and tanning and finishing auxiliaries.



Material Protection Products

All-round protection

The Material Protection Products (MPP) business unit's products are used practically everywhere in the world in a broad range of applications ranging from active ingredients for anti-microbial, insecticide products to preservatives. We deliver custom solutions for almost all sectors of industry, especially the wood protection industry, the paints and coatings industry, the construction sector, health and personal care product manufacturers and the food industry.

Globally proven

The Preventol® product range comprises demonstrably effective microbiocides for diverse disinfection applications. These include antiseptic applications and active ingredients for instrument and surface disinfection in hospitals or for animal husbandry. The Material Protection Products business unit is also a leading manufacturer of active ingredients for wood protection products and its Preventol® fungicides and insecticides are essential components of well-known protective coatings for wood.

Innovative and flexible

Another key application for this business unit's products is the preservation of diverse products such as water-based coatings, plaster and mortar, compounders, glues and adhesives, emulsions and slurries. It produces a comprehensive range of Preventol®, Tektamer®, Metasol® and Biochek® formulations which comply with both technical and regulatory requirements. Our Velcorin® brand is a technology for many non-alcoholic beverages and wine, providing customers in the beverage industry with the flexibility they need to make innovative products.

Toxicity and ecotoxicity-tested

Material protection products are subject to strict licensing requirements in many countries and regions. LANXESS provides toxicity and ecotoxicity-tested and officially approved products accompanied by comprehensive product data sheets. LANXESS registration experts are actively involved in association committees and in close contact with registration authorities, ensuring a reliable regulatory framework for customer registrations and clearances.

The safety of the active ingredients and the products that customers make with them, employee health and safety and environmental protection are priority objectives at LANXESS.

The Material Protection Products business unit provides comprehensive advice, registration management and project-specific research and development services. Production facilities in Germany, Argentina, Mexico and China, plus four service centers, an international distribution network and a global customer service organization provide our customers with the assurance that material protection is in safe hands at LANXESS.

Rhein Chemie

Additives are an absolute must

Rhein Chemie (RCH), a LANXESS subsidiary, caters to customers in many different segments of the polymer and lubricants industries. The company's 4,000 products all provide first-rate quality and safety.

Every year, roughly 80,000 metric tons of RCH products are used around the globe in complex and highly demanding applications. This diversity of applications is down to RCH's cross-industry orientation and the expertise it has accumulated since its founding in 1889. It has been a rubber industry pioneer since 1902 and this industry remains a key customer for numerous products and services today. Among the products it purchases are dithiophosphates, which are used for the cross-linking of nitrosamine-free rubber compounds. The Rhenogran®

product family includes a predispersed, polymer-bound rubber additive for the more reliable and reproducible production of hard-wearing rubber articles. Expenditure on development projects has paid off – because Rhein Chemie is now one of the world development leaders. Further additives prevent rubber from gradually becoming brittle as a result of UV light exposure and ensure that articles with complex designs have optimum demoldability properties.

Efficient lubrication solutions

Rhein Chemie produces a range of problem-solving products for a whole series of other polymers, such as additives, which improve the elongation, impact strength, tensile and flexural moduli of cast polyamides. Other additives (Stabaxol®) protect polymers in moist environments against hydrolysis and the associated premature aging.

Another of Rhein Chemie's mainstays, based on over 50 years of experience, is the development of additives for industrial lubricants. Additives which are specifically tailored to the application (Additin®) reduce wear and tear in gear units, protect against corrosion, improve the highpressure properties of metal processing fluids and prevent the premature aging of lubricants used in high stress conditions.

Friction-free cooperation

Rhein Chemie's products – whether for polymers or lubricants – are all fully geared to delivering added value to customers. For example, the components in Rhein Chemie's lubricant additive packages are designed for simple combination and the company's own application laboratories continually optimize all additives in comprehensive field tests. This enables it to continually extend its range of products and services. A team of experts in the fields of research and development, application engineering, business development and processing technology continuously conduct research into new applications and design innovative new products for them. Optimum customer benefits are guaranteed by a close cooperation between processors and users. These customer groups can depend on both high quality chemical additives and expert application engineering advice from Rhein Chemie. If necessary, they can also count on comprehensive support from the company's own laboratories and test centers.

Roughly 9,000 customers in over 120 countries around the world trust in the company's products and its employees' experience. Rhein Chemie is headquartered in Mannheim, Germany. It operates production facilities in all of the world's key industrial centers: Germany, the United States, Brazil, India, Japan and China.



Rubber Chemicals

Everything that rubber needs

The Rubber Chemicals (RUC) business unit provides many high-grade products with excellent processing properties to customers in the tire industry and technical rubber article manufacturers. The most important application for LANXESS rubber chemicals is tire rubber for the automotive industry. This industry accounts for around two-thirds of the company's sales revenue. It is generally necessary to add rubber chemicals in rubber production to facilitate compounding and processing of elastomers, blends or their rubber compounds. Rubber chemicals are also used to create specific properties in elastomers, finished rubber or latex products or to protect an end product from ageing or decomposition under service conditions (e.g. as a result of oxidation).

In addition, rubber chemicals are used in other areas such as the cosmetics and pharmaceuticals industries, in mining, material protection and fuel and oil applications. The most important and well-known LANXESS brands are Vulkacit® (accelerators), Vulkanox® (ageing inhibitors), Cohedur® (bonding agents), Vulcuren® (crosslinkers), Vulkasil® (fillers), Vulkazon® (non-staining antiozonants), Vulkalent® (retarders) and Renacit® (mastication agents).

Vulcuren® is a very popular crosslinker and also an anti-reversion agent. Its principle of action is the creation of highly heat-stable yet flexible hybrid bridges. Under the influence of heat – at 180 degrees Celsius for instance – the rubber-like properties of the material are retained for much longer than with conventional blends. Vulcuren® has also proven its effectiveness as a component of NR, BR and SBR rubber in truck tires. Comparative measurements of tread depth prove that the crosslinker reduces abrasion. At the same time, the product allows a higher vulcanizing temperature and thus a significant increase in productivity, especially with large rubber parts such as truck and construction machine tires.

RUC

Everything runs smoothly

The business unit uses modern production processes at its modern production facilities around the world. The LANXESS engineers and technicians continually work on improving the already exemplary safety and efficiency. New and optimized products are specifically tailored to customer requirements. Product quality is assured by our comprehensive quality management system, which is absolutely essential if we are to guarantee the high quality of our customers' products. The RUC business unit is a global manufacturer and supplier of rubber chemicals. LANXESS is thus a leading provider in this market segment with production facilities at a total of eight sites in Belgium, Germany, India, South Africa, China and the United States to ensure local services to customers in these markets. The business unit works in close collaboration with the German Research and Development Centers in Dormagen, the Technical Centers in Leverkusen, Germany, and Thane, India, to promote direct dialogue with the LANXESS Performance Polymers business unit.

- **Vulcuren® is a very popular crosslinker and also an anti-reversion agent.**
- **Rubber chemicals are used in the cosmetics and pharmaceuticals industries, in mining, material protection and fuel and oil applications.**
- **Close cooperation with the German Research and Development Centers in Dormagen and Leverkusen (Germany) and Thane (India).**

"Sustainability is a promise on which we deliver."



Sustainability as an innovation driver

The LANXESS mission statement is very much focused on corporate responsibility. We aim to achieve sustainable development which harmonizes economic, ecological and social requirements. Safety, environmental protection, social responsibility, quality and productivity are our priority business objectives. LANXESS is convinced that sustainable development and responsible care are the basic prerequisites for the future of the chemicals industry.

Chemicals for the future. A future for chemicals.

Here are three examples which demonstrate how we practice the principle of sustainability.

Example 1 – In Port Jérôme, France, LANXESS has put an ultra-modern, regenerative thermal oxidizer, or RTO, into operation. In the past, the by-products of rubber production, rubber particles and solvents in the form of hydrocarbon compounds, were exhausted in waste air. The new RTO almost entirely removes all these particles from the waste air. Thanks to an innovative process combination, the RTO combusts the hydrocarbons with virtually no need to add fossil fuels such as natural gas. This LANXESS-specific process reduces CO₂ emissions from incineration by roughly 50 percent compared with conventional incineration methods.

Example 2 – At the Brazilian site in Porto Feliz, LANXESS is building a cogeneration plant to burn bagasse (sugar cane waste). The by-products of this process are steam and electricity. From 2010 onwards, this plant will enable LANXESS to generate all of the energy required for iron oxide pigment production at the site itself and dispense with fossil fuels altogether. As a result, it will cut down on energy costs and reduce CO₂ emissions by roughly 44,000 metric tons per year. This modern, highly efficient plant has an efficiency rating of up to 90 percent. The ash produced during the process can be used as fertilizer.

Example 3 – To achieve a further significant reduction in the emission of harmful greenhouse gases, the specialty chemicals group put a second nitrous oxide (N₂O) reduction unit – called LARA – into operation at its Krefeld-Uerdingen site in the first quarter of 2009. As a result, LANXESS will cut its annual emissions of greenhouse gases in Germany by 1.5 million metric tons by 2012 as compared with 2007 emissions. This project will eliminate up to 80 percent of the company's total direct greenhouse gas emissions in Germany.



Anchored in the corporate philosophy

In the same way that sustainability and ecological awareness are anchored in the LANXESS business objectives, we believe that ecological product innovations are the key to our future success. Dwindling resources, climate and demographic change, increasing urbanization and mobility are issues that our research teams have been investigating for years. Our extensive operations give us the opportunity to conduct research in all parts of the world. For example, we are working on rubber additives that extend the life of car tires, considerably improving their grip on wet roads and reduce emissions. As a component of fuel cells, the rubber additives permit an increase in reaction temperature from 60 to 200 degrees Celsius, which significantly improves engine efficiency.

This delivers equal benefits to humans and the environment. LANXESS research and development teams around the world have the task of helping our business units to expand into new and attractive growth markets which follow defined mega trends. As a result, the business units can adapt their core processes to future developments and requirements.

- **An RTO – regenerative thermal oxidizer – removes almost all solvents from the waste air at our site in Port Jérôme, France.**
- **Energy generation with sugar cane waste in Brazil: a cogeneration plant reduces CO₂ emissions by 44,000 metric tons a year.**
- **Krefeld: LANXESS will eliminate up to 80 percent of its total direct greenhouse gas emissions in Germany.**
- **Nanoprene®, a rubber additive, reduces abrasion in rubber tires and improves the efficiency of fuel cell engines.**

Key markets and products

Butyl Rubber (BTR)

Butyl rubber
Bromine butyl and chlorobutyl rubber (halobutyl)

Performance Butadiene Rubbers (PBR)

Taktene®, Buna® CB: polybutadiene rubber (PBR)
Buna® SL, Buna® VSL, Buna® BL: solution styrene butadiene rubber (S-SBR)
Buna SE: emulsion styrene butadiene rubber (E-SBR)

Technical Rubber Products (TPR)

Baypren®: polychloroprene high consistency rubber (CR)
Buna® EP: ethylene-propylene-(diene) rubber (EP(D)M)
Levapren®, LevamelT®: ethylene-vinyl acetate rubber (EVM)
Perbunan®/Krynac®: nitrile rubber (NBR)
Therban®: hydrogenated nitrile rubber (NBR)

Semi-Crystalline Products (SCP)

Durethan®: technical plastics on the basis of PA6, Co-PA and PA66
Pocan®: technical plastics on the basis of PBT
Glass fibers to reinforce technical plastics
Caprolactam
Adipic acid
Ammonium sulfate
Perlon®, Atlas®, Bayco®: polyamide and polyester monofilaments

Basic Chemicals (BAC)

Aromatic compounds, e.g. chlorobenzene, chlorotoluene, cresol, nitrotoluene and their derivatives
Amines, amino alcohols, benzyl derivatives, fluorine compounds, oxidation products, e.g. phthalic acid anhydride, maleic acid anhydride
Polyols, e.g. trimethylolpropane, hexandiol
Hydrofluoric acid, sulfuric acid, hydrazine hydrate, anhydrite, plaster floor additives

Saltigo

Saltidin®

Functional Chemicals (FCC)

Disflamoll® and Levagard®: phosphorous-based flame retardants
Baypure®: biologically degradable dispersing and complexing agents
Mesamoll®, Adimoll®, Unimoll®, Ultramoll®, Triacetin: special softeners for polymer processing
Macrolex®: organic colorants for plastics tinting
Levanox®, Levanyl®, Bayfast®, Solfort®: mainly organic pigments and pigment preparations for plastics, paints and coatings
Phosphorous chloride

Inorganic Pigments (IPG)

Bayferrox®, Bayoxide®, Bayscape®, Colortherm® (iron oxide) chromium oxide pigments

Ion Exchange Resins (ION)

Lewatit®
Ionac®

Leather (LEA)

Baymol®, Cismollan®, Preventol®, Baykanol®, Xeroderm®: tanning auxiliaries
Baychrom®, Blancorol®, Chromosal®: mineral tanning and retanning products
Tanigan®, Retingan®, Leukotan™, Levotan®, Lubritan™, Baygenal®, Levaderm®, Eukanol®, Euderm®, Bayderm®: colorants
Bayderm®, Aquaderm®: polyurethane dispersions
Aquaderm®, Euderm®, Eukanol®, Baysin®, Primal™, Acrysol™: dressing auxiliaries
Isoderm®: solvent-containing top coats
Baygen®, Levacast®: special processes

Material Protection Products (MPP)

Preventol®: active ingredient for in-can preservation, disinfectants and wood protection products
Tektamer® and Biochek®: active ingredients for in-can preservation
Metasol®: fungicide for coatings, caulks and adhesives
Velcorin®: technology concept for non-alcoholic beverages and wine

Rhein Chemie (RCH)

Around 4,000 active ingredient preparations and specialty chemicals, including Rhenogran®, Rhenoslab®, Aktiplast®, Aflux®, Rhenosin®, Rhenopren®, Urepan® (LANXESS AG), Rhenoblend®, Rhenodiv®, Rhenofit®, Rhenocure®, Antilux®: additives for the rubber industry, Levaform®, Batch-Ready®, Poly-Dispension® (USA), Additin®: additives for the lubricants industry, RC-PUR®, Stabaxol®: additives for the polyurethane and plastics industry

Rubber Chemicals (RUC)

Vulkanox®: aging inhibitor
Vulkacit®: accelerator
Vulcuren®, Vulkazon®, Vulkalent® etc.: specialty chemicals

Forward looking statements

This brochure contains forward-looking statements based on current assumptions and forecasts made by LANXESS AG management. Various known and unknown risks, uncertainties and other factors could lead to material differences between the actual future results, financial situation, development or performance of the company and the estimates provided here. The company assumes no liability whatsoever to update these forward-looking statements or to adapt them to future events or developments.

Brand names containing the letters "Bay" are brands of Bayer AG, Leverkusen, Germany. Lubritan, Leukotan, Primal and Acrysol are brands of the Rohm and Haas Company, USA. All other brands are LANXESS Group brands.

”LANXESS has the courage and the capability to play an active role in shaping the future of the global chemicals market.“

Dr. Axel Claus Heitmann,
CEO of LANXESS AG