

ENTREPRENEURIAL SPIRIT AND
RESEARCH EXCELLENCE IN SAXONY-ANHALT

HERE + NOW.

IMPULSE MAGAZINE

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www.invest-in-saxony-anhalt.com

LIGHTENING THE LOAD TO ACHIEVE GOALS

Polymers from Schkopau
revolutionise the car industry

INTO THE FUTURE WITH GREEN CHEMICALS

Renewable resources
and their conversion in Leuna

ON SOFT SOLES

The material of tomorrow
for diabetics



MARKET OF THE FUTURE
CHEMISTRY AND BIOECONOMY

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HERE
THE CHEMISTRY
IS RIGHT.

With its Regional Innovation Strategy (RIS), Saxony-Anhalt is setting its course for the future. In this context, the lead market of Chemistry and BioEconomy plays a special role. While the roots of the chemical industry in Saxony-Anhalt go back to the beginning of the 20th century, the bio-economy is still a relatively young development. What is undisputed, however, is the enormous potential that this relatively new sector offers to key traditional sectors such as the chemical and pharmaceutical industries, but also to energy, agriculture and forestry.

In terms of new materials and materials on the basis of renewable raw materials, Saxony-Anhalt plays a pioneering role in Europe. The local BioEconomy Cluster is a leading cluster of the German Federal Ministry of Education and Research (BMBF) which has the objective of promoting and establishing complete regional value chains.

The “**HERE+NOW**” impulse magazine would like to show you some examples of how the interplay between science and industry is creating trendsetting technologies and products. These range from new plastics that are revolutionising the automotive industry with lightweight components through to processes which convert renewable raw materials into hydrocarbons.

SUCCESS IS A MATTER OF LOCATION

Dorrit Zischkale and Nico Horn are Senior Managers at the Investment and Marketing Corporation Saxony-Anhalt (IMG). A discussion about the skill and enthusiasm behind finding the right location for an investor.



NICO HORN
Senior Manager, Investment
and Marketing Corporation
Saxony-Anhalt (IMG)

DORRIT ZISCHKALE
Senior Manager, Investment
and Marketing Corporation
Saxony-Anhalt (IMG)

Your work involves brining companies from the area of chemicals and bio-economy to Saxony-Anhalt. How do you succeed in attracting potential investors?

DORRIT ZISCHKALE: Unfortunately, there is no such thing as a simple form of bait, so to say. We usually receive requests that are combined with long wish lists. That's when our work begins. We provide the investor with an offer in which we try to address all their requirements and offer solutions.

NICO HORN: We are a bit like pilots who guide companies safely to their destination through what might sometimes be described as a confusing thicket. It takes experience and perseverance. It can sometimes take as long as two years from the initial enquiry to the first shovel of the spade. Also, the planned investment sums are usually different – sometimes it is two million Euros, sometimes 200 million Euros.

Are there any factors which make Saxony-Anhalt particularly attractive to investors in the chemicals sector and the emerging field of the bio-economy?

NICO HORN: The chemicals industry has a long tradition in Saxony-Anhalt – it is a sector in which our federal state offers considerable experience, functioning networks and highly qualified employees. In addition to this our chemical parks, such as those in Leuna, Schkopau, Zeitz and Bitterfeld-Wolfen, all feature an excellent infrastructure. As an investor, you can link up with this cluster straight away.

DORRIT ZISCHKALE: The bio-economy is far from being a strictly defined field, it's more like a cloud which floats over many industries. In recent years, intensive research has been completed into this field. The products and processes have now started to arrive on the market. The bio-economy is a topic of the future, and with our outstanding research landscape and the BioEconomy Cluster, we can offer it excellent conditions.

Do you ever feel disappointed if you make a lot of effort and make a great offer, only for the investor to go somewhere else?

NICO HORN: The competition is considerable. Investors look at locations all over the world. On average, for every 100 potential investors we contact, just one leads to success. Yet because we never know who that one investor will be, we always give our best.

DORRIT ZISCHKALE: Our job isn't just about bringing investors to Saxony-Anhalt. We also continue to nurture the businesses which choose to settle here. With our team of more than 40 members of staff, in our role as the federal state's Investment and Marketing Corporation, we support companies with their relocation here, help to them organise events such as appearances at trade fairs, and bring businesses together with the universities and institutes in the federal state.

www.invest-in-saxony-anhalt.com

LIGHTENING THE LOAD TO ACHIEVE GOALS

**PAZ IN SCHKOPAU IS
REVOLUTIONISING POLYMER
PROCESSING FOR THE
AUTOMOTIVE INDUSTRY**



At the Fraunhofer Institute for Applied Polymer Research (PAZ) in Schkopau, the key focus is on polymer processing.



Prof. Peter Michel wants to make motor vehicles lighter.

If things progress as Professor Peter Michel expects, when it comes to cars, pretty soon the term “sheet metal damage” will no longer be used. Together with his team at the Fraunhofer Institute for Applied Polymer Research (PAZ) in Schkopau, he develops plastics for the automotive industry. The background to the polymer applications is nothing less than solving one of the most pressing problems of our time – reducing CO₂ emissions.

“TO COMPLY WITH THE GOAL OF THE UNITED NATIONS CLIMATE CONFERENCE

to limit global warming to two degrees Celsius, it is necessary for the car industry to make its contribution,” explains Prof. Michel. To be able to significantly reduce emissions by motor vehicles, a variety of parameters apply: the drive technology, the vehicle weight and the rolling resistance of the tyres. The Fraunhofer team in Schkopau have started by looking at the best ways of reducing the

weight and optimising the tyres. When it comes to weight optimisations, replacing the heavy metal parts in vehicles requires exceptionally strong lightweight structures. Although significantly lower in weight, the plastic components still need to have, at the very least, the same attributes as the conventional parts. Currently, the proportion of plastic used in the support structures of an average motor vehicle is only around three percent. “This value needs to increase significantly.

I believe it to be realistic that in a few years’ time, around 40% of the frame of a medium-sized car will be made from polymer components, making it around 130 kilograms lighter,” explains Peter Michel. The potential of polymer applications can be illustrated by an example: in the steel version, the front-end support of a premium vehicle weighs 3.8 kilograms. The plastic solution which is now used weighs just 1.3 kilograms – and it’s just as strong. Car tyres need to have the lowest possible rolling resistance, a high degree of abrasion resistance and a good wet grip. Another application for which optimum elastomer-nanoparticle composites are being developed in Schkopau.



New fibre composites are put to the test for the optimum material attributes.

FACTS

A MODEL REGION FOR THE BIO-ECONOMY: NEW MATERIALS AND CUTTING-EDGE RESEARCH

Saxony-Anhalt is currently home to some 100 stakeholders in the areas of industry and research who work in 45 joint projects that are funded by the German Federal Ministry of Education and Research. With a total budget of some 80 million Euros, their key focus is on the development of resource-efficient construction materials and lightweight construction materials, bio-based chemicals and plastics, high-performance composites and the production of bioenergy.

OF INCREASING IMPORTANCE in polymer processing are the so-called bio-based fibre composites with flax, wood or hemp, which contribute to resource efficiency and sustainability. In addition to the composition of the material, the knowledge surrounding the properties of the components is also becoming increasingly transparent. Under the banner of the “Industry 4.0”, all the information about the material properties along the value chain is being precisely documented.

THE INSTITUTE IN SCHKOPAU is an innovation motor for Central Germany that has the goal of making the manufacturing of lightweight materials suitable for

mass production. “We are the interface between the chemical and automotive industries. Our goal is to turn the results of the applied research into new products and processes more quickly. We are also focusing on small and medium-sized companies in our region who can benefit from the full-scale added value in Saxony-Anhalt,” highlights Prof. Michel. The collaboration between the automotive industry and the Fraunhofer team is exceptionally close and purposeful. In this respect, one of the key advantages is the proximity to the automotive manufacturing plants in Leipzig, Wolfsburg, Zwickau and Eisenach.

www.iwm.fraunhofer.de/en
www.polymer-pilotanlagen.de

INTO THE FUTURE WITH GREEN CHEMICALS

PROCESSES FOR THE CONVERSION OF RENEWABLE RAW MATERIALS ARE BEING DEVELOPED IN LEUNA



Before they are used in the industry, chemical and biotechnological systems in Leuna are put to test on a smaller scale basis.



From beech wood chippings through to algae – renewable resources have a great future.

The problem has been well-known for many years: global oil reserves are running out. Replacements for the versatile and sought-after raw material were not in sight for a long time. At the Leuna Chemical Park, however, a solution to this problem is now very much on track. The company Global Bioenergies GmbH and the Fraunhofer Centre for Chemical-Biotechnological Processes (CBP) are working on a demonstration system which converts renewable raw materials into isobutene – a hydrocarbon mixed into fuel.

GERD UNKELBACH AND ALES BULC

are still standing in a largely empty hall. The Director of the Fraunhofer Centre and the Manager of Global Bioenergies are in a state of anticipation. If all goes well, by November 2015 the waiting will finally be over: the installation of the pilot system will begin. Following its commissioning, which will be completed in mid-2016, it will become clear as to whether the conversion process developed by Global Bioenergies also works on an indus-

trial scale. This is an important step in finding investors for the new technology. "Since laboratory results aren't usually enough for potential investors, it is necessary to construct a system which also delivers meaningful results for the world of industry. In this way, we can close the gap between the laboratory and the industrial realisation," explains chemist Gerd Unkelbach.

THE DECISION by Global Bioenergies to test its pilot system with the Fraunhofer CBP wasn't simply a matter of course. In addition to the Fraunhofer CBP, over 100 competitors around the world would also have been pleased to cooperate with the biotechnology company Global Bioenergies, which specialises in gas fermentation. "We didn't just choose Leuna because of its excellent infrastructure, but also because of the skilled workers for our area of business and the additional companies with experience in the bio-economy sector nearby. In addition to this, there is also a widespread sense of acceptance for the chemical industry in the region. Before we finally decided on Leuna, in the final round, we also considered two locations outside Europe," explains Ales Bulc of Global Bioenergies.

A CHEMICALS REGION TAKES ON THE RAW MATERIALS TRANSITION

AN INTERVIEW WITH HORST MOSLER,
CLUSTER MANAGER OF THE BIOECONOMY CLUSTER

What makes Saxony-Anhalt attractive for the bio-economy?

HORST MOSLER: With a long tradition in chemicals, an established network for chemicals and plastics and five high-performance chemical parks, chemicals are one of the mainstays of Saxony-Anhalt's economy. Before the backdrop of climate change and finite fossil fuel resources, over the decades to come, the chemicals sector will be facing a comprehensive transition in the area of raw materials. As the European pioneer in this field, Saxony-Anhalt is excellently prepared for this. Its Regional Innovation Strategy with the lead market of "Chemicals and Bio-economy" has provided the strategic basis, and the local headquarters of the leading-edge cluster as well as the excellent research centres and the pilot and demonstration systems for the processing of bio-based raw materials at the biggest chemical location by area in Germany – Leuna Chemical Park – provide the infrastructure.

How do you assess the current development of the bio-economy in the federal state?

HORST MOSLER: We are very pleased that following the establishment of the Fraunhofer Center for Chemical-Biotechnological Processes CBP, the pilot system for green hydrogen by Linde and the multi-purpose fermentation plant by Thyssen-Krupp, that with leading-edge cluster project by technological leader Global Bioenergies, another stand-out project is now coming to fruition at the Leuna site. In this way, the raw materials transition in the chemical region is being driven forwards pro-actively and integrated into existing structures. Saxony-Anhalt has become an attractive investment location for bio-based production processes and offers considerable further development potential for businesses due to its links with innovative network structures such as the BioEconomy Cluster.



HORST MOSLER
Cluster Manager of the
BioEconomy Cluster

What are the advantages of collaborating in the cluster?

HORST MOSLER: For small and medium-sized businesses in particular, the research and development network allows innovation processes to be accelerated – as this is where the sector-spanning exchange of know-how that is so important to the bio-economy takes place. In addition to this, collaborating in the network also brings potential cooperation partners together, so that many individual efforts create competitive value-added chains. In cooperation with the European, national and regional policy-makers as well as further cluster stakeholders, the bridge over the proverbial "Valley of Death" is crossed, i.e. the financing of product developments from the laboratory into the market. Finally, in the stakeholders in the bio-economy such as the agricultural and forestry sectors, which are also strong in Saxony-Anhalt, and the chemical industry, which have not previously collaborated, are also brought together. In this way, collaborating in the cluster also supports the exploitation and development of areas of business relating to the bio-economy, as the entire know-how of the cluster can be put to use. For businesses in Saxony-Anhalt, this means, on the one hand, the opportunity to step into a forward-looking market as part of an effective network at an early stage, and on the other hand, to work towards ensuring a sustainable future on the basis of renewable raw materials.

en.bioeconomy.de

REQUESTED ...

GERD UNKELBACH

Director of the
Fraunhofer CBP



At the Fraunhofer CBP in Leuna, energy and resource-efficient processes are developed and tested.

“We are very pleased to be taking part in the development of this sustainable manufacturing process. The project is ideally suited to the infrastructure and research area of the CBP. In the scope of our collaboration, we are supporting Global Bioenergies with our know-how in the area of the further development of biotechnology and chemical processes.”

THE SYSTEM, which is a world's first, is now under construction in Leuna. The demonstration system will produce high-purity isobutene with the use of micro-organisms which can be used for the production of plastics and elastomers, as well as for biofuels such as iso-octane. Its production capacity of 100 tonnes per year enables these raw materials to be made available to interested industrial companies for testing purposes. The car manufacturer Audi, for example, has already signed up to a partnership. The Fraunhofer CBP has experience

with pilot systems. In addition to its cooperation with Global Bioenergies, the centre in Leuna works together with partners from industry, with universities and with other research organisations. Their common concern is always the realisation of products on the basis of renewable raw materials. In this respect, the Fraunhofer CBP also experiments with green and brown algae as well as with waste beech wood chippings from sawmills. From the preparation of raw materials, to biotechnological and chemical processes, to product recondi-

REQUESTED ...

ALES BULC

Manager at Global
Bioenergies GmbH



“The pilot system is another important step forwards in the development of the isobutene process from being a ground-breaking scientific innovation to a high-grade industrial process. In Leuna, we have first-rate partners for the commissioning and operation of this pilot system. Our cooperation with the Fraunhofer CBP has proven exceptionally worthwhile for us, so much so that we are already considering embarking on further shared projects with them.”

tioning, the Fraunhofer Center in Leuna does everything under one roof. With this flexible concept, raw materials such as vegetable oils, cellulose, starch and sugar can be prepared and converted into chemical products. “For small and medium-sized companies in particular, we offer excellent opportunities for scaling up new technologies,” explains Gerd Unkelbach. The objective of the engineers and chemists is to develop processes and production networks which are as energy and resource-efficient as possible. This minimises waste flows,

makes use of raw materials which are unsuitable for the production food and feed, and reduces carbon dioxide emissions.

www.cbpfraunhofer.de/en
www.global-bioenergies.com

CUT FROM A DIFFERENT CLOTH ... INNOVATIONS FROM SAXONY-ANHALT

LAGOTEC GMBH | www.lagotec.de

Dirty pipelines don't pose a problem: effective chemicals clear the way. Special sensors from Lagotec determine the maximum amount of chemicals required.

Effectiveness isn't necessarily the same as strength. Chemicals are effective but they can be harmful at the same time. The biofilm sensors from the Magdeburg company LAGOTEC GmbH measure the transfer of heat in pipelines and containers. In this way, the smallest deposits in the water cycle are detected and can be targeted. The precise dosage of the necessary chemicals protects both the environment and the wallet. Power plants, paper mills and food producers all over Europe swear by it.

TIMURA HOLZMANUFAKTUR GMBH | www.timura.de

"Tropical wood that's made in Germany" – is there such a thing? The company timura Holzmanufaktur GmbH which is situated in the Harz region thermally refines wood and therefore offers environmentally-friendly alternatives in fine colours.

Timura has patented a very special vacuum-press drying process. In this process, on a gentle basis, native species of wood such as ash or oak are thermally refined in a vacuum chamber. The process is especially economical because it doesn't require the entire chamber to be heated. Harmful substances from the wood evaporate, making it the only thermal wood in the world that can be safely used indoors: easy-care, high-quality wood for floors and facades.

C3 TECHNOLOGIES GMBH | www.c3tec.de

Stable and cost-effective construction without crude oil and high-energy processes: the company C3 Technologies GmbH from Halle (Saale) manufactures environmentally-friendly high-tech composite materials from renewable raw materials in the region.

The innovative construction components and systems can be used for the expansion and insulation of buildings, for the production of modular rapid construction systems as well as in the field of trade fair and shop construction. Natural fibres, resin systems and hard foam provide the basis for laminates, panels and construction elements. The sustainable materials have been developed in a joint research project with the Fraunhofer Institute for Microstructure of Materials and Systems IMWS in Halle (Saale). In the future, the elements are set to consist exclusively of renewable raw materials.

BRAND NEW PERSPECTIVES: START-UPS FROM SAXONY-ANHALT

INL GMBH



INL GmbH advises farmers on sustainable forms of cultivation.

The demand for sustainably produced food is increasing, but the greater demand is being offset by enormous cost pressure. It is at this interface that the company INL GmbH is working to ensure that customers can benefit from safety, and farmers have a lesser workload.

What is the best way to dose fertilizers? What points of reference can help assess vegetable farming? The Private Institute for Sustainable Land Cultivation (INL) is looking for solutions. INL GmbH was founded in May 2009 and now has eleven members of staff. It advises agricultural businesses, service providers and authorities, prepares studies as well as concepts, and helps with the development of management systems. Its key focal topics include crop cultivation, soil quality and animal husbandry. |

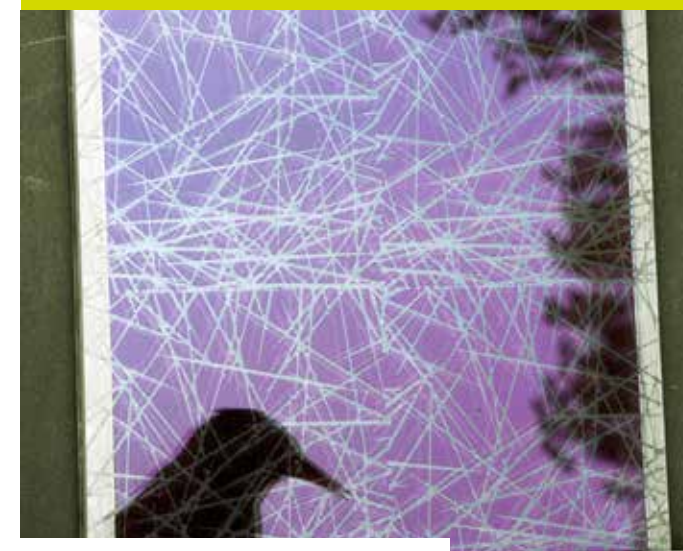
www.nachhaltige-landbewirtschaftung.de

Some ideas make the world appear in a different light. In 2008, the company boraident GmbH relaunched itself – with plenty of ideas surrounding the well-known material of glass. The company is looking for new areas of application. One of them: the protection of birds.

"Laserbird" is the name of the system that makes windows visible to birds with a special coating. For people, however, the life-saving layer remains invisible. The idea has already been awarded with the IQ Innovation Award of the City of Halle (Saale). Boraident GmbH also specialises in incorporating nanoparticles into glass. For this purpose, the company uses precision lasers and can mark ampoules with a code, for instance. This allows the production of medical drugs to become transparent. |

www.boraident.de

BORAIDENT GMBH



A special coating protects windows from being struck by birds.

ENDURING ALL OVER THE WORLD: TECHNOLOGY FROM SAXONY-ANHALT

NOVO-TECH GMBH & CO. KG/ MEGAWOOD



Polymer-wood-flooring is particularly advantageous outdoors.

When it comes to patio floors, many people swear by wood. And wood can be made even more beautiful: just as natural in feeling, just as easy to work with, but less sensitive. Novo-Tech has been selling its popular “Megawood” flooring since 2007.

Barefoot flooring and premium flooring are the names given by Novo-Tech GmbH & Co. KG to their patented products. The company from Aschersleben is the European market leader for polymer-bound wood-based materials. These recyclable natural products are sold worldwide, and thanks to their surface hardness, they are easy to install outdoors, even in Australia and Siberia. The company, which now has more than 100 employees, also offers solutions for privacy screens and floor spotlights. | www.megawood.com

2015 should be their year of breakthrough: after five years, the two chemists Monika Lelonek and Petra Göring want to make their way without subsidies. Their company Smart-Membranes sells its high-quality extremely fine and symmetrical worldwide.

The products of SmartMembranes GmbH are so precise that they are able to separate particles and filter liquids in the nanometre range. In an electro-chemical etching process, air pores are generated in aluminium oxide or silicone, all of which have the same spacing. Word of this world's first had to get around first when the two women from the Martin Luther University Halle and the Fraunhofer Institute for Microstructure of Materials and Systems IMWS entered into their collaboration. They have now set themselves up with four employees in a niche market. | www.smartmembranes.de/en

SMARTMEMBRANES GMBH



Successful founders:
Monika Lelonek (l.) and Petra
Göring.

SUCCESS IN NUMBERS: DID YOU KNOW?

16.9 %

(EUR 6.1 bn.) of the total industrial turnover in the federal state of Saxony-Anhalt is generated by the chemicals industry.

The basic idea
behind the chemical
park originated in
Saxony-Anhalt in the
1990s.

the lightest HGV seat in
the world weighs just

13.8

kg
(IFA Technologies Haldens-
leben).

Production of
chemical products in
the last ten years:

growth in turnover
+ 63.4 %
employees
+ 40.4 %

The oldest synthetic material
from Ventral Germany is

80,000

years old –
it was found in Königsau near
Aschersleben.

The leading-edge BioEcono-
my Cluster has
members and
project partners, **97**
53 of which are small and
medium-sized companies
(as of the end of 2014).

Approximately
5 million cubic
metres: the total
annual demand
in the wood
processing industry.

In 2015, some **11,897**
were employed in the chemicals sector here.
On average, each employee generated
516,581 EUR in turnover.

CONTACTS:
EXPERTISE IN RESEARCH AND NETWORKS

UNIVERSITIES
AND NON-
UNIVERSITY
RESEARCH
ORGANISATIONS

Martin Luther University Halle-Wittenberg (MLU), Chair for Plastics Technology, Faculty of Natural Sciences I and III	www.kunststofftechnik.uni-halle.de ; www.natfak1.uni-halle.de ; www.natfak3.uni-halle.de
Otto von Guericke University Magdeburg (OvGU), Faculty of Process and Systems Engineering, Institute for Systems and Environmental Technology, Faculty of Mechanical Engineering	www.vst.ovgu.de ; www.fvst.ovgu.de/iaut.html ; www.fmb.ovgu.de
Fraunhofer Institute for the Microstructure of Active Agents and Systems IMWS	www.iwm.fraunhofer.de
Max Planck Institute for Dynamic Complex Technical Systems, Magdeburg	www.mpi-magdeburg.mpg.de
Merseburg University of Applied Sciences, Department of Engineering and Natural Sciences	www.hs-merseburg.de/inw/aktuelles/
Anhalt University of Applied Sciences	www.hs-anhalt.de
Magdeburg-Stendal University of Applied Sciences, Institute for Mechanical Engineering	www.hs-magdeburg.de/hochschule/fachbereiche/iwid/institut-fuer-maschinenbau.html
Leibniz Institute for Plant Biochemistry IPB, Halle	www.ipb-halle.de

TRANSFER
AND RESEARCH
CENTRES

Fraunhofer Institute for Applied Polymer Research, PAZ	www.iap.fraunhofer.de/de/Forschungsbereiche/Pilotanlagenzentrum_Schkopau
Fraunhofer Centre for Biotechnolog. Processes, CBP	www.cbp.fraunhofer.de
Biocentre Halle	www.biozentrum.uni-halle.de
KAT Competence Centre for Natural Sciences, Chemicals/Plastics	kat.hs-harz.de/index.php?id=63
Polymer Competence Centre KKZ Halle-Merseburg	www.kkz-halle-merseburg.de
ppm Pilot Centre for Vegetable Oil Technology Magdeburg e. V., Pilot Systems Centre for Plant Technology and Protein Synthesis	www.ppm-magdeburg.de
Helmholtz Centre for Environmental Research GmbH, UFZ, Leipzig-Halle	www.ufz.de
Leibniz ScienceCampus Halle, Plant-based Bio-economy	www.sciencecampus-halle.de
ZSG Zeitzer Standortgesellschaft mbH	www.industriepark-zeitz.com
Chemical Park Bitterfeld-Wolfen GmbH	www.chemiepark.de
InfraLeuna GmbH	www.infraleuna.de
Dow Olefinverbund GmbH Schkopau	www.dow.com/valuepark

CLUSTERS
AND
NETWORKS

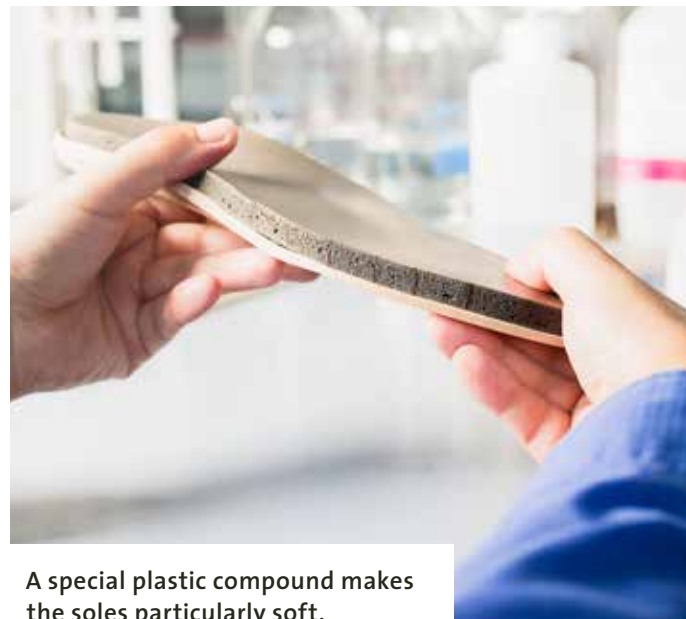
Polymer Synthesis and Polymer Processing Saxony-Anhalt	www.polykum.de
Automotive Cluster Saxony-Anhalt	www.mahreg.de
Chemical/Plastics Central Germany (state-spanning)	www.cluster-chemie-kunststoffe.de
Biotechnology in Sachsen-Anhalt	www.bmdlifesciences.de (BMD)
BioEconomy Cluster	www.bioeconomy.de
ELISA – Electric Mobility and Lightweight Constructions in Saxony-Anhalt	www.elisa-cluster.de

ON SOFT SOLES

THE MATERIAL FOR THE DIABETIC SHOE
OF TOMORROW IS FROM MAGDEBURG



Help for millions of patients:
Dr. Peter Gerth of the KAT
Competence Centre develops
soles for diabetics.



A special plastic compound makes the soles particularly soft.

“It’s something that can only be achieved with chemicals,” explains Dr. Peter Gerth, meaning the search for the right mix. Yet behind the DiaBSmart project is an extensive network of international partners. Together they are fighting the complications of a disease which is on the rise worldwide: diabetes mellitus.

“50% OF ALL LOWER LIMB AMPUTATIONS are caused by diabetes,” explains Dr. Peter Gerth, discussing the problematic consequential symptoms. Patients are injured because they literally can’t tell where the shoe pinches due to their damaged nerves. In addition to this, as the disease progresses, the tissue of the feet becomes increasingly vulnerable.

SPECIAL FOOTWEAR should prevent this. “The shoes available on the market are far from optimal, however,” says Gerth. Gerth is spokesman of the

KAT Competence Centre at Magdeburg-Stendal University of Applied Sciences. In German, KAT is short for “competence network for applied and transfer-oriented research”. Magdeburg specialises in engineering/renewable resources. Together with their international partners, the experts for natural fibre reinforced composites have already developed an innovative running shoe. With their DiaBSmart project, they are now researching the right kind of plastic for specialist, individualised shoe soles for diabetics.

Staffordshire University in England has used a new measuring method to determine the condition of the patient's foot and the attributes that their personal shoe sole should have. On the basis of this data, Romanian chemist Dr. Iulian Nor and his team in Magdeburg have spent a year and a half researching the right recipe for the plastic. In this respect, attributes such as the degree of hardness, rebound elasticity and durability all have a role.

THE TEAM IN MAGDEBURG sends its sample products to Dr. A. Ramachandran's diabetes hospital in Chennai, India. It is there that they are adapted to the patients' feet and clinically tested. The new diabetic soles may be ready for their market launch as soon as 2017. In this respect, additional cooperation partners have already come into play: the companies Saltstechstep and Technofootbed SL from the United Kingdom and Spain have been involved, seconding staff, for several months. They could soon be the first manufacturers and serve the European market.

FACTS

SOME 194 MILLION PEOPLE are diagnosed with diabetes worldwide. By 2025 this number is expected to reach 334 million.

IT WAS AN ENTRY in the Enterprise Europe Network (EEN) that caused the international partners to come together and develop a new running shoe: een.ec.europa.eu

COMPANIES CAN AWARD RESEARCH CONTRACTS through the KAT Competence Network in Saxony-Anhalt. Each university has its own special focus: www.kat-netzwerk.de

THE SWEET SCENTS FROM BITTERFELD-WOLFEN



In the laboratory of Miltitz Aromatics, the staff continuously tinker with new fragrances.

Amber, violet, grapefruit: a world of fragrances. And they are also delivered all over the world. Chemical company Miltitz Aromatics GmbH has some 100 customers in 27 different countries. It manufactures synthetic fragrances scents for both perfume and detergent manufacturers and for the food industry.

THE GERMAN WORD FOR MILDEW IS “SCHIMMEL”, something that isn’t exactly associated with pleasant fragrances. Yet Schimmel was once the name of a respected company for fragrances and flavourings which was founded in the town of Miltitz near Leipzig in 1829, before becoming part of Miltitz chemical plant in the GDR-era. In the 1990s, when everything seemed dead and buried, a brave man decided to make a fresh start. In 1992, chemist Dr. Peter Müller founded Miltitz Aromatics GmbH together with four other shareholders – building on the success of the erstwhile company Schimmel.

THE NEW COMPANY, which chose to settle in Bitterfeld-Wolfen due to the excellent local

infrastructure, started life with just four customers, but already had an international focus. Its initial large-scale order came from the French town of Grasse, which is considered to be the world capital of perfume. The order consisted of a contract for the production of a violet fragrance. Miltitz Aromatics GmbH continues to offer contract manufacturing services to this day. It is also home to a major research department: almost half of its 50 employees work on finding the right formulas for fulfilling every customer need. “Our portfolio consists of approximately 100 products that are the result of refined chemicals processes,” explains Dr. Stefan Müller, the son and successor of previous Managing Director Peter Müller. He highlights isoprene and specific hydrogenation products in the 50 to 250 TPY range. “We exclusively manufacture the product Hydroxyambran worldwide” – he is talking about Ambra, a tobacco-like, woody fragrance which is originally from sperm whales.

www.miltitz-aromatics.com/en

RENO PAUL
Group Leader for Technology Funding
Programmes at the Investment Bank
Saxony-Anhalt



BY NO MEANS ALONE WHEN ENTERING NEW TERRITORY

“No business is too small for innovations.” The Investment Bank Saxony-Anhalt follows up the words of Minister for Economic Affairs Hartmut Möllring with actions: with an extensive offering of financial support, it is once again providing funding to small and medium-sized companies that want to enter new territory. Reno Paul explains the possibilities.

What does the word “innovation” mean in the “language of financial support”?

RENO PAUL: It isn't complicated. The Investment Bank supports research and development projects as well as projects in the transfer of knowledge and technology. It is frequently the case that smaller companies don't have sufficient capacity to break new ground on their own. We provide small and medium-sized businesses with financial support – and explain the required processes to them.

How is this support configured exactly?

RENO PAUL: We can provide support to the development of innovative products and processes, for example. Projects are eligible for subsidies of up to 80 percent, with a maximum of 400,000 Euros being available. The Innovation Assistant, in turn, provides grants for personnel costs with appointments of graduates who are fresh out of university.

Consulting and advice services can point the way to new goals and are therefore eligible for funding as part of the Knowledge and Technology Transfer Programme. The range of options is so varied that I can only touch on a few examples.

What things are new this year?

RENO PAUL: Research and knowledge-based organisations are eligible for support of up to 100 percent for projects in the non-economic sphere. In addition to this, our funding for patents has also been adapted. In this respect, in the scope of R&D projects, small and medium-sized companies and handicraft businesses are eligible for up to 25,000 Euros to enable them to protect their innovations.

These days, the Innovation Assistant also supports the hiring of university graduates from the creative sciences. This is because they provide fresh ideas in the areas of marketing as well as product and market launches.

So companies in Saxony-Anhalt aren't alone?

RENO PAUL: No, they aren't. After all, we all benefit from the risks that they take. Incidentally, the Investment Bank can also provide help when several partners come together for a project, whether it is different companies or a business and a university, for instance.

INNOVATIVE SUCCESS STORIES



**BEST
FORM**

MEHR /// WERT /// AWARD
FÜR KREATIVE IDEEN

3RD PLACE IN THE BESTFORM AWARD 2015

CAROLIN SCHULZE AND INSECT FARM L. SEITZ

TOPIC: Pretend rabbit / Bugs Bunny

The problems surrounding meat production may be well-known, but the demand for animal protein continues. Carolin Schulze, an industrial design student at the University of Art and Design Halle, and the insect farm L. Seitz have come up with a new way of satisfying the hunger of the world with a 3D printer: in the form of “pretend rabbits” made from mealworms. Great value for money!

www.freyhaendig.de

WINNER OF THE AURA 2013

ACKERMANN FAHRZEUGBAU OSCHERSLEBEN GMBH

TOPIC: Development of a very lightweight HGV trailer

The company Ackermann Fahrzeugbau Oschersleben GmbH is the third winner of the AURA prize, which is conferred by the federal state for outstanding entrepreneurial achievements in Saxony-Anhalt. In 2013, Ackermann Fahrzeugbau was honoured due to its intensive cooperation with the University of Applied Sciences Magdeburg-Stendal over the course of several years.

www.ackermann-trailers.com



AURA

AUSZEICHNUNG FÜR
HERAUSRAGENDES
UNTERNEHMERISCHES WIRKEN
IN SACHSEN-ANHALT



**HUGO
JUNKERS
PREIS**

FÜR FORSCHUNG
UND INNOVATION
AUS SACHSEN-ANHALT

3RD PLACE IN THE HUGO JUNKERS PRIZE 2014

EXIPNOS GMBH

TOPIC: Most innovative product development

With its “Direct Compounding Injection Moulding (DCIM)”, the Merseburg company Exipnos GmbH is revolutionising the production of plastic blends: its process enables the compounding to take place directly in the injection moulding machine, i. e. to introduce additives so as to obtain the desired composite material. It was previously necessary to complete this process before the injection moulding.

www.exipnos.de

ATTRACTIVE:

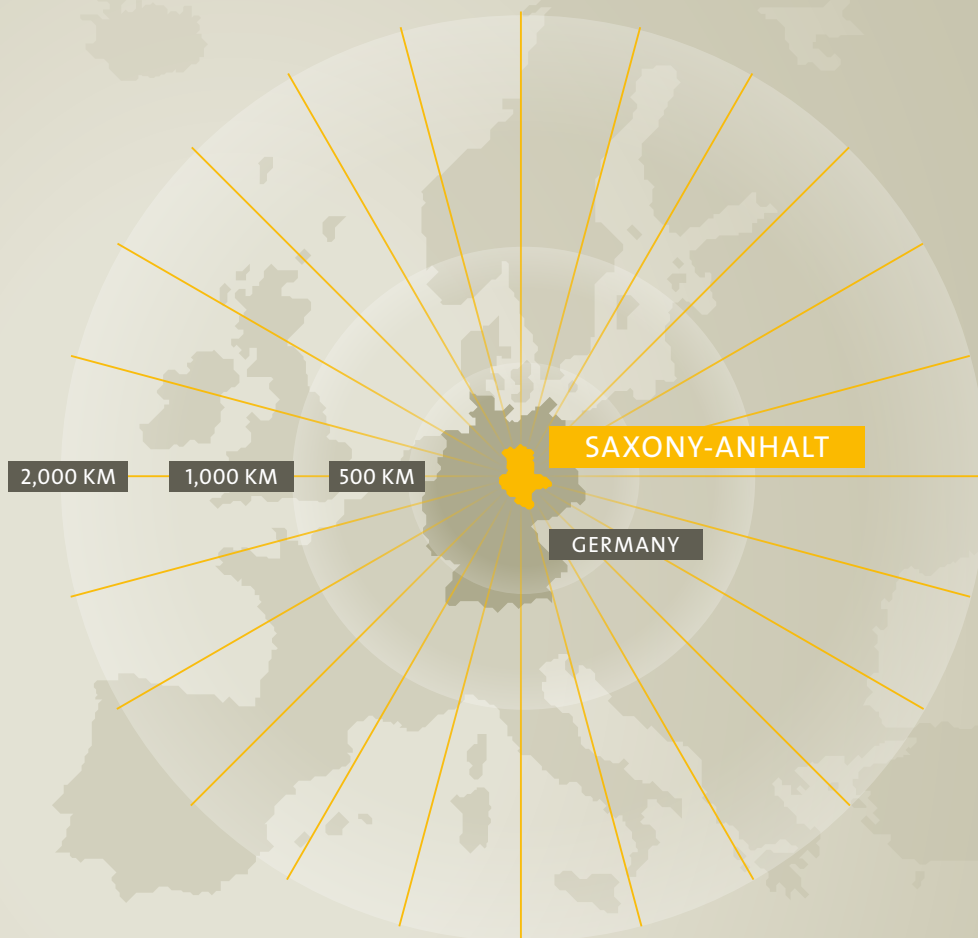
Saxony-Anhalt's **moderate cost structure** ensures competitive advantages for every investor: At approx. 13 Euros the average price per square metre for a fully developed industrial zone is substantially below the German average. The rate of funding that is available to support wage costs amounts to up to 10% of the specified wage costs.

OPTIMAL:

Saxony-Anhalt has the **highest funding rates in Germany**. Small companies are funded up to 30%, medium-sized ones up to 20% and large ones up to 10%.

FAST:

The IMG acts as a one-stop agency; **fast decision-making channels and realisation periods** will facilitate your market entry in Saxony-Anhalt.

**YOUR CONTACT:**
**Investment and Marketing Corporation
Saxony-Anhalt**

Am Alten Theater 6
39104 Magdeburg (Germany)
Tel. +49 391 56899-0

www.invest-in-saxony-anhalt.com
welcome@img-sachsen-anhalt.de

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Hasselbachstraße 4
39104 Magdeburg (Germany)
Tel. +49 391 5674316

www.mw.sachsen-anhalt.de
presse@mw.sachsen-anhalt.de

Our support in the **search for a site**, in **funding and financing**, in **dealing with public authorities**, and **project realisation** is free of charge for you, and is treated with absolute confidentiality. Allow yourself to be assisted by IMG Saxony-Anhalt, one of the **best regional economic development agencies in Western Europe**, which was once again the recipient of the **"Top Investment Promotion Agency Award"** of Conway Data Inc. in 2016.