

New Sealant for High-Temperature Applications

"SelfSeal" is the name of a new start-up idea at Freiberg University of Mining and Technology. It is a sealant that can significantly reduce the annual maintenance and repair costs of high-temperature plants. The idea, which has been registered for a patent, is supported with a start-up grant.

Particularly in high-temperature plants such as glass melting furnaces, wear and tear can often be detected on the joints due to the high temperatures involved. This leads to heat and exhaust gas losses. Conventional solutions for sealing joints corrode relatively quickly and must be constantly renewed.

Reduced risks of production downtime

The "SelfSeal" joint sealant developed at the Institute of Ceramic, Glass, and Construction Materials at Freiberg University of Mining and Technology will offer plant

operators several advantages in the future. The material consists of foam glass and seals the joints reliably and durably with less effort. As a result, maintenance and repair costs for high-temperature systems can be significantly reduced and the risk of production downtime is lowered.

Material is shortly before market launch

The patent pending product is to be further developed in a start-up enterprise. The founding team includes Dr. Marc Lüpfer (engineer), Rebecca Lehmann (engineer), and Anna Werner (business economist).



Industrial experiment on a glass melting furnace

© IKGB / Freiberg University of Mining and Technology

By the end of 2019, the team led by project manager Dr. Marc Lüpfer intends to have completed the development of the high-temperature sealant and will subsequently launch it on the market. Since May 2019, the team of founders, supported by Saxeed, has been receiving funding from the Exist start-up grant program of the Federal Ministry of Economic Affairs and Energy for its journey from the university to its own start-up. Within this framework, scholarships for the three founders are being funded for a period of 12 months as well as material resources amounting to 35,000 euros. // *Contact: Dr.-Ing. Marc Lüpfer, marc.luepfert@ikgb.tu-freiberg.de*

Guinness World Record: Trelleborg Produces the World's Largest O-Ring

Trelleborg Sealing Solutions has set a new Guinness World Record. The sealing specialist has produced the world's largest o-ring – measuring 364 meters. It was manufactured at the Trelleborg plant in Tewkesbury, England, using the FlexiMold process.



The Trelleborg employees enjoyed working together with students from Tewkesbury School on the successful world record attempt.

© Trelleborg

In order to enter the Guinness book of world records for the largest o-ring ever produced, Trelleborg teamed up with 20 GCSE engineering pupils from Tewkesbury School in England. During the project, the students were coached in various manufacturing disciplines and were involved in the design, costing, and production planning of the o-ring. The students were also involved in the impressive presentation. Together with Trelleborg, they laid the 364-meter-long elastomer o-ring around the circumference of medieval Tewkesbury Abbey. The integrity of the o-ring was independently verified by Artis, an elastomer consultancy based in the UK. Once this was done,

the circumference of the o-ring was measured by an industrial wire measuring machine. The record was then confirmed by the adjudicator from the Guinness Book of Records.

The sealing specialist Trelleborg produced the o-ring with the aid of its FlexiMold process, which makes it possible to produce o-rings. Large o-rings are used above all in processing industries, for example in the chemical and hydrocarbon, pharmaceutical, food and beverage, and electronics industries, and in particular in the production of flat panel displays. //

For further information, please visit: www.tss.trelleborg.com

Adhesives Technology Compendium: Detailed Information about the Adhesives Industry

A new print and online version of the Adhesives Technology Compendium, which is published by the German Adhesives Association (IVK) in collaboration with the editorial team of “adhesion” magazine, is now available. The compendium provides wide-ranging, detailed information about the adhesives industry.

The English-language compendium has also been revised and reissued in 2019 and contains important information about the German, Austrian, Swiss, and Dutch adhesives industries and the services provided

by the adhesives associations in these countries.

With a total of 165 company profiles, the compendium gives a comprehensive overview of the products and services available from the adhesives industry and its partners, together with research institutions. The publication also contains useful information about European legislation, regulations, standards, and test procedures relating to adhesives, together with statistical summaries. //

To the online version:

<http://www.adhesivecompendium.com>



The new edition provides a broad spectrum of information about the services of the adhesives industry

Injection Molding of PU Elastomers

The Korean company Autox has developed a production process that allows cast polyurethane to be injection molded.

Adiprene C930, a unique low free MDI-based cast urethane from LANXESS, has proven to be an appropriate material for being processed via injection molding. Autox has recently launched a new vibrating screen for the mining industry which is made by injection molding with this Adiprene cast polyurethane.

Advantages of injection molding

One of the benefits of using injection molding is the high production output

rate, which makes the process very efficient and cost-effective. With a single mold, more parts can be manufactured in the same amount of time. Cost efficiency is also influenced by the labor costs, which are typically lower than in casting. For example, the current production time for an injection molded mesh screen is five minutes, whereas producing the part by conventional casting will normally take 35 minutes. The Adiprene LF (Low Free) prepolymer delivers improved industrial hygiene and easy processing. According to the company, it is also suitable for the injection molding process, as the viscosity is lower than that of a conventional prepolymer.

Longer lifetime and screening efficiency

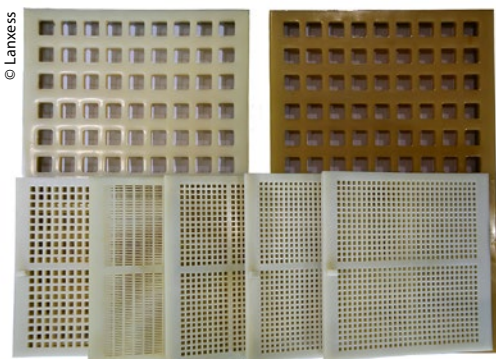
Vibrating screen mesh is a highly demanding application that needs to withstand challenging mining operation conditions. According to the manufacturers, the Adiprene C930 mining screen offers excellent abrasion resistance and very good rebounding properties, thus improving the lifetime and screening efficiency of the part. The results of this caprolactone-based technology have been supported

by field tests. It has been proven that the lifetime of the screen can be up to three times longer than the high-quality reference products on the market. This new development ensures less downtime in mining operations, thus keeping maintenance costs low.

Improved waste management

This new development from Autox provides a new method for processing cast PU prepolymers, offering improved performance for the resulting molded part. Parts with complex shapes are easier to mold, as the pressure needed for injection allows the molding material to reach even the finest details of the part. What is more, the injection process answers one of the main concerns of the industry: waste management. According to Autox, the process delivers consistent quality, which leads to fewer offcuts and therefore to less waste as scrap material is reduced. Both companies – Lanxess and Autox – are confident that further applications will be able to benefit from this process. //

For more information, please visit: <http://presse.lanxess.de>



Innovative method for processing cast polyurethanes: the new vibrating screens from Autox for the mining industry are being produced for the first time by injection molding using the Adiprene LF (Low Free) prepolymer from Lanxess.

Success Story: 25 Years of Training in Adhesive Bonding at IFAM

The Bremen Bonding Days is an annual gathering of adhesives enthusiasts who come together to find out about the latest developments in the field, because bonding is an essential technology and employee training is the key to success. More than 10,000 participants have successfully completed the wide variety of training courses on offer. During the 18th Bremen Bonding Days on 18 and 19 June 2019, a total of 250 conference guests celebrated 25 years of bonding in Bremen.

“Bonding is the joining technology of the 21st century. It has been a high-performance solution for many years now,” said Professor Andreas Groß, head and founder of the Training Centre for Adhesive Bonding Technology, summing up the developments of recent decades. “Almost everything, from cars to trains, from micro to macro, and from smartphones to wind turbines, has bonded joints. At first sight, bonding may seem to be a simple solution, but in reality it is a highly complex process. From individual applications through to large-scale industrial production, an integrated approach is needed in order to ensure that the entire bonding process, from the initial idea through to the finished product, is free from faults. And this needs to be taught and learned,” emphasizes Andreas Groß.

Employee training with internationally recognized certificates

For 25 years, the Training Centre for Adhesive Bonding Technology at the Fraunhofer Institute for Manufacturing Technology and Advanced Materials (IFAM) has been offering courses in adhesive bonding with certification for employees from a wide range of industries. It all began in 1994 in Bremen with the first ever course for DVS/EWF adhesive specialists and has developed into an employee training system with internationally recognized certificates that is in great demand.

“A structured training program for bonding technology, which covers all levels of the corporate hierarchy and includes an exam and a certificate, was something completely new 25 years ago. Not just for adhesive bonding, but also for the Fraunhofer Society. And as is always the case when an innovation is introduced, the new system had both supporters and critics,” explains the head of the institute Professor Bernd Mayer. “This makes me all the more pleased that the training scheme for adhesive bonding has seen such strong growth, not only within Germany, but also abroad, and has now become a permanent feature of the adhesives sector. It is also an important, integral component of the Adhesive Bonding Technology and Surfaces department of the institute with its 400 employees,” says Bernd Mayer.

The employee training system that has been created and developed in Bremen has become a key part of national, European, and international quality standards for bonding technology. The rail industry played a pioneering role in this respect. It was the first industry to show, in a way which impressed many other sectors, that competent employees with a qualification in adhesive bonding can significantly improve the quality of production. Customer satisfaction levels increase and product quality improves even further. And it pays off for the manufacturer simply because em-



© Fraunhofer IFAM

Professor Andreas Groß, Head of Workforce Training and Technology Transfer at the Fraunhofer IFAM, Professor Bernd Mayer, Director of the Fraunhofer IFAM, Dr Roman Götter, Head of the Fraunhofer Academy (left to right).

ployees who know what they are doing make fewer mistakes. This makes it possible to exploit the potential of adhesive bonding more effectively and more reliably and to open up new, cost-effective applications. The image of bonding technology has been enhanced and Germany has become a global leader in adhesive bonding.

The Training Centre for Adhesive Bonding Technology – a pioneer and a role model for 25 years

This year, the Fraunhofer Society celebrates its 70th anniversary. Its statute specifies that training in technical and scientific fields is one of the central tasks of every institute. “The Fraunhofer IFAM has the honor of having been the first to formulate the concept of training ‘Made by Fraunhofer’ and to implement it successfully. At the training centre in Bremen, knowledge generators become knowledge brokers and researchers become coaches for industry,” says Dr Roman Götter, director of the Fraunhofer Academy, describing the role of the institute.

As a founder member of the Fraunhofer Academy, the Training Centre for Adhesive Bonding Technology has played a decisive role in ensuring that the academy can provide training for over 4200 customers each year at more than 35 locations. This makes the innovative ideas of Fraunhofer researchers available to German SMEs at first hand. Thanks go to all the employees, promoters, supporters and friends of training and bonding technology. //

For more information, please visit: www.ifam.fraunhofer.de

Multi-Layer Seal Solves a Problem in the Chemical Industry

Tec-Joint has developed a customized multi-layer seal made from FKM and PTFE which met the demanding requirements of the operator of a chemical plant. The new seal helps to cut the costs and reduce the environmental impact of the production process.



© iStock-ID: 637641062-Trainmak_Ivan

Seals used in chemical plants have to meet a wide range of requirements.

It is often the case that the devil is in the detail, but with the appropriate technical expertise many problems can be solved using relatively simple means. One area where this applies is chemical plants, which are subject to a wide range of legislation and standards, including specific regulations for the installation of seals. The damage that could be caused in an urban area by the seals in a chemical factory failing is enormous. Both expert knowledge and experience are needed to develop suitable solutions.

Specific requirements

The project for the chemical plant had a complex set of requirements. The material had to withstand a broad variety of chemicals, temperatures up to 180 °C and the effects of weather and age-

ing, while also having flame-retardant properties. For all of these reasons, the first material chosen was a fluoroelastomer (FKM). However, during the course of the project meetings it emerged that the plant is occasionally steam-cleaned, which could cause degradation of the FKM seal and would represent a risk. Tec-Joint explains that its decades of experience and extensive expertise in the production of multi-layer seals enabled it to come up with a solution consisting of the FKM seal combined with two layers of PTFE film. This brings the added benefit of the anti-adhesive properties of PTFE, which allows the seals to be easily removed from the flange during maintenance work without damaging the surfaces. //

*For more information, please visit:
www.tec-joint.ch*

Research Project on Waterborne Raw Materials

A new research project at the Faculty of Applied Natural Sciences at the Technical University of Cologne is investigating how the properties of aqueous polymer dispersions can be further improved. These are used as liquid raw materials in paints and coatings, adhesives, and other everyday products.

The project, which is entitled “Applied Research on Disperse Colloidal Polymers” (or DisCoPol for short), is being funded over a period of three years by the Federal Ministry of Education and Research (BMBF). The total project volume is around 600,000 euros (funding code: 13FH142PX6).

Covestro is one of the two industrial cooperation partners of the project. The company claims to be the world's leading supplier of polyurethane dispersions (PUDs).

The latest trend: aqueous coatings and adhesives

“Paint and adhesive manufacturers all over the world are increasingly choosing to replace solvent-based products with more sustainable aqueous systems such as PUDs, provided they have the same excellent properties,” said Michael Friede, global head of the Coatings, Adhesives, Specialties segment at Covestro. “Our comprehensive range opens up many applications in a wide variety of industries. This will create growth opportunities and strengthen the competitiveness of our customers.”

Dr. Jan Weikard, expert for polyurethane dispersions at Covestro, hopes that the new research cooperation will provide important impetus for the further development of these dispersions: “The

aims of the project are the optimization of manufacturing processes, an improved understanding of structure-property relationships, and the development of new applications for the dispersions. Our focus is on application-oriented research into PUDs and the rapid market launch of new products to meet increasing requirements.”

Applications in a wide range of industries

Polyurethane dispersions consist primarily of water and a polyurethane that is finely dispersed in it. They are mostly used as film formers or binders in paints for the initial painting and refinishing of automobiles, in wood and furniture paints, and in robust floor coatings, as well as in textile coatings and glass fiber coatings. Adhesives formulated with PUDs from the Dispercoll U range are used in the production of furniture and shoes as well as in the automotive industry. It was not until the end of 2017 that Covestro commissioned new production facilities for PUDs at its European sites in Dormagen and Barcelona. With this and other capacity increases, especially in China, the company aims to meet the growing global demand from the coatings and adhesives industry. //

For further information, please visit: www.covestro.com

Carbon2Chem Pilot Plant Now in Operation

The goal of the Carbon2Chem research project is to use gases from steel mills as a source of raw materials for the chemical industry. One potential product is methanol, which has a wide variety of uses as a commodity chemical and as a synthetic fuel.

Carbon dioxide (CO₂) is much too precious to be discharged into the atmosphere as a waste gas from industrial processes, where it will contribute to the greenhouse effect and cause damage to the environment. CO₂ is an important raw material for the chemical industry. The purpose of the Carbon2Chem project, which has around 60 million euros of funding from the German Federal Ministry of Education and Research, is to make this raw material source usable. In more specific terms, the aim is to reduce the gas emissions from steel works, to convert the CO₂ into methanol, and to use it to lower the consumption of fossil raw materials in the chemical industry.

Successful implementation on a laboratory scale

In September 2018, methanol was produced from steel mill gases in the laboratory at the ThyssenKrupp Duisburg steel works. According to the company, this was the first time that gases from steel production, including CO₂, had been chemically converted in this way. ThyssenKrupp is working on the Carbon2Chem project together with institutes from the Fraunhofer Society, the Max Planck Society and other partners from the worlds of research and industry. The research is motivated by the fact that the technology could, if used on a large scale, make around 20 million tonnes of the German steel industry's annual CO₂ emissions commercially reusable. The technology is also suitable for other carbon-intensive industries.

Waste gases from steel mills contain chemical elements such as carbon in the form of carbon monoxide and dioxide, nitrogen and hydrogen, which can be used to produce synthesis gases containing carbon and hydrogen. These are the starting materials for manufacturing chemicals, which include ammonia, methanol, polymers and higher alcohols. Until now, chemical companies have been producing synthesis gases using fossil fuels such as natural gas or coal. The Carbon2Chem



Pilot plant for producing methanol from steel mill gases comes into operation in Oberhausen (Germany).

project will not only convert the CO₂ emitted by steel works, but also save the CO₂ that was previously generated when producing synthesis gases from fossil carbon sources.

75 liters of raw methanol per day

The process that was successfully implemented in the laboratory in the autumn of 2018 is now being prepared for large-scale industrial production. In July 2019, a pilot plant at the Carbon2Chem lab at the Fraunhofer Institute for Environmental, Safety and Energy Technology (UMSICHT) in Oberhausen was brought into operation. It comes from Switzerland and was used there to convert pure carbon dioxide into methanol with the use of electrolysis hydrogen. With the exception of its capacity of up to 75 liters of raw methanol (a mixture of methanol and water) per day,

which is low when compared with industrial production, the pilot system has all the key design features of a plant on an industrial scale, according to a press release from the institute. In 2020, the plant will be relocated to Duisburg where it will produce up to 75 liters of raw methanol per day in real-life operation at the steel works there.

The researchers are certain that there will be a great deal of interest in the Carbon2Chem project both inside and outside Europe. There are around 50 steel works all over the world which could make use of the Carbon2Chem technology. Discussions are already underway with parties who are interested in transferring the technology to other carbon-intensive industries. //

For more information, please visit: www.circular.eu/project/carbon2chem

Fast-Curing Liquid Sealant for All Shapes

The company Delo has introduced a new, silicone-free liquid sealant for the automotive, electronics, and white goods industries. It is cured by light and is used to protect against dust, air, and water.

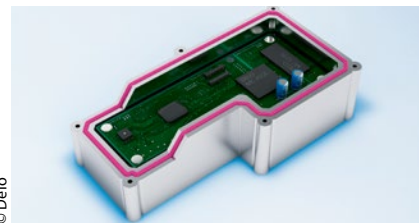
The flow-resistant, highly viscous liquid sealant can be applied in the desired height and in any geometric shape. The product cures by UV light or visible light within seconds without thermal influence, thus enabling the so-called CIPG process. CIPG stands for “cured-in-place gasket”, which means that the liquid sealant cures in the desired position so quickly that the entire assembly can be directly further processed.

The product, which is called “Delo Photobond SL4165”, has a compression set of 15 % and thus shows good elastic recovery, which means that the highly flexible material springs back after being compressed. According to Delo, this ensures reliable sealing and helps manufacturers to meet the tightness requirements accord-

ing to IP67, the IP rating used for smartphone classification.

Flexible production processes

Due to their versatile application options, liquid sealants are particularly well suited for complex geometries. Compared to o-rings or molded gaskets, they involve significantly fewer process steps and reduce machine set-up times. Other benefits include fewer rejects and reduced storage costs. In addition, the production process can be easily automated, allowing any shape to be produced on one system. Finally, the product is suitable for in-line quality control through fluorescent detection of potential leaks. The liquid sealant from Delo is one-component and does not



Liquid sealants are more versatile than conventional seals, such as o-rings, and are particularly suitable for complex geometries.

contain solvents or paint-wetting impairment substances. Its range of applications includes sealing housings in the consumer industry, for such products as white goods or landline and mobile phones. Its use as a sealant in the field of automotive power electronics, for example in high-voltage batteries or electronic transmission control components, can also be envisaged. // For more information, please visit: www.delo.de

Adhesives and Sealants for Electric Motors and Electric/Electronic Components

Toughened adhesives are the ideal solution for the assembly of electric motors and electric and electronic components. For these applications, Kisling has developed a well-balanced portfolio of products for bonding, sealing and potting. Kisling's products are sold under the “ergo” brand, which is divided into five categories:

- (Meth)acrylate adhesives for high-performance, temperature-resistant bonding of various materials
- No-mix structural adhesives for rapid bonding of metal, ceramic and ferrite parts
- RTV silicones for sealing enclosures and cable entry points and for the casting of sensors and electrical components
- Epoxy resins for potting windings, plugs and connectors
- Anaerobic adhesives for thread-locking and retaining

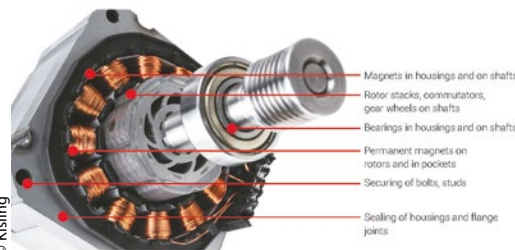
Innovation

New in the portfolio are four potting compounds of the ergo 73 series, which are

characterised, by flame retardancy, high continuous temperature resistance or a particularly long processing time. The 2-component (2C) addition-cure silicone ergo 3210, which is already used in the potting of battery packs, is also a newcomer to the product range. The 2C structural adhesive ergo 1675 is a virtually odourless all-rounder with extremely fast bonding, excellent adhesion to different substrates and a very tough bonding performance. Next in the Kisling range is the ergo 7440, an impact- and high-temperature resistant epoxy adhesive that is ideal for bonding composite materials and metals.

Hazard marking-free adhesives and sealants

Driven by the commitment to sustainable products, Kisling contributes significantly to a sound balance between functionality, health protection and occupational safety. Those of Kisling's adhesives that are exempt from hazard pictograms have been in use by various customers for more than



Examples of adhesives used in electric motors

20 year. Adhesives without any hazard labelling according to (EG) Nr. 1272/2008 in paragraph 2.2 include many of Kisling's cyanoacrylate and anaerobic adhesives.

About Kisling

Kisling is one of the leading manufacturers of adhesives and sealants. The company's international sales and distributor network supplies some 3500 customers in industry (OEM and supplier industries) and specialist retail with innovative, high-quality products. //

Contact and more information: anwendungstechnik@kisling.com, www.kisling.com/electric

Market Study: Packaging Producers are the Main Consumers of Polypropylene

Polypropylene is the world's second most produced standard plastic after polyethylene, with the packaging industry as the main consumer. The market research company Ceresana has once again analyzed the global market for polypropylene, now for the fifth time. The latest report expects revenues for this type of plastic to grow by an average of 4.9 % per year until 2026.



The fifth edition of the market study on polypropylene is now available.

The most important sales market for polypropylene in 2018 was flexible packaging. A total of 16.4 million tonnes were processed in films, bags, and sacks. A further 15.5 million tonnes of polypropylene were used for the production of rigid packaging, such as containers and lids for food and beverages, chemicals as well as industrial and household products. This was followed by demand in the application areas of consumer goods and fibers.

Injection molding is an important processing technology in the plastics industry and of special importance for polypropylene in particular. The comparatively fast process is used for the production of large volumes of identical goods ranging from disposable products to highly complex precision components. The types of molded parts made

are almost limitless. In 2018, almost 23.6 million tonnes of PP were processed in injection molding.

Copolymers more popular than homopolymers

Polypropylene is a semi-crystalline thermoplastic polymer. In addition to uniform homopolymers, there are various copolymers such as random and block copolymers. These plastic types have mainly similar characteristics. However, different properties help with the choice of the optimum material for specific applications and a desired budget. Compared to homopolymers, polypropylene copolymers are expected to account for notably higher growth rates at 3.6 % per year until 2026.

The study in brief

Chapter 1 provides a detailed description and analysis of the global polypropylene market – including forecasts up to 2026. The development of demand, revenues, and production is depicted for each region. Additionally, the individual application areas of polypropylene are analyzed:

- Packaging films
- Bags and sacks

- Heavy duty and industry sacks
- Food containers
- Industrial and transportation containers
- Containers for beverages and other areas
- Fibers
- Transportation
- Electrics and electronics
- Consumer goods
- Construction industry
- Other applications

Chapter 2 examines the most important 27 countries individually. Country-specific information is given on demand, revenues, trade, production and capacities, demand and revenues for the individual application areas, demand per product type (homopolymer, copolymer) and according to processing technology (injection molding, film and sheet extrusion, other extrusion, and other technologies).

Chapter 3 provides useful company profiles of the most important producers of polypropylene, clearly arranged according to contact details, turnover, profit, product range, production sites, capacities, and profile summary. //

For further information, please visit: www.ceresana.com

Foam from Polyamide Beads

The technology group Asahi Kasei reports that it has developed PA Foam, the world's first foam made of polyamide beads. The material features the heat-, chemical-, and oil-resistant properties of polyamide. Depending on the shape of the foam beads, these properties can be combined with a high level of rigidity or noise-reducing features. For example, round foam beads provide high rigidity, therefore making the foam suitable as an alternative material for replacing aluminum and metal in structural applications and for use in insulators, wires, spacers, or other lightweight components of the battery housing in electric vehicles. If, on the other hand, the foam is made of C-shaped or macaroni-shaped beads, it also offers very good noise-reducing properties in addition to the typical polyamide features. The material is suitable for various automotive applications, particularly in the engine compartment. //



The resistance of the foam to heat, chemicals, and oil can be combined with a high level of rigidity or with good noise-reducing properties.

Save the Date: In-Adhesives Symposium, 18–19 February 2020



Presenters at the in-adhesives symposium 2019 in the fields of Automotive and Lightweight Applications (from left to right): Stephan Hinterwaldner (Organizer), Jan-Pierre Schneider (Schill und Seilacher "Struktol"), Dr. Thomas Engels (Henkel), Olivier Defrain (Total Cray Valley), Dr. Hartmut Henneken (Jowat), Dr. Luc Peeters (Kaneka), Dobrivoje Jovanovic (Sika Automotive), Prof. Paul-Ludwig Geiß (University of Kaiserslautern)

Organized by Stephan Hinterwaldner and his consulting and conference team, the sixth edition of the English-language in-adhesives symposium offers an optimally compressed and balanced program of knowledge transfer and networking. More than 130 participants from all over the world will again meet at the Westin Grand Hotel in Munich on 18 and 19 February 2020 for the independent, annual European conference and networking event.

The symposium is aimed at current and future product and process engineers, formulators and users along the entire process chain in the globally operating adhesives industry and industrial bonding technology.

Entirely in line with the symposium motto "Adhesives of the Future – The Future of Adhesives" 22 renowned international speakers from academia, research and industry will present and discuss their innovative and creative solutions, developments and results, divided into lecture blocks in the main areas "Automotive", "Lightweight", "Construction", "Electronics" and "Medicine".

Examples of promising and sophisticated solutions in the field of adhesives for

automotive and lightweight construction applications will be presented by companies such as Kuraray, Bostik and Sika Automotive.

Moreover, the Molecular Plasma Group will report on new surprising findings and meaning of the molecular plasma technology on the topic of "Solvent-Free Grafting of Organic Chemistry on Inert and Sensitive Materials".

Evonik Resource Efficiency will present the strengths and advantages of a "Novel Ultrafast Curing Agent for Adhesive Applications", and Omya will look more closely at the interaction of water and calcium carbonate in the manufacturing process of adhesives and sealants.

Kraton will discuss the next generation of developed rosin esters that offer excellent bonding strength, significantly lighter colour and high stability, offering adhesive formulators a new choice of high-performance bio-based tackifiers.

Huntsman Advanced Materials reports on first results of an adhesive formulated with a new pulp class of advanced carbon-based performance materials. These show high electrical performance and maintain the thermomechanical properties of the base matrix.

Lohmann presents the technology, function and applications of thermally conductive adhesive tapes and Synthomer demonstrates that aqueous acrylic dispersions are suitable as contact adhesives for foam bonding.

In addition to a contribution on "Versatile Innovative Adhesives for Medical Implants" by Elkem Silicones in the lecture area on medical adhesives, the INM-Leibniz Institute for New Materials will report on "Micro structured Adhesives for Skin Adhesion: Technical Realization and Implementation of a Regulatory Strategy".

Speakers' Line-Up and all submitted abstracts online available

While the speakers' line-up and all submitted abstracts are already online, the complete program and the table-top exhibitors (e. g. DKSH, Bostik) will be soon available. Delegate registration for the symposium is already running: for a one- or two-day participation – including a sociable networking evening on the first day of the event. //

Program and registration:
www.in-adhesives.com