

Polyurethane Potting Compound from Wevo Receives Drinking Water Approval

During the evaluation of materials that come into contact with drinking water, special focus is placed on the possible release of heavy metals, as well as changes in the taste and smell of the water samples and the prevention of harmful effects on cellular and aquatic organisms.

A polyurethane potting compound from Wevo has passed the rigorous tests and is now certified in accordance with BS 6920-1:2000/2014. As a result, the product can be used to manufacture components that are in constant contact with drinking water at temperatures of up to 23 °C. According to the company, possible applications in the areas of drinking water management and filtration, alongside conventional water filters, include flow sensors, pump housings and control panels. Other potential application areas are systems and filters for treating process water, such as those used in power stations, in the chemical and pharmaceutical industries, in breweries and in the production of juice and wine, the company says.

Advantages in processing and use due to polyurethane potting compound

Compared to the epoxy resins frequently used for components in the drinking water sector, the polyurethane potting compound from Wevo offers a range of advantages in processing. For example, less heat is generated during processing, thus allowing potting to be carried out in one step without any interruption, even when potting larger volumes. According to Wevo, this process is also void-free and safe, even with complex geometries, due to the relatively low viscosity of the material. The aligned flow properties and good adhesion also ensure perfect wetting of the filter



© Wevo-Chemie

Ceramic-based diaphragm filter – potted with WEVOPUR 2082

medium and excellent bonding to a wide variety of substrates. This allows filters based on ceramic materials or polymers such as polyethersulfone or PVDF to be reliably potted and bonded. As Wevo points out, the potting resin consists of particularly pure raw materials, which are formulated in such a way that no volatile components are released. The product also combines high mechanical strength with residual flexibility, thus making the material less brittle in use than a comparable epoxy resin. In addition, WEVOPUR 2082, together with the hardener WEVONAT 1000, provides excellent resistance to the cleaning and rinsing agents commonly used in water treatment systems. //

Further information: www.wevo-chemie.de

Three Bond Invests in Europe



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Three Bond's new manufacturing facility is located 20 km from the center of Budapest.

In addition to its European manufacturing facility in France, Three Bond has established a new plant in Hungary, contin-

uing its commitment to customer proximity in Europe.

Three Bond Manufacturing Hungary

will produce microencapsulated screws, epoxy resins, anaerobic acrylic adhesives and other products from the Three Bond product range, such as the new TB-Mate series. In the first expansion step, the approximately 50 employees are expected to produce up to 80t of material per year. A significant increase in capacity is planned in the course of further expansion steps. Production under the first expansion stage will start in mid-2021. "With this renewed investment in a European site, we are underlining our commitment to European customers and short supply chains," says Yuichiro Kinugasa, President of Three Bond Europe. //

For more information: www.threebond.com

Bonding Magnets in Electric Motor Manufacturing

Increasing use is being made of automated dispensing technology in the production of electric motors. In particular, the mechanical fixing of magnets is proving to be a major challenge when it comes to automating this process.

An alternative to the mechanical fixing of magnets is adhesive bonding, which also offers numerous advantages. Noise caused by vibration is prevented because no mechanical connecting elements are required. Contact corrosion is avoided, the components can be processed more quickly, and strength is optimized. What is more, tolerances resulting from the manufacturing process can be compensated for. One- or two-component adhesives are used. Often these are high temperature stable, thermosetting epoxy or polyester resins. The fact that the component is pre-heated by the shrinking process promotes faster curing of the resin, thus optimizing the process time. Two-component materials can have an additional positive influence on the entire process duration, due to the shorter curing time. Further process steps, such as balancing the rotor, can be started immediately, thereby ultimately reducing long heating sections.

Challenges for dispensing technology

In addition to optimizing the production process, another major goal of magnetic bonding is increasing the efficiency and performance of the electric motors. For an

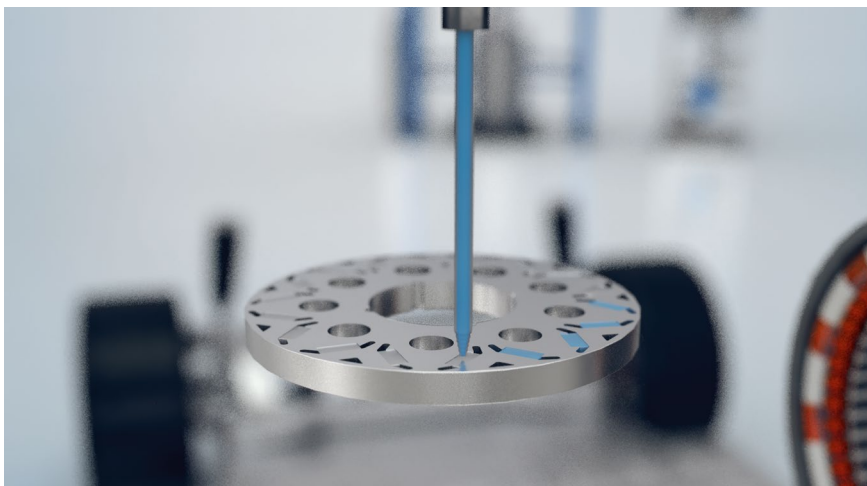
optimum result, the fitting surfaces must be clean and free of impurities.

After the magnets have been joined, the adhesive is applied. This can be done using different processes depending on the laminated core design and requirements, for example by filling the magnet pockets or by applying an adhesive to the magnets. A particularly important aspect is the repeatability of the dispensing process.

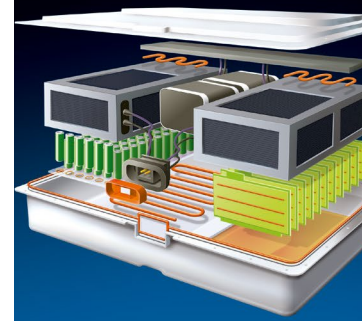
Dispensing systems from Viscotec enable continuous, repeatable, and gentle dispensing of adhesives – regardless of viscosity. According to the company, they can perform repeatable and precise dispensing of one- and two-component adhesives in magnetic pockets of laminated cores. The material treatment systems from the ViscoTreat series use an integrated agitator to prevent the fillers from settling in the material to be dispensed. The dispensing systems can be optionally heated to achieve a better flow behavior of the material. Two-component adhesives can be dispensed without any problems even with extreme mixing ratios.

According to Viscotec, the dispensing units, which are based on the endless piston principle, ensure precise and absolutely repeatable dispensing. Filled adhesives are conveyed with particularly low shear, and the special design of the unit means that curing of the adhesive within the pump is not possible. //

Further information: www.viscotec.de



Precise and repeatable dispensing is the main requirement in the bonding of magnets.



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Advanced Polymer Technology Prevents Leaks in Gas Meters

In the safety-driven natural gas industry, system leaks are a dangerous and costly issue. Residential gas meters and regulators in particular are at risk when crucial components such as diaphragms are not optimally designed and manufactured for the environment in which they are to work.

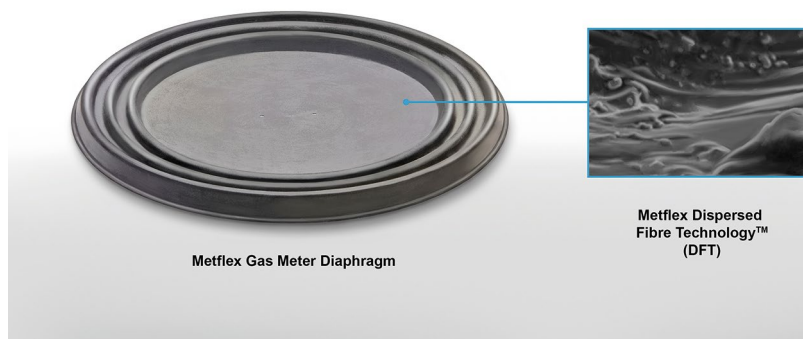
'Dispersed Fiber Technology' (DFT), a highly developed polymer technology from the Metflex Precision Mouldings division of Freudenberg Sealing Technologies, addresses these challenges with fiber-reinforced materials that improve the reliability, functionality and longevity of critical components in gas meters. According to Freudenberg, diaphragms made using DFT offer better sealing performance, longer flex life, improved low temperature resilience and enhanced design capabilities than standard diaphragms made from fabric coated polymers.

"The natural gas industry is a very conservative when it comes to embracing new technology, given the safety concerns and costs associated with gas leaks and equipment failures," said Ben Scult-horp, Sales and Marketing Account Manager at Metflex. "But there is a better alternative available for the safety-critical components used in low and medium-pressure applications of less than 150psi, such as residential gas meters and regulators." DFT diaphragms are a proven solution for serious issues like delamination, cracking and leaking.

Lower hysteresis and longer lifetime performance of DFT diaphragms

Even as digital metering technologies emerge, mechanical diaphragm gas meters will remain in widespread service for the foreseeable future. These devices are based on the principle of displacement. A piston and cylinder system in combination with a diaphragm are used to move gas from distribution pipelines into residential gas outlets. The diaphragm acts as both a barrier against escaping gas and a force to push it through residential gas lines inside the building.

The diaphragms used in these meters are traditionally designed and manufactured using rubber materials that are bonded to a fabric layer. The fabric typically serves



Diaphragms made of fiber-reinforced materials offer a higher sealing performance than standard diaphragms made of fabric-reinforced polymers.

several purposes including increased flexibility, durability and fluid resistance.

Fabric-reinforced diaphragms are commonly used in large, high-pressure applications where tension, motion and working parts are in constant play. This solution is especially appropriate for meters that require a burst pressure of more than 150psi.

For residential applications on the other hand, smaller displacement gas meters with burst pressures below 150psi are used. In these cases, fabric-reinforced elastomers can present challenges, as these diaphragms compress and expand more quickly as gas use increases in order to maintain a stable flow of gas into the residence. This movement creates friction and stress that can delaminate the fabric bond from the elastomer, thus compromising the integrity of the materials and resulting in deformation and system leaks. What is more, the fabric can also fray at the edges, again compromising the capability of the diaphragm to seal effectively. The DFT process is claimed to eliminate this risk by producing a homogenous, fiber-reinforced material that does not require a layer of fabric. Such a material flexes uniformly and delamination of the reinforcing fibers is impossible, the man-

ufacturer says. Hysteresis is lower in DFT diaphragms and lifetime performance is longer. According to the company, the uniformity of the material virtually eliminates the issue of deformation that can result when different materials respond differently under pressure and stress.

"DFT gas meter and regulator diaphragms offer tremendous value to equipment manufacturers and utility companies," said Jeff Kruwell, Senior Global Segment Director, Equipment Manufacturing, at Freudenberg. "They can be designed to precisely fit different gas meter designs, and they reduce the incidence of meter and regulator replacements because they are made of a high-quality, robust material. Maintenance calls have significantly declined in systems where DFT diaphragms are installed. This saves the customer considerable cost over the lifetime of each meter and regulator." DFT diaphragms can be manufactured from a variety of polymer materials, including NBR (butadiene acrylonitrile) and ECO (epichlorohydrin rubber). All of the materials meet ISO 9001:2015, EN549 and EN13787 approvals and are certified to WRAS, FDA and BfR standards. //

For more information, please visit: www.fst.com

Repairing Rotor Blade Leading Edges Six Times Faster

Applied as a single coat and with its extremely fast curing, a further developed elastomer coating now makes it possible to repair the leading edges of wind turbine rotor blades six times faster than with conventional repair systems.

Repair contractors have clear requirements when it comes to repair solutions for rotor blades. They expect a single product for filling and edge protection that offers easy and reliable application, fast curing and a long service life. For that reason, Teknos has further developed its Teknoblade Repair 9000 coating system to improve its resistance and application properties.

The Teknoblade Repair 9000-20 system is a white, elastomer-based high-build coating with 100 % solids content. In a single coat, the elastomer coating forms a protective, elastic layer with a thickness of up to 2500 µm which cures in a couple of minutes. This means that the leading edge of a rotor blade can be repaired in just one step without additional priming or filling, thus saving time. While it takes about two days to repair a blade with a conventional system, the new system can do the job six times faster.

Longer service life

According to Teknos, the transparent version which was launched in 2018 already ensures a long service life. Due to its special elasticity, the elastomeric lay-



A new coating enables rotor blade leading edges to be repaired in a single step without a primer or filler.

er can absorb high energies in collision with objects. The company says that the resistance of the new white version has been further improved. The coated rotor blades show even better results in rain erosion tests (RET) according to DN-VGL-RP-0171_2018, withstanding exposure for more than 10 h at 130 m/s. After accelerated UV-light aging in standard-

ized test conditions, the edges withstand a defined impact for 270 min, longer than required by DN-VGL. Overall, the system offers higher resistance than conventional repair solutions, thus enabling a longer service life with reduced downtime. //

Further information: www.teknos.com



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Rampf Reorganizes its Structure



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The new dual leadership: Dr. Christian Weber (left) and Dr. Klaus Schamel (right)

Rampf Polymer Solutions now has a dual leadership. The specialist for reactive resin systems has appointed Dr. Christian Weber as CEO in charge of technology, while long-time CEO Dr. Klaus Schamel is responsible for sales.

Christian Weber has held the post of Head of Development at Rampf since April 2018. Weber has a PhD in chemistry and is known as a proven innovation strategist and experienced project manager.

“I am looking forward to working with Klaus Schamel to write the next chapter in the Rampf success story. Thanks to his comprehensive market and specialist know-how as well as his entrepreneurial

vision, the company has become a market and innovation leader over the past 13 years. We are very well placed to push ahead with dynamic market developments in our customers’ interests, in fields such as mobility transformation and sustainability,” Weber said.

New organizational structure with four Business Centers

In addition, the company has also established four Business Centers as part of its structural reorganization (Adhesives, Electrocasting, Casting Resins & Elastomers, Sealing Systems) with the aim of taking the company’s development and

production of innovative customer solutions to the next level.

“Focusing on four Business Centers, which were identified based on a comprehensive market analysis, will now enable us to use existing resources even more effectively. One point particularly worth emphasizing is that staff from throughout the company were involved in devising the new structure. This has resulted in a holistic approach that we can put into practice quickly,” Klaus Schamel explained. //

Further information:
www.rampf-group.com

Save the Date: in-adhesives Symposium as a Virtual Event, 7/8 June 2021

The 7th English-language in-adhesives symposium has been postponed until June 7 and 8 due to the still uncertain situation regarding the Covid pandemic. It will now take place as a virtual event. As usual, this independent European conference and networking event will offer a tightly packed, balanced and topical program. The organizers are expecting more

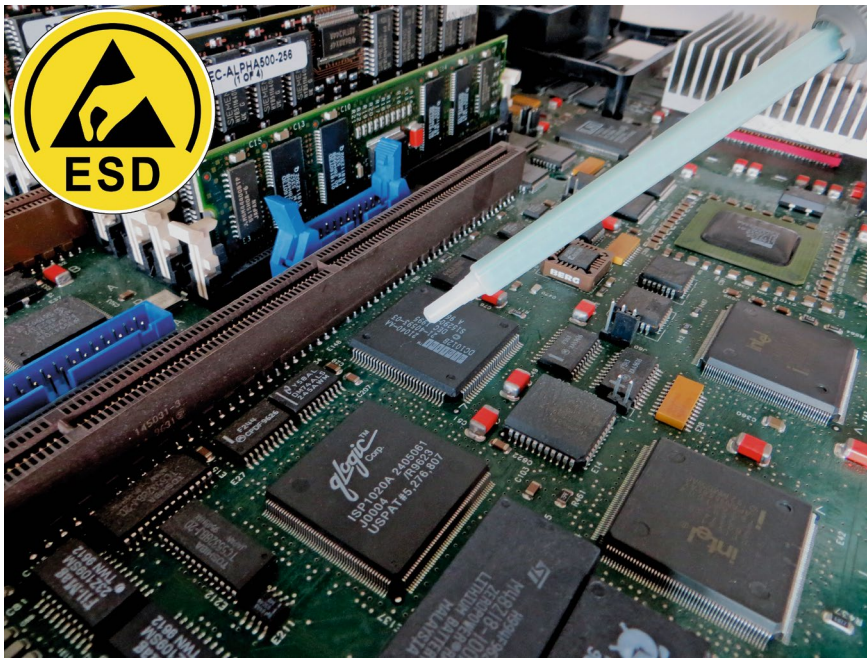
than 100 participants to discuss the very latest development findings and technological innovations and to exchange ideas.

The program of lectures on many aspects of industrial adhesive bonding will focus in particular on applications in the fields of ‘Automotive and Aircraft’, ‘Composites and Lightweight Construction’, ‘Construc-

tion and Industry’, and ‘Electronics, Optics and Medicine’.

For further information and registration:
www.in-adhesives.com

Carbon Nanotubes for Flexible Electrically Conductive Adhesives



Applying adhesive systems to printed circuit boards

Producing an electrically conductive adhesive with only 0.5 percent by weight of filler is inconceivable using traditional electrically conductive fillers such as silver particles. But carbon nanotubes (CNTs) make this possible, as the German Plastics Center (SKZ) and the Fraunhofer Institute for Material and Beam Technology (IWS), together with their partners from industry, have demonstrated during the course of the recently completed 'ESDBond' research project. The researchers used CNTs to make electrically conductive adhesives and sealing compounds based on flexible silicones and polyurethanes.

Adding 0.5 percent by weight of filler made it possible to reduce the volume resistance by up to 16 orders of magnitude to $10^{-2} \Omega \cdot \text{cm}$. Depending on the adhesive system used, other properties such as viscosity and elongation at break remained largely unchanged. An application in the automotive industry has already been successfully tested in a demonstrator.

Participants for follow-up project wanted

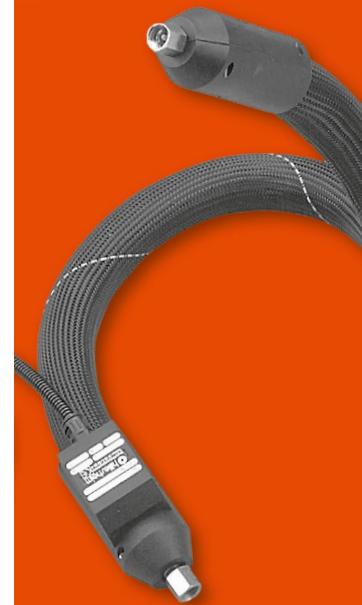
The SKZ and the Fraunhofer IWS, together with their partner companies, are already looking for participants for the follow-up project to develop applications for the electrically conductive systems. The start of the 'carBONDshield' project, which aims to develop a shield for electromagnetic radiation, is planned for June 1, 2021.

The 20459 BG project ('ESDBond') of the research association 'Förderungsgemeinschaft für das Süddeutsche Kunststoff-Zentrum e. V.' was funded via the German Federation of Industrial Research Associations (AiF) as part of the Industrial Collective Research program (IGF) by the German Federal Ministry for Economic Affairs and Energy (BMWi). Interested parties for the follow-up project can contact the participating research units. //

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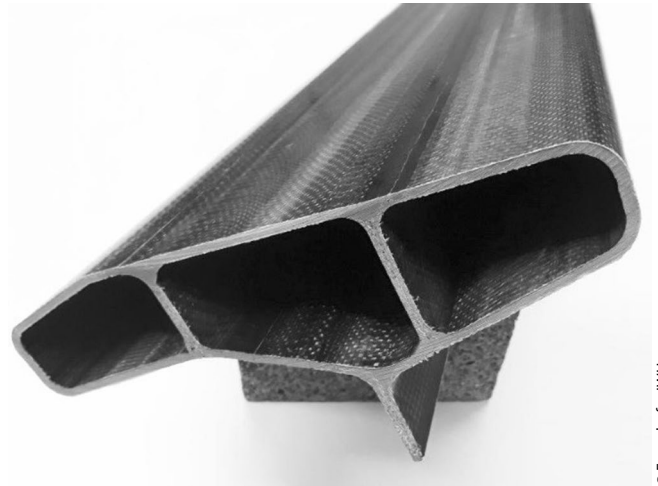
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New Name for Fraunhofer's Lightweight Construction Research

At the start of this year, the 15 institutes that make up what was formerly known as the 'Fraunhofer Lightweight Design Alliance' began carrying out their cross-industry research activities under the new name of 'Fraunhofer Research Field for Lightweight Construction'. The organization's existing lightweight design expertise remains unchanged and the companies working with the Fraunhofer Society on research into lightweight structures will not be affected. However, the plan is to extend the organization's cooperation with industry even further.

The Fraunhofer Society intends to focus its research even more closely on sustainability and digitalization and cover areas such as recycling and the reusability of lightweight materials. Current projects in this field are investigating the options for repairing aircraft and the rotor blades of wind turbines.

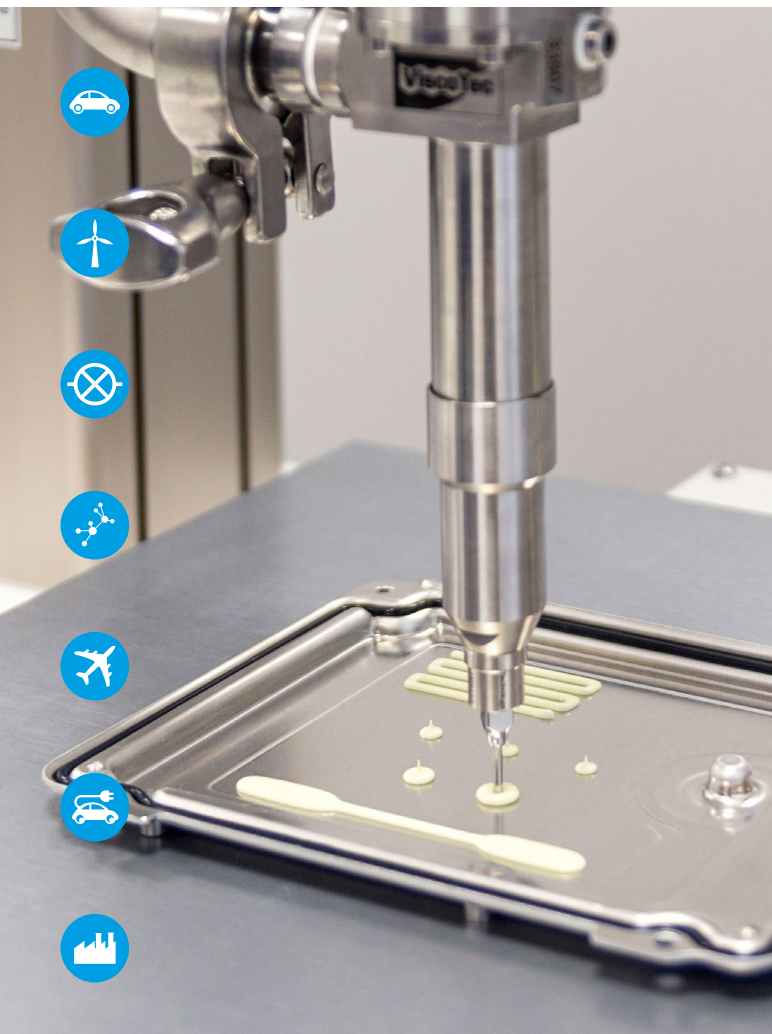
Digitalization relates in particular to the progress being made in functional integration, for example incorporating sensors into components that can continuously record and transmit status data. The Fraunhofer Society regularly adapts its cross-institute alliances to meet the needs of the major industrial markets. However, in this case the existing networks are being retained and will be known as research fields or competence centers. //



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Research on lightweight structures at the Fraunhofer Society will focus in more detail on sustainability and digitalization; the figure shows a reusable side skirt.

More information: www.iwu.fraunhofer.de



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