JOWAT

THE MAGAZINE 1 | 20

Keeping it green
A new generation of adhesives with bio-based raw materials

One adhesive, two benefits
Adhesives that kill two birds with one stone

First found, then bound
The cooperation that paved the way for Jowat in Colombia

The JowatPro team of Konstantin Farwick, Karolina Bertling, Jasmin Etrich, Detlef Hilske, Jürgen Schrödel and Wolfgang Rasser (l–r).

»Jowat always has its gaze fixed firmly on the future.«

Dear Customers,

Don't you just love the smell of wood? The way it sounds when you work on it with a tool and the warm, raw feeling of an untreated wooden surface?

At the HOLZ-HANDWERK and FENSTERBAU FRONTALE trade shows, you'll find sensations like these everywhere. Of course, Jowat will be attending these trade shows, presenting our diverse range of adhesives for working with wood and wood-based materials. We're also taking the opportunity to introduce several product innovations, like the hot melt adhesive Jowatherm® GROW from renewable resources, our new Jowacoll® dispersion adhesives and the monomer-reduced Jowatherm-Reaktant® MR hot melt adhesives.

But it's not just at trade shows like the HOLZ-HANDWERK that we focus on woodworking. In this edition of our magazine, you can read more about window profile wrapping and flat lamination, which are two of the most common fields of application for our adhesive solutions.

As you know, at Jowat, we're proud of our company history. But we always have our gaze fixed firmly on the future. Dieter Fricke, who was introduced to the world of bonding as the first ever Jowat apprentice in the 1950s, gives us exclusive insight into the work of our company in days gone by. Christoph Funke, Head of Dispersions Research & Development for Wood, Furniture and Construction, gives us a sneak peek into the future of lacquer adhesives, which provide valuable services for bonding complex surfaces.

As you can see, we've prepared another edition with plenty of interesting topics for you. All that remains, is for me to wish you pleasant reading!

Dr Christian Terfloth
Director of Research & Development,
Technical Support & Service, Purchasing

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The JowatPro team: Jürgen Schrödel, Konstantin Farwick, Detlef Hilske, Jasmin Etrich, Karolina Bertling (l–r). Not pictured: Wolfgang Rasser.

The JowatPROs: A valuable extension

The JowatPro online portal will make B2B orders significantly more efficient.

JowatPro®

JowatPro, founded in 2019, is different to the other Jowat SE subsidiaries. This is the first time that Jowat products have been available online and not just in specialist trade shops.

The large majority of Jowat adhesives are used in the processing and packaging industry, while selling to independent craftspeople and small businesses via specialist trade shops makes up a very small percentage of sales. “There’s a huge amount of potential to be tapped,” Jürgen Schrödel, CEO at JowatPro, insists. To access this potential, you need to adapt to the demands of these customers, which differ greatly from the demands of big industry. Some distributors want a special size pack, for example, while others would like to offer Jowat products as private label products. This is why JowatPro was formed, in order to cater to the individual needs of trade partners to a large extent. It’s a valuable expansion, and an asset in the Detmold adhesive manufacturer’s portfolio of services. There’s currently a team of six working to manage specialist trade store partners and users from the crafts sector. Through JowatPro, the latter group is being developed and closely supported as a new customer base.

B2B goes digital

Digital solutions are an important part of everyday work these days. More and more orders in the B2B segment are being made online (see Jowat facts and figures, page 10). JowatPro has reacted to this development with an online portal that should make both digital and traditional product purchases easier. Trade partners can conveniently view and order a large selection of Jowat products. “Our online shop should streamline the ordering process for trade partners,” explains sales representative Konstantin Farwick, who is repsonsible for supporting distributors in the field. Small businesses like, for example, independent carpenters, are also given access to the online portal. Searching for a nearby distributor on the website allows interested parties to

The JowatPro shop at a glance

- To start, the JowatPro shop offers 60 products in various container sizes.
- The range also includes accessories, primers and cleaners.
- There are also around 100 extra products exclusively for the distributors.
- Video tutorials offer instruction on optimal use of the products.
- There is also a support service via telephone, email and online chat.

Calvin Plener, Johann Friesen and Alexander Schles (l–r) are always on the ball at the JowatPro warehouse.

JowatPro also offers a range of exclusive products and container sizes (see page 15).

find their nearest local Jowat partner. "But processors can also purchase our products online, if there isn't a distributor nearby." JowatPro is in no way looking to compete with the distributors, and this is reflected in the design of the product range. The selection of adhesive types and container sizes is significantly larger for the registered distributors than for end users. Of course, trade partners can also order their products online at their usual prices.

More than an online shop

The importance of the newest subsidiary is clear to see by looking in their warehouse.

> **»There's a terrific amount of potential in specialist trade shops.«**
>
> Jürgen Schrödel,
> Managing Director of JowatPro

JowatPro has its own, generous storage space to ensure an optimal overview and supply of the products on offer. For the launch, the online portal offers around 60 products, each in various container sizes. There are also around 100 extra products available exclusively for the distributors. It's not just adhesives but also related products and processing equipment, like cartridge guns. "We wanted to be a one-stop shop for everything to do with bonding and adhesives," Konstantin Farwick explains.

Was it not difficult to maintain Jowat's characteristic, quality customer service when making an online shop? Customer support is always a challenge with digital sales, Jürgen Schrödel concedes. But increasing numbers of customers prefer to inform themselves about a product on the internet before purchasing. That's why JowatPro offers tutorials on using products and comprehensive support via the online chat or telephone. Another advantage is that Jowat is already a well-known brand to most customers in the crafts sector. The professionals recommend all new customers to seek advice from the specialist distributors too.

The team behind JowatPro are already seeing the first fruits of their labour. Since the start of 2019, the turnover from Jowat sales in specialist shops has significantly increased. And the trend is on the rise... ●

Jowat's Advice

PURe quality in stock

If a bond with a high-performance adhesive isn't fulfilling the expected quality standards, despite proper use, it could be down to incorrect storage. The storage conditions can have an effect on the adhesive's properties before it is even used.

In general, Jowat recommends storing adhesives in a cool, dry place. Individual requirements can vary depending on the product. This is especially true for polyurethane hot melt adhesives or polyurethane dispersion adhesives, and there are a few criteria to note when storing them.

If a frost detector comes into contact with freezing temperatures, the indicator turns pink.

Avoid damp

Reactive adhesives like the PUR hot melt adhesives start to crosslink as soon as they come into contact with moisture or humidity. That's why the Jowat PUR hot melt adhesives come in a specially reinforced, moisture-proof container. However, they should still not be stored in damp rooms or get wet in transport. Once opened, the packages should be resealed, ideally in an air-tight way, for storage.

Avoid heat

Avoid increased temperatures due to, for example, radiators or fan heaters, as they frequently go hand-in-hand with a high relative humidity. With hot melt adhesive in granulate form, there's also a risk of it sticking together and no longer being pourable.

Avoid frost

Where there's ice, there's water. If PUR adhesives encounter frosty temperatures in transport or storage, it can cause unwanted condensation. Take care with dispersion adhesives, as these are water-based systems and so can freeze, damaging the adhesive. This is why Jowat PU dispersion adhesives are transported in special thermo trailers and the pallets are fitted with frost detectors in winter, to warn about storage in extreme cold temperatures.

Acclimatisation

If the product is stored in particularly cold temperatures, a subsequent change of room can affect the product. If the adhesive is brought into a warmer environment for use and processing, it should be left to acclimatise to the temperature in the room first. This stops condensation from forming, for example.

Be realistic

Because PUR adhesive should be processed carefully, it's important to select a container size appropriate to the intended use. This helps keep the processing parameters constant and the cleaning costs low. Jowat offers a range of container sizes for the PUR products.

Read the technical data sheet

You can always find the optimum storage conditions for PUR hot melt adhesives and granulate adhesives on their data sheets, which are provided by Jowat.

Keeping it green

Climate change and environmental protection have been a driving force for change in all areas of life, even before Fridays for Future. Jowat recognises the potential for change in the adhesives industry. The company from Detmold is laying the foundations for "green bonding" with a new range of products.

Environmental protection is of increasing concern, to both the end users and the manufacturing industries.

Jowat is curating a new generation of hot melt adhesives, under the name Jowatherm® GROW. From the selection of raw materials used, to their application, these hot melt adhesives are designed to protect valuable resources while offering the quality you expect from Jowat.

Composition

Fossil-based resources like crude oil are important sources of raw materials for numerous everyday uses. In the adhesives manufacturing industry too, for a long time it was impossible to imagine working without these materials.

But using fossil-based raw materials is not a sustainable long-term solution, which has been fuelling scientists' search for alternatives for years. For example, wood chips, solar power and biogas are becoming more popular for heating homes or fuelling vehicles. Jowat increasingly relies on renewable raw materials for selected adhesive formulations.

The proportion of these materials is particularly high in the Jowatherm® GROW line. Depending on the formulation, an adhesive contains between 30 percent and 45 percent made from rapidly renewable resources. Rarely have Jowat adhesives of this quality contained these percentages of renewable raw materials. Jowatherm® GROW is thus a particularly attractive adhesive for companies who are trying to significantly reduce the use of fossil-based raw materials in their packaging processes.

The raw materials

The renewable raw materials used for Jowatherm® GROW come from waste materials from wood pulp manufacture, for example for paper and sanitary products. The pine wood used for this comes from strictly monitored, sustainably managed forests. As the adhesive is made with a byproduct of pulp manufacture, its manufacture and use don't compete with the production of food.

Use

Most hot melt adhesives are processed at temperatures over 160 °C. Jowatherm® GROW is usable at the much lower temperature of 120 °C (853.20). By changing to Jowatherm® GROW, companies reduce their long-term energy consumption compared to similar hot melt adhesives.

Characteristics

Jowatherm® GROW has a particularly accurate adhesive cut-off, allowing clean adhesive application on even the smallest surfaces. This reduces material waste and also prevents application systems and bonded packaging from becoming dirty. The results are easy to see: annoying strings of adhesive and dirty system parts are a thing of the past. What's more, Jowatherm® GROW 853.22 has a particularly wide range of adhesion, adhering to even challenging substrates, for instance coated surfaces. Its great flexibility at low temperatures also means the hot melt adhesive is suitable for deep-freeze applications.

The quality

The hot melt adhesives in the Jowatherm® GROW range are manufactured in Germany, at the Jowat plant in Detmold. The plant is certified in accordance with ISO 14001 (environmental management), ISO 50001 (energy management) and ISO 9001 (quality management), and therefore works to the highest quality and safety standards. The new hot melt adhesives fulfil all the requirements of the FDA Regulation 175.105 (US Food and Drug Administration) and the EU Regulation 10/2011 on plastic materials and articles intended to come into contact with food. Jowatherm® GROW thereby fulfils the legal regulations for food packaging.

Advantages of Jowatherm® GROW

- Contains up to 45 percent bio-based raw materials
- Enables recyclable bonding in accordance with the German Packaging Act (VerpackG)
- Lower processing temperature means lower energy usage
- Clean adhesive cut-off

Up to 45 %

from renewable raw materials

JOWAT DIGITAL

More than
250
products on offer in the JowatPro online shop

More than
800
Jowat traders worldwide, including 144 in Germany.

As of: March 2020

The most important factors for B2B clients:*

82 % Price

80 % Availability

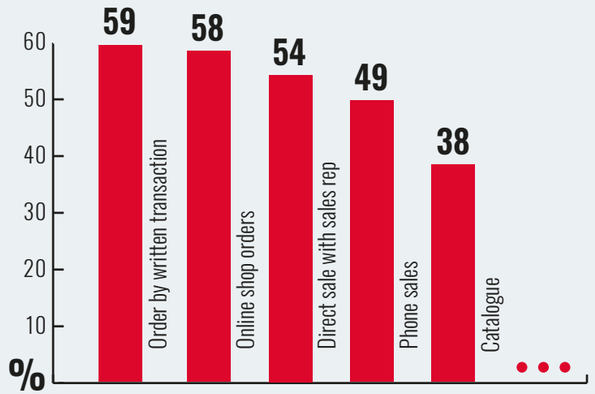
74 % Search function

70 % Delivery time

68 % Individual customer prices

58 % Detailed product description

500
Storage locations owned by JowatPro



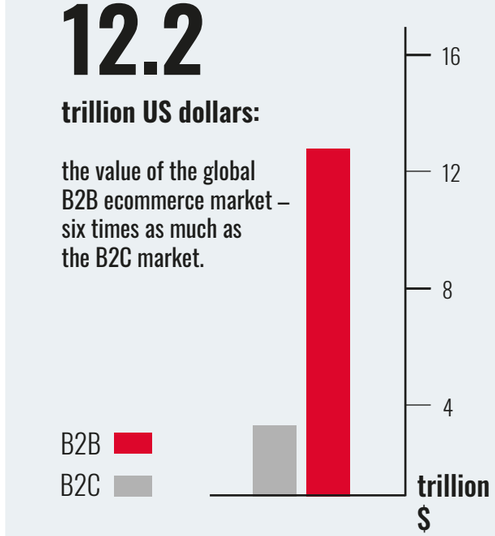
Relevant sales channels for international B2B businesses:*

70 %
of worldwide B2B online enquiries are made via smartphone or tablet (estimate for 2020).

Only
16 %
of medium-sized B2B companies worldwide are active in the online market.

48 %
of companies surveyed worldwide regularly place orders online.

12.2
trillion US dollars:
the value of the global B2B ecommerce market – six times as much as the B2C market.



54 %
traffic
1.2% conv.

39 %
traffic
4.7% conv.

Global smartphone traffic may be particularly high.
But transactions (conversion) usually come from computers and laptops.

7 %
traffic
2.9% conv.

* multiple answers possible

Sources: Jowat, statista.com, ecommerce-leitfaden.de, fact-finder.de, faveo.com

Dieter Fricke still remembers his years at Jowat well.

THE FIRST OF HIS KIND

It may not be enough to get him in the Guiness World Records, but Dieter Fricke has certainly secured his place in the Jowat SE hall of fame. He was the first person to become an apprentice with the Detmold adhesive manufacturer in 1953. At the company's 100-year anniversary celebrations, the 83-year-old met today's Jowat apprentices to exchange experiences.

»At Jowat I laid the foundations for the rest of my career.«

Dieter Fricke, former apprentice at Jowat SE

A treasured memory: Dieter Fricke as an apprentice with his former colleagues. In the top left, you can see Jowat's logo from the 1950s.

The location couldn't have been more appropriate. For just over a year now, the House of Technology has been uniting Jowat's past, present and future under one roof, making it the perfect setting for a meeting of the generations. It's a place that Dieter Fricke, who now lives in neighbouring Lemgo, can remember well, albeit under slightly different ownership: "Right here there used to be a meat processing plant. Those buildings had vanished, of course, when Jowat moved its technical centre from Wittekindstraße to Ernst-Hilker-Straße." The memories come flooding back walking through a small exhibition in the entrance hall. From people in the group photo from the 1950s to the exhibits on display, like one of the first delivery vehicles, the former apprentice, born in Brake, recognises plenty from his time as an apprentice and an employee at Jowat. "Even though the training was sometimes physically quite tiring – we still had to transport dispersion adhesives in their iron vessels in wheelbarrows, for example – I spent four fantastic years here. It was in Detmold that I really laid the foundation for my future career," concludes Dieter Fricke, who had completed his secondary education at the Engelbert-Kaempfer Gymnasium (Grammar School) in Lemgo.

Grabbed opportunity by the horns

He actually would have preferred to train to be a radio or television technician, or even an electrician, but his father heard about the open apprenticeship at Jowat by chance. Just a few days later, Dieter applied to one of the only training positions in the area. "It was difficult to get apprenticeships in those days. Germany was only just at the start of its economic boom, so apprenticeships were not only rare, they were also highly sought after. You really had to strike while the iron was hot." It's a scenario that is rather incomparable with today's situation and job market. Nowadays, many apprenticeship positions go unfilled because the demand in many industries is too low. It's not a familiar problem at Jowat, however. Here, the available training positions in ten different roles are filled year after year. Just like today's apprenticeships, as a prospective industrial manager in 1953, a young Dieter Fricke had to learn the ropes at Jowat from the ground up. "I rotated through all the departments in Jowat then, to get as full a picture as possible of the operations and processes. I worked in manufacturing, the warehouse, dispatch and even the administrative and accounting departments," he remembers. As assistant to the former manager Ruth Fuhs, he supported the creation of the Export

Dieter Fricke reads the Jowat chronicle enthusiastically.

Dieter Fricke recognised a number of exhibits while walking through the exhibition.

»I passed through every department back in the day and learned all the processes.«

Dieter Fricke, former apprentice at Jowat SE

and Import department of the company, among other things. But, in 1958, shortly after passing the Qualified Business Assistant Examination, Dieter Fricke left Jowat to seek new challenges in his career. After successful years at Deutscher Grammophon and Siemens, he began working independently in the world of consumer electronics. But his connection to the company he had trained with remained. "I used Jowat adhesives in my company for the first time, for acoustic applications, and I still work with the products today. In that respect, we were always in contact, even though now I make my orders via the specialist trade shop." He followed with interest, as the small Detmold company grew to be a global player in the adhesives industry. "What has happened here in the last 50 years is impressive. This kind of development can only be successful if a company is driven by strategic and economic leadership, and that's exactly the case here." He sees the friendly and open-minded company atmosphere, which was characteristic of the company in his day too, as another important factor in the rapid rise and the positioning in the market. He says "The liberal attitude and the fantastic cohesion in the company were Jowat's strengths back in my day. I'm pleased to see it's obviously still the case today." In fact, many employees and managers remain in the company for their whole working lives. For this reason, many international branches have managers at the helm who began their training at the Detmold headquarters.

Actively designing the future

"People from Lippe always come home," Dieter smiles; despite his old age he hasn't yet moved back for retirement. As the CEO of Klangmeister, a medium-sized consumer electronics firm, he's still in the throes of his career. He was certainly pleased with the invitation from Jowat and the chance to speak with the young apprentices. He gives his young successors a few wise words to take with them: "Be attentive, learn at least three languages, and do your work to the best of your ability. Most importantly, be engaged and actively design the future. Because the events of today and tomorrow will ultimately shape your lives." ●

Dieter Fricke even had plenty of tales to tell about the various Managing Directors featured in the Jowat Hall of Fame.

News from the world of bonding

The adhesives sector is constantly changing and welcoming new innovations. And whether it's adapting rules and regulations or opening up whole new worlds of possibilities with the latest raw materials and processes, Jowat always has its finger on the pulse.

NEW HEAD OF SALES

After over two decades with Jowat SE, Ulrich Schmidt has made the decision to embark on a new challenge. His successor is already hitting the ground running.

Ulrich Schmidt's (left) new employer is closely connected to the adhesives industry and his new position will see him continue to work with Jowat going forward. The role of Head of Sales has been taken over by Kay-Henrik von der Heide, who joined Jowat in February 2020.

The newly appointed graduate engineer in wood technology will be responsible for "National Sales" and "International Sales" (Regional Management) at Jowat SE. Kay-Henrik von der Heide was born in East Westphalia and studied in Hamburg. He has a broad and international expertise in sales of technical products as well as decorative interior finishing products in one of Jowat's key markets, the wood and the furniture industry.

GROWTH AT JOWAT

JowatPro (see page 4) is showcasing three new products for professional bonding, backfilling and insulating. Yet no matter how different each of these new additions may be, they all live up to the Jowat standard for premium-quality bonding.

JowatPro is extending its product range to include two foams and a polymer for exceptional adhesion and reliable sealing. Jowat® 660.00 – "The Universal One" – is a 2-component quick foam that offers a robust curing process and adheres to many substrates. It's the perfect choice for insulating and backfilling cavities. With Jowat® 661.00 – "The Efficient One" – users can take advantage of an unprecedented foam yield and really get the most out of their work. Jowat® 695.00 – "The Versatile One" – is a transparent, single-component adhesive that cures in no time and offers a flexible, resilient adhesive joint in the long term. Its impressive properties include outstanding initial strength and excellent adhesion.

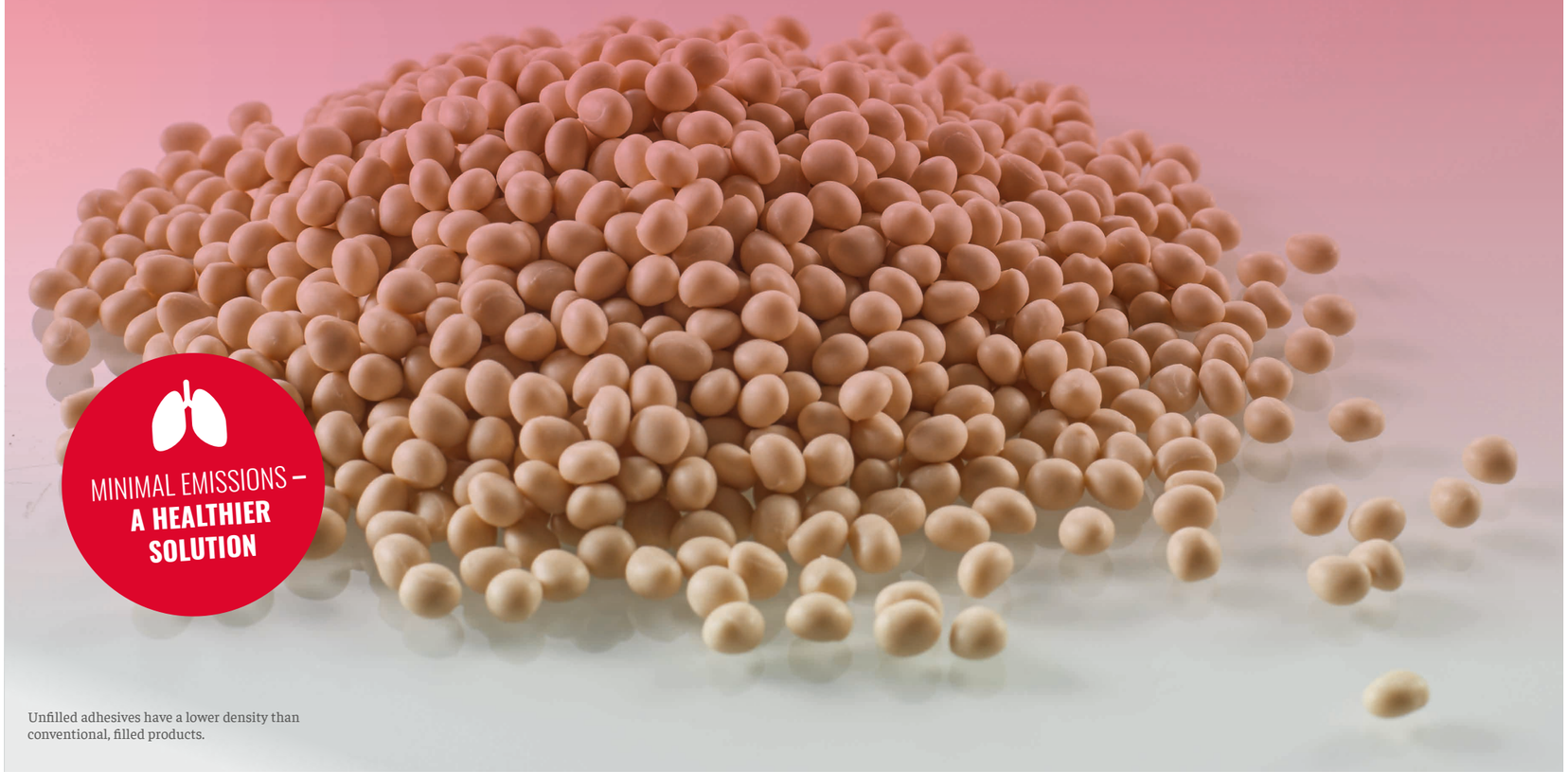
CONSTRUCTION MADE EASY

Everyone at the igeL ("Interessengemeinschaft Leichtbau e.V.") symposium was talking about lightweight construction and two of the most influential topics of our time: digitalisation and sustainability.

Lightweight construction using thin wood-based materials is becoming increasingly relevant for both building construction and vehicle manufacturing. It is with this in mind that igeL – together with Jowat SE and other partner companies – dedicated the 2019 Lightweight Symposium at the House of Technology to anything and everything relating to the production and processing of lightweight construction materials made of veneer, paper and other similar products. In addition to the changes brought about by progressing digitalisation and the resulting changes in the areas of production and construction, the increased use of environmentally friendly technologies and bio-based materials – such as paper-based materials – was also high on the agenda.

One adhesive, two benefits

Increased demands for user protection and efforts to improve value for money are just some of the reasons why customers are constantly on the lookout for new adhesives. Fortunately, with its unfilled, monomer-reduced PUR adhesives, Jowat is killing two birds with one stone.



Unfilled adhesives have a lower density than conventional, filled products.

The unfilled, monomer-reduced PUR edgeband adhesives in the Jowatherm-Reaktant® MR series offer a whole host of real advantages. Not only are they exceptionally efficient, but they also have a positive impact in terms of user protection. As for the level of quality on offer, this compares with that of conventional reactive hot melt adhesives as a bare minimum.

What does unfilled mean?

Many conventional reactive PUR adhesives contain rheological additives such as fillers. The purpose of this is to make them easier to process and therefore to minimise stringing. After all, a clean thread break when applying adhesive is advantageous in many areas of application, particularly as this effectively prevents errant adhesive strings from contaminating systems and products, thereby reducing the need for cleaning and maintenance.

Unfilled adhesives also have a low density, which is why these products have a higher volume than their filled counterparts. This means a correspondingly smaller application quantity is required compared to the filled formulations to achieve the desired adhesive performance. These adhesives not only offer application advantages over filled hot melts, but they also reduce costs in the long term.

What does MR stand for?

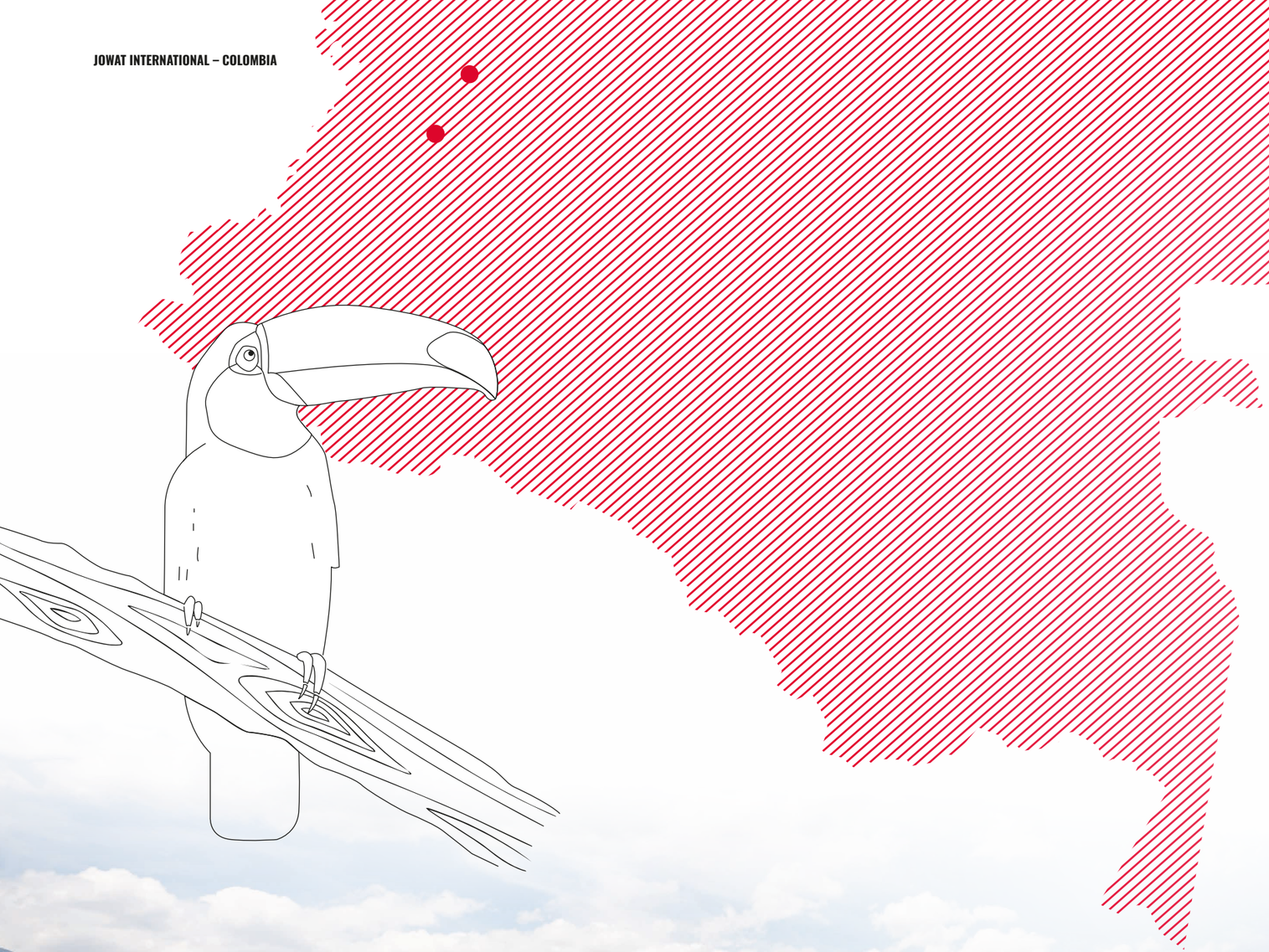
Reactive hot melt adhesives contain neither water nor solvent – they consist of 100 percent solids. This is what makes isocyanates such an important component, as these are essential to the crosslinkinig reaction of the adhesives and also serve to determine their adhesion properties. These isocyanates are contained in the adhesive in both polymer-bound and monomeric form as dimethylmethane diisocyanate (MDI). If the adhesive is melted during the application, vapours are generated, which can be toxic on contact or when inhaled. Depending on their concentration, isocyanates can irritate the skin, mucous membranes, eyes and respiratory tract, and even trigger allergies. This is why adhesives with an MDI content over 0.1 percent must be labelled as hazardous substances and should ideally only be used by specially trained personnel. Jowat also recommends wearing suitable protective equipment and breathing masks, as well as using an extraction system.

In a bid to protect their employees while also enabling colleagues without additional training to use adhesives, more and more companies are now turning to monomer-reduced (MR) adhesives. These are adhesives with a minimised monomeric isocyanate content of less than 0.1 percent. Adhesives in that category are not subject to any labelling obligation as hazardous substances and represent a lower health risk for users.

Double the benefits

For years, Jowat has been researching to maintain the established bonding quality of MR adhesives compared to conventional adhesives. Today, it offers a whole range of monomer-reduced hot melt adhesives.

The use of unfilled MR hot melts allows companies to kill two birds with one stone: not only does the application save costs in the long term, but the monomer-reduced products are also much better for the health of processors – and who can put a price on that? ●



As Colombia's second-biggest city, Medellín has been one of the country's most promising economic hubs for many years now.

First found, then bound

Madecentro is the specialist in Colombia for the design of furniture components. As cooperation with Jowat begins, both partners are successfully gaining momentum.

The Colombian metropolis of Medellín is known as the "City of the Eternal Spring" due to its year-round warm and sunny climate. The country's second largest city is also doing well economically: Just a few years ago, the Wall Street Journal declared it the most innovative city in the world. This is exactly where the headquarters of Madecentro S.A.S., founded in 2001, is located. In Colombia, Madecentro is the specialist for cutting and edgebanding wood-based materials used as the basis for furniture. Rather than complete sets in standard designs – as those often available in large furniture stores – these largely involve special designs. It is common practice in Colombia to design custom interior decoration and have it installed by a service provider. Whether it's for a wall unit, kitchenette or a wardrobe – Madecentro prepares the material for subsequent assembly. This work is carried out for customers at 142 locations across the country known as Madeservicios. They also provide all associated furniture components such as handles, hinges, adhesives or even countertops.

Madecentro thus offers customers a truly extensive range. Many orders are carried out at the request of end users, while some customers work in the furniture industry. These are usually companies that do not have their own edgebanding machine or only use a small amount of wood-based materials for their own furniture, meaning they don't handle the processing themselves.

Madecentro has been growing steadily, currently employing over 3,500 people.

Success on both sides

In 2013, the first in-depth exchange with Jowat took place at LIGNA in Hanover, whereby the discussion focussed on the possibilities of future cooperation. The formerly vague considerations to establish a subsidiary in Colombia gained momentum through the meeting – the idea turned into concrete plans. Jowat Andina S.A.S was founded in 2014. Madecentro is, so to speak, the "symbolic first customer of Jowat Andina", as Managing Director Ralph Aufderheide happily shared.

Owing to the close cooperation with Madecentro, Jowat selected the neighbouring town of Itagüí as the site for the new subsidiary. Madecentro was always an important element in the decision to found Andina. At this point, there were about 70 Madeservicios in the country – this number has more than doubled since then. Madecentro currently employs over 3,500 people. During this period, Jowat Andina grew substantially and consistently expanded its portfolio.

Madecentro relies entirely on Jowat products for edgebanding. An EVA hot melt adhesive from the Jowatherm® range is among the favourites. The adhesive has a wide adhesion range and is thus particularly versatile in everyday use, as Ralph Aufderheide highlights: "You don't need to carry out time-consuming adhesive changes between the various décors, which is particularly useful given the small batch sizes of the orders." Furthermore, a virtually invisible joint and thus a high-quality result can be achieved with all décor colours. Thanks to the contained functional additives, the hot melt has an optimised stringing behaviour, and soiling is significantly reduced in the application machines. Time-consuming maintenance and cleaning phases are significantly shorter – a considerable cost saving for Madecentro.

At Madecentro, the materials are processed according to each customer's individual requirements.

Trendsetter in application

Madecentro's subsidiary RTA-Design is located in the municipality of Yumbo and specialises in ready-to-assemble (RTA) furniture. In contrast to Madeservicios, large numbers of orders from industrial customers are processed here. Hot melt adhesives based on polyurethane (PUR) are also used regularly – these are heat-resistant and moisture-curing, making them ideal for assembling bathroom or kitchen furniture.

To make the most out of the properties of the adhesive, RTA-Design has one of Colombia's first edgebanding machines equipped with a professional PUR melting unit. The adhesive is melted without air contact, thus preventing premature crosslinking and facilitating the best possible application. PUR adhesives are actually ideal when particularly tough and high-quality bonds are sought. However, many processors in Colombia still shy away from using them. There are widespread preconceptions about the difficulty in handling this adhesive.

Madecentro and RTA-Design are among the few professional processors in the industry. "However, customers knowing that Madecentro uses these adhesives successfully helps to overcome the preconceptions against PUR," summarises Ralph Aufderheide. By using high-quality products from the Jowatherm-Reaktant® series, Madecentro has already convinced numerous customers about the performance of PUR adhesives and thus about Jowat as a partner for reliable adhesive solutions. Madecentro is still expanding successfully – growth from which Jowat can also benefit in the long term. ●

Living without worries

As a preservative, formaldehyde is an important raw material in the chemical industry. However, there are also good reasons to avoid using it in certain applications. With their new adhesives, Jowat contributes significantly to the reduction of pollutants in everyday life.

Formaldehyde is arguably unbeatable as a preservative: from the chemical industry to the storage of scientific exhibits, the substance serves to preserve mixtures and organic tissue. Nevertheless, formaldehyde doesn't have the best reputation. If used incorrectly, it can cause allergies as well as skin, eye and respiratory tract irritation and is suspected to be carcinogenic in high concentrations.

Formaldehyde is found in many natural products such as apples, grapes and wood – even in the blood of mammals. However, these are harmless concentrations. Formaldehyde should be regarded critically if used in large quantities as an added preservative.

Enjoy with care

Formaldehyde is gaseous at room temperature. It emits both from liquid adhesive and from set adhesive film. It is therefore not only the individual making the application who is directly exposed to the vapours, but also the end user who keeps the finished product – a piece of furniture or a floor covering – at home. Adhesives used for manufacturing are therefore subject to the chemicals ordinance on the restriction of emissions of volatile organic compounds (VOC) and must not exceed defined limits. Due to the growing consumer concern regarding the health safety of products, formaldehyde-containing components are being used less and less in production.

Tireless research

However, simply removing formaldehyde from the adhesive formulation is not enough: for technical processing reasons, polyvinyl alcohols and vinyl acetate monomer, which form the basis of PVAc adhesives, already contain small amounts of formaldehyde. When it comes to reactive D3 and D4 dispersions, the content is even higher because formaldehyde is split in their crosslinking processes.

Thanks to the continuous optimisation of their manufacturing process, Jowat has succeeded in significantly reducing the formaldehyde content of PVAc dispersion adhesives while maintaining the same adhesive strength. The result is the Jowacoll® 103.xx dispersions, which are classified A+ according to the VOC regulation. As a comparison, one kilogram of fish contains more formaldehyde than the same amount of Jowacoll® 103.10.

Consistent quality

The water and temperature resistance of the optimised adhesives virtually corresponds to that of conventional products. The new additions also offer a multitude of application possibilities: While Jowacoll® 103.10 can be used universally and has special heat resistance, Jowacoll® 103.30 features a high initial strength. The best part: This means that the reactive Jowacoll® D3 and D4 dispersions fall below the limits defined in various guidelines, some products even within the detection limit range. This means their use is safe – both for the bonding itself and for subsequent use of the end product at home. ●

Constant optimisation of the manufacturing processes has made it possible: Jowat is expanding its range of low-formaldehyde adhesives.

Tim Görder believes that personal contact is essential for successful cooperation.

THE DEPARTMENT OF STRONG BONDS

Bonding is playing an increasingly important role for the industry. To ensure that everything works harmoniously in the face of the ever-increasing variety of materials, it is essential to be able to count on close-knit communication with engineering companies and material manufacturers. Fortunately, Jowat has a dedicated department to take care of this seamless exchange.

To some extent, entrepreneurial success has always been based on relationships with solution partners – and Jowat is no exception. "This enduring cooperation has always been part of the Jowat corporate strategy," emphasises Tim Görder, Director of Jowat Global Solution Partner Support (SPS). In the past, business relationships were often based on individual people being close to one another either geographically or personally. Given the current size of Jowat SE, a dedicated department has now been entrusted with maintaining the quality of these relationships across all levels. Exchanges with the solution partners are organised by SPS.

»Jowat is a reliable partner and highly competent when it comes to process technology. This enables us to find effective solutions both quickly and efficiently.«

Florentin Cioranu,
Robatech AG

Excellent customer benefits

Solution partners are companies who meet Jowat at the customer's site. "But they themselves are neither our customers nor our competitors," explains Tim Görder. We are talking here about manufacturers of machines, application equipment and the materials being bonded – in other words, all components that come into contact with the adhesive. This is because they have to be geared towards the properties of the adhesive as well as the planned application. In mass production, the interactions between equipment, adhesive and materials need to enable the highest process speeds, and for individual production, for example, having a wwide range of adhesion is important from the moment the first product leaves the production line. If all components within a process are coordinated, maintenance and cleaning times can also be reduced.

»The best results can only be achieved with needs-based answers to matters concerning adhesive technology, making Jowat the perfect partner for the job.«

Michael Arlt, IMA Schelling
Deutschland GmbH

Some of the other partners of the Detmold-based adhesives manufacturer include universities, institutes and associations. Jowat cooperates closely with them, for example when new application technologies are being developed.

Comprehensive support from the start

The close level of cooperation means customers can expect comprehensive service for all aspects of bonding. Processors dealing with a bonding application for the first time, contact the machine manufacturer first. After the appropriate equipment has been chosen, the next question is usually what adhesive to use, as Tim Görder explains: "Our partners are able to make specific recommendations and will sometimes also send adhesives that they have already tested successfully." The machine manufacturer also provides support during certification and initial set-up.

If machines or materials are redeveloped, Jowat is often also involved in the planning process in order to determine the appropriate adhesive to use. On the flip side, Jowat also brings engineering companies on board whenever a new adhesive enters the market. "Our aim is to ensure that our products are capable of being used on as many machines and applicators as possible," emphasises Tim Görder.

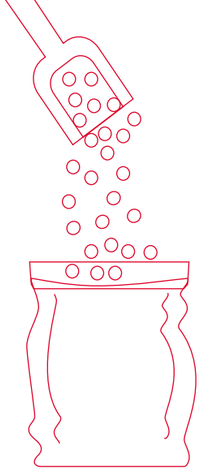
A team on a global mission

Just like many solution partners, Jowat has been operating internationally for a long time. That's why the members of the SPS team are active in different countries in order to be able to support partners all over the world according to their needs. But the global hub of their activities is Detmold, where Tim Görder is head of department. This close cooperation also facilitates how questions concerning adhesives are handled. If ever a user notices any discrepancies in the quality of a bond, the mechanical engineer, the material manufacturer and Jowat will ensure the other parties are aware of this fact and work together to find the cause. And the work performed by SPS is bearing fruit: As Tim Görder reveals, the feedback from customers as well as from solution partners is consistently positive. "We are very proud of the organised support we offer our customers." ●

The Jowat SPS team: Birga Reising (back office), Tim Görder (Head of International), Timoteo Braga (Italy), Johann Quiring (DACH), Kees Rijners (Benelux), Friedrich Braetzkus (Americas, l–r).

»Successful cooperation and partnership with Jowat SE is reflected in the satisfaction of our shared customers.«

Tamara Felder, Felder KG



Anything but superficial

Say hello to sand oak, concrete look and alpine white. These names refer to a small selection of numberless body colours that furniture store customers can choose from for their new wardrobe, kitchen or flooring – with no difference in quality! The adhesives used prove that, beyond the visual appeal, it's what's inside that counts the most.

Wood-based materials such as particleboard form the basis of most pieces of furniture.

The most popular shelf in the world comes from an international chain of furniture stores and has sold many millions of units worldwide. And whether this product is purchased in Berlin or Sydney, whether it is black/brown in colour or has an oak veneer, the quality is always identical. This is made possible thanks to automated production and the material used. Most flat-pack furniture on the market, as well as doors and floor coverings, are made of wood-based materials such as particleboard. These materials are easy to process and can be reproduced without differences in quality – provided the bonding is right.

It's the combination that counts

Wood-based materials are manufactured by bonding wood fibres or chips together and pressing them into boards. This production method allows consistently high quality even over large production quantities. The adhesive used forms an indispensable basis for this and must meet specific criteria, which is why it is carefully selected depending on the materials and the product's intended use. To protect the material and ensure an aesthetic finish, the wooden boards are laminated with an additional layer. Water-based adhesive systems such as the PVAc-based Jowacoll® 124.00 are tried and tested for this purpose. Its rapid setting properties make it ideal for machine lamination of wood-based materials, while the joint-filling consistency also compensates for unevenness.

Lamination involves applying a thin layer of veneer, paper-based finishing foil or a plastic film. No matter how thin the material, optical surface smoothness is a necessity – the adhesive must not swell underneath. A flaw like this would be disastrous, especially if the materials are used for furniture or floor coverings. Hot melt adhesives with a solids content of 100 percent can be used to avoid this (such as those in the Jowat-Toptherm® series).

Once they have hardened, these polyolefin-based hot melts also have a high level of surface hardness. There is no need to worry about imprinting the surfaces when handling or stacking the finished boards.

PUR for top performance

It is worth noting, however, that the laminate is not yet resistant to moisture. If this is required – for example, for kitchen or bathroom fittings – special adhesive solutions have to be used. The Jowatherm-Reaktant® polyurethane hot melt adhesives are characterised by high resistance, as they not only set physically, but also feature a chemical crosslink process, activated by moisture. Their low processing temperatures and wide range of adhesion make them ideal for laminating fragile and difficult to bond materials.

Whether the new piece of furniture is based on particle- or fibreboard, using the right adhesive always ensures that a durable and visually appealing piece of furniture can be produced. ●

At first glance, a carefully executed flat laminate with wooden décor foil is difficult to distinguish from real wood.

Oak, beech or mahogany? Flat lamination offers almost unlimited variety for the end user.

Challenging tasks – universal solutions

With just two products in the Jowacoll® range, Jowat covers a multitude of applications.

Anyone who's ever tried to bond painted boards or even plastics knows only too well that super-smooth surfaces or chemical reactions with the paint make bonding incredibly difficult. This is where special lacquer glues come into play, and Christoph Funke from Jowat took some time out to tell us what these are all about.

When it comes to dispersions, Christoph Funke really knows his stuff. The Head of Jowat's Dispersions Research & Development for Wood, Furniture and Construction can look back proudly on a career spanning over 25 years with the Detmold-based adhesives manufacturer. He has kept a close eye on the relatively recent innovation of lacquer glues and watched their future unfold right before his eyes.

What developments have lacquer glues seen over the past few decades?

Christoph Funke: Until the 1970s, most surfaces were treated with lacquers that were almost 70 percent solvent-based. But, of course, these panels and components still had to be bonded together. This is why the formulation of the assembly glues in use had to be specifically adapted to handle these lacquer finishes. From the 1980s onwards, water-based lacquers started to become increasingly popular and the proportion of solvents has been steadily decreasing ever since. Water-based lacquers are far safer to work with, which is why many people have switched to them to improve occupational safety.

How do water-based lacquers affect adhesion?

These lacquers have a higher proportion of what are known as "high boilers" than their solvent-based counterparts, and these increase the adhesive demands of the lacquer glues enormously. The usual short bonding process times are to be maintained, which is why the adhesives used for this purpose have to have a higher proportion of solids, better plasticiser resistance and a greater initial strength.

What other challenges do lacquer glues have to contend with?

The variety of surfaces in the wood and furniture industry has been constantly increasing in recent years, primarily due to digitalisation. At the same time, bonding as a joining method is becoming increasingly essential. Highly resistant surfaces that have been treated with UV varnishes or acid-curing lacquers must be able to be bonded in the same way as metal and glass surfaces or synthetic resins such as melamine. On account of their structure or composition, however, they are often more complicated to bond than wooden surfaces.

»We are all set to continue to surpass customer expectations and legal requirements going forward.«

Christoph Funke,
Head of Dispersions Research & Development for Wood, Furniture and Construction

What solutions does Jowat offer in this regard?

Well, we can actually now cover all of these requirements with just two products in our Jowacoll® range: Jowacoll® 119.60 and Jowacoll® 119.80. This makes it so much easier for our customers to work with challenging surfaces.

How are lacquer glues set to develop going forward?

We anticipate that our adhesives will continue to surpass the expectations of customers in the wood and furniture sector, including in terms of legal requirements. The market shows that health and legal aspects are increasingly leading the way, and both substrates and adhesives will continue to change. Cutting out solvents was just the beginning, as we are now increasingly seeing renewable and degradable plastics taking the place of their petroleum-based counterparts. ●

Christoph Funke
Head of Dispersions Research & Development for Wood, Furniture and Construction

Christoph Funke has been a member of the Jowat family for over 25 years. This has allowed him to follow the ongoing development of assembly adhesives at every step of the way.

For many people, a house is barely a home without underfloor heating.

Nothing says cosy like wood

The project on which this report is based was funded by the German Federal Ministry of Food and Agriculture under the funding code 22026614.

Federal Ministry of Food and Agriculture

Underfloor heating comes as standard in virtually every new residential building. In older buildings, however, it is not always possible to incorporate heated flooring – even as part of a comprehensive renovation project. Luckily, that might all be about to change thanks to EleiK.

It only takes a click for the room to reach a cosy temperature in a matter of minutes. Like to walk barefoot? Go for it. Want to play with the little ones on the floor? Now's your chance! But unfortunately, it's not quite as easy as that yet with standard underfloor heating systems. They take a little while for the heat to permeate the floor covering. In some cases, they also have to heat the screed underneath the floor itself before the heating effect is even noticeable. Not only does this take time, but it also costs money in the form of heating energy that ends up lost into the ether. The ongoing research project EleiK is looking at electrically conductive bonding in a bid to optimise the impact of underfloor heating systems and the like going forward. In fact, one of the tasks undertaken by the association between FH Schmalkalden University of Applied Sciences and Jowat SE, MeisterWerke Schulte GmbH and ZILA GmbH is to develop heatable wood-based composite materials.

The smart floor

The conductive adhesive layer is located directly beneath the surface layer of the floor panels. This reduces the thermal resistance to accelerate the heating process and make it significantly more efficient than conventional underfloor heating systems. Another added bonus is that defective panels can be easily replaced without having to pull up the entire floor. Not only does this save both time and money, but it also makes it possible to be selective in terms of where the panels are laid, such as under a desk or around the bed.

Good things come...

The research project started in spring 2016 with the aim of developing an adhesive that had the desired electrical conductivity. This is based on a PVAc dispersion, as this is usually used for bonding wood-based materials. Conductive fillers are then added to establish electrical conductivity. To avoid potential hotspots created by uneven layers of adhesive, the dispersion must be applied by machine. The heating behaviour of the layer composites is checked thermographically, which involves individual planks being measured with a thermal imaging camera to verify the fast heating time and even heating of the surface.

The next focus is on process engineering: How does the product become suitable for everyday use? The aim is to create a conductive floor covering that is easy enough to lay as a DIY project. Having to cut the floor covering to size is nothing new, but in this case it would cut off the intended contacts. This is why we are currently working closely with ZILA to come up with various interesting contact concepts and ideas, which are currently in the testing phase. The current technical challenges lie mainly in the ongoing development of production processes with a view to industrial series production.

Underfloor heating is soon to become even easier and more convenient.

The material of the future?

The application possibilities of the conductive wood-based material would be manifold: in addition to their use as floor coverings, it is not inconceivable to imagine furniture fronts as an option for heating living spaces. In principle, this technology can also be used to supply power to consumers by adjusting the resistance of the adhesive layer. The electrical supply features direct current on a low-voltage basis, meaning the power connection poses no safety risk to tradesmen or home owners. The first priority, however, is the intended use as a floor covering, which should save people energy – and hard-earned cash – in the long term!

The thermal image (of panels with a power supply) shows that the wood-based material heats up evenly.

ADHESIVES WITH PROFILE

A product's quality is marked by the perfect blend of function and design. It's true for plastic windows, which should look sleek and still be able to withstand extreme weather. Their manufacture is not only a matter of creative flair. Using the most appropriate adhesive in the window profile wrapping also plays a decisive role.

Plastic windows are popular for their security and energy efficiency.

Whether they're to improve energy efficiency, help with security against break-ins or add to the aesthetic of the building, the design options for aluminium and plastic windows are as limitless as the needs of their users. But functionality of the windows is just as important as their aesthetic. They not only have to withstand the mechanical wear and tear of daily opening and closing, but also should last for 25 to 40 years, even with extreme weather conditions. The daily strains on the window shouldn't be visible in its profile. If it's covered with a decorative film, the adhesive should be second to none in terms of durability.

The solution for demanding bonding

Window profiles are covered with special films. What's important for the product's quality is the long-term reliability of the bonding between the decorative layer and the PVC or aluminium profiles. Every material combination presents different challenges for the bonding process. Jowat's wide product portfolio means we always have the appropriate solution for laminating window profiles. The reactive PUR hot melt adhesives have a wide range of adhesion and thereby enable even the most different materials to be bonded. The high-performance adhesives in the Jowatherm-Reaktant® range are adapted to the process requirements and resistant to everyday environmental influences. This is because they not only form a physical bond, they also crosslink due to the chemical reaction with humidity. PUR hot melt adhesives are therefore well suited to laminating windows which face constantly changing weather conditions. Jowat is always continuously working to expand the product portfolio to match the changing demands for adhesives. For example, at the start of 2020, a monomer-reduced PUR hot melt adhesive for window profile wrapping, which meets the demands of the Quality Mark RAL-GZ 716, was brought on the market for the first time.

Comprehensive support

For an optimal result, the window profile is treated with a specially designed Jowat® primer before laminating. This cleans the surface of the PVC profile and removes residue from the manufacturing process, improving the adhesive properties. The Jowat® primer also improves the moisture and temperature resistance of the adhesive. As well as the product range, Jowat also offers tailored advice for planning and implementing any lamination process, with our in-depth understanding of industrial adhesive applications and long-standing expertise.

The Jowat PUR adhesive profile

- Polyurethane-based (PUR) hot melt adhesives have a wide range of adhesion.
- They create a physical bond and bond chemically due to the reaction with the moisture in the air and material.
- They are best for bonds which need to be particularly durable.
- Using a primer improves the bonding process and makes the bond more resilient to environmental stresses.

An acoustic and aesthetic delight: the Audimax auditorium in the House of Technology.

Listen in wonder

As both a technology centre and an events space, Jowat's House of Technology fulfils many different, valuable tasks. Reliable acoustic solutions are one of the indispensable parts of the design, for which Jowat relies on Lignotrend's products.

If wood is being sanded, there's sawdust – if people are working, there's background noise. This is part of everyday life in the House of Technology machine hall. But the technical centre is also a local hub for events, where the noise levels can really soar. The Audimax has capacity for up to 200 visitors, and the Jowat Symposium, which takes place every two years, is just one example of the various events held here. The timber frame building is also often booked for conferences, seminars and other companies' celebrations. In the planning stages, great consideration was given to making the acoustics for the space comfortable and welcoming. That's why Jowat chose to rely on the long-term expertise of the firm Lignotrend, when building the technical centre, which opened in 2018.

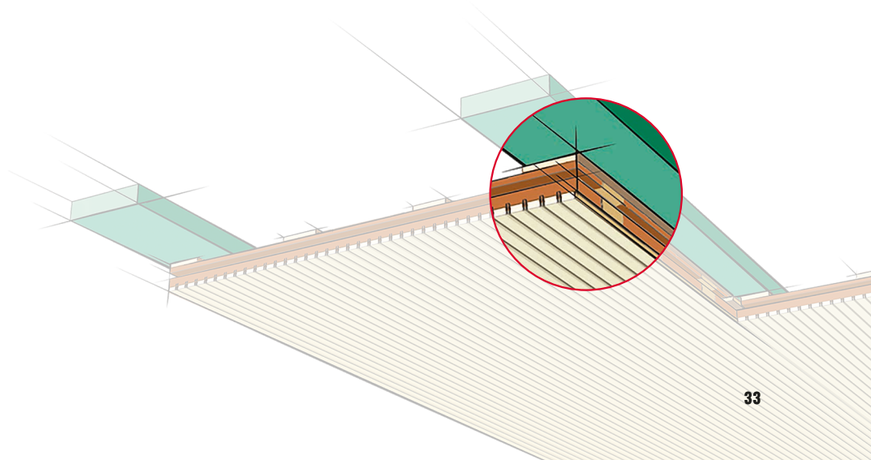
An old friend

The construction firm from Weilheim-Bannholz and the adhesives producer are very familiar with one another. For years, Jowat has delivered various adhesives for the production of timber ribs and box elements, as well as for acoustic panels. "Naturally, Lignotrend places great value on the durability and stability of the adhesives, but also on environmentally friendly properties," Ralf Harder, the Lignotrend Marketing Manager, explains. Because it's usually untreated wood being worked on, the company has particular requirements for the adhesives. Lignotrend prefers to use the single-component polyurethane adhesives from the Jowapur® range for the production of its in-house construction and joinery elements.

The acoustic panels from Lignotrend make for crystal-clear sound from the auditorium speakers.

And also great to look at

But this was not the only reason Jowat choose the Lignotrend acoustic solutions, as Ralf Harder remembers. "Jowat really knows our expertise, in this case especially, timber interior architecture, the acoustics of a large space, and building for zero-harm to the environment. It's very gratifying." Jowat was also very familiar with Lignotrend's work and quality thanks to their long-term collaboration on research into glulam. Lignotrend offers acoustic panels for walls and ceilings in various shapes and with a wide range of available timbers. Jowat chose a design in light silver fir wood, to give the House of Technology a friendly and inviting character. The acoustic panelling was delivered and mounted to the walls and the ceilings in the summer of 2018. The results are plain to see: the panels not only reliably absorb the noise, but they also look extremely modern, thanks to the delicately slatted surfaces. It's just one of the clever details that make the House of Technology so fascinating.



The secret to the acoustic panels is their delicate profile and integrated absorber made of natural wood fibre.

If the quality is sure, the air stays pure

Without reliable interior filters, vehicle passengers would be exposed to high levels of pollutants while driving.

The bonding is also carried out in such a way that it does not affect the air permeability or adsorption capacity of the filter media.

Interior filters for cars consist of multi-layer materials, such as activated carbon filter media. These have to be joined in such a way that the resulting filters keep the air inside the vehicle optimally clean to protect passengers from pollutants. Having the right adhesives is a crucial contributing factor in this regard.

Pollen, spores, soot, bacteria, fine dust, benzene, ozone... there are plenty of pollutants that can contaminate the air breathed in by passengers. The sheer volume of harmful particles alone makes it clear that keeping the air in vehicles clean is essential for human health. This is exactly why efficient passenger compartment filters are in demand as a contribution towards a cleaner environment.

The process of manufacturing filters involves joining multi-layer filter materials together in successive processes, including activated carbon media for particularly good filtration results. The layered structure ensures that both coarse and fine particles adhere to the surfaces of the individual layers. As a general rule, the larger the surface area, the more contaminating particles can be bound and the cleaner the air becomes. This is why it is so important that the application amounts of the adhesives used in the lamination process of activated carbon filters are as low as possible. If less adhesive is applied in the bonding process, more surface area is reserved for bonding particles. The larger surface also increases the air permeability for the adsorption of gases and odours.

This is exactly what the Jowat-Toptherm® and Jowatherm-Reaktant® adhesives do when it comes to the lamination of activated carbon filters. Furthermore, the open time of the Jowat products is based on the process times for coating the non-woven filter membrane. Not only does this increase the efficiency and safety of the production process, but it also improves product quality and filter performance. The adhesive bond also easily withstands the stresses of further processing steps such as winding and unwinding, trimming and pleating. Further advantages of the Jowat adhesives include very low fogging and emission values, not to mention a high level of heat resistance. ●

Born to be a master carpenter

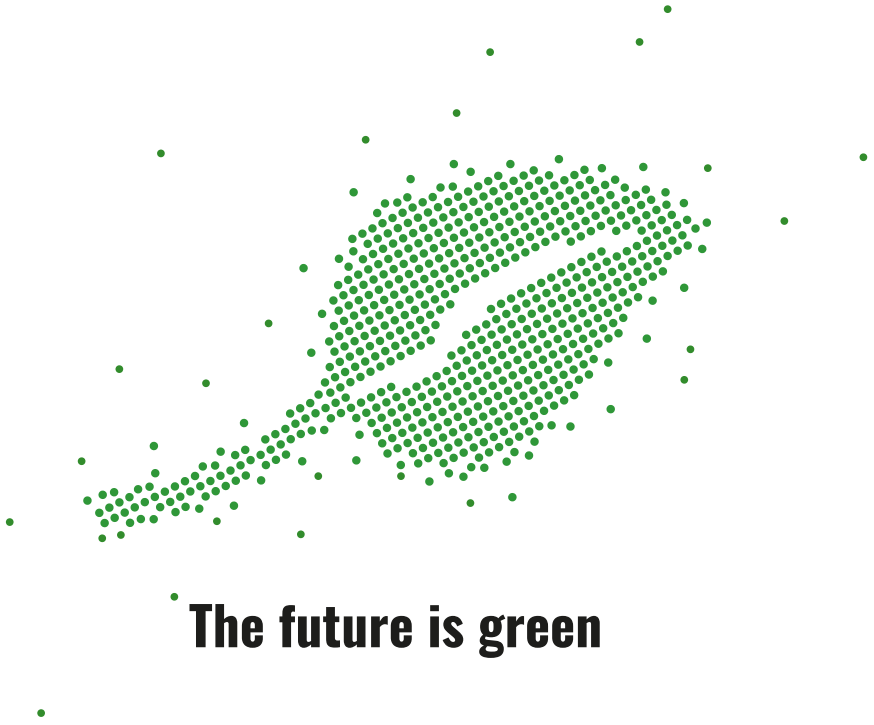
As fantastic as the castles and palaces of our childhood were, made from the blue, green and red wooden blocks we played with, they were not meant to last for eternity. Our buildings were quick to topple down, lacking the unwavering steadfastness they so badly needed. But it is precisely these childhood experiences that nurtured the master carpenters and craftsmen working in the growing wood industry today, and special adhesives have a key role to play.

Such happy times, weren't they? Back when we played with colourful wooden building blocks as children, there seemed to be no bounds to our imagination. We were able to put together the most incredible buildings out of nowhere that extended as far as the ceiling. That's when it happened. Right when the architectural triumphs created by our own creative genius as master craftsmen were towering before us in all their glory, ready to show the world the true meaning of sublimity: out of nowhere, a baby possessed by childlike innocence would crawl towards the masterpiece, attracted by the beauty of our work of art. And with a simple swipe of the hand, the curiosity of our ignorant brothers and sisters razed the skyscraper that had kissed the sky just moments ago to the ground. Just like that, our nursery rug was awash with a sea of tears. If only we had had some heavy-duty adhesive back then.

But these tragedies of our childhood – or "life experiences", as they're also known – help us time and time again in our adult life because we have learned from them. This is exactly how Jowat knows that the most important consideration in today's booming timber construction industry is to use the right adhesives. This is because the various challenges of glued wood construction – as well as in the window, parquet and furniture industries – require adhesives that meet the specific requirements of the respective construction sectors. From strong adhesive solutions with building authority approval for load-bearing construction to products with reduced emissions for sustainable living, Jowat has the right adhesive and many years of expertise to cover every requirement. This is what ensures every "masterpiece" remains steadfast and wonderfully true to its purpose.

In the end, the only thing that remains to say is that Jowat has still been known to shed a tear over the subject of building, even today. Except today they're happy tears that roll down its cheeks at the sight of a modern laminated timber building like the beautiful House of Technology at the company's headquarters in Detmold. ●

Flagship project: The House of Technology as a prime example of a load-bearing wood construction.



The future is green

Jowat Adhesives

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