

Industry Information

Adhesive solutions for building elements

Our Word is Our Bond

Jowat
Klebstoffe



Always a solution on hand

Modern and energy-efficient construction with Jowat adhesives.

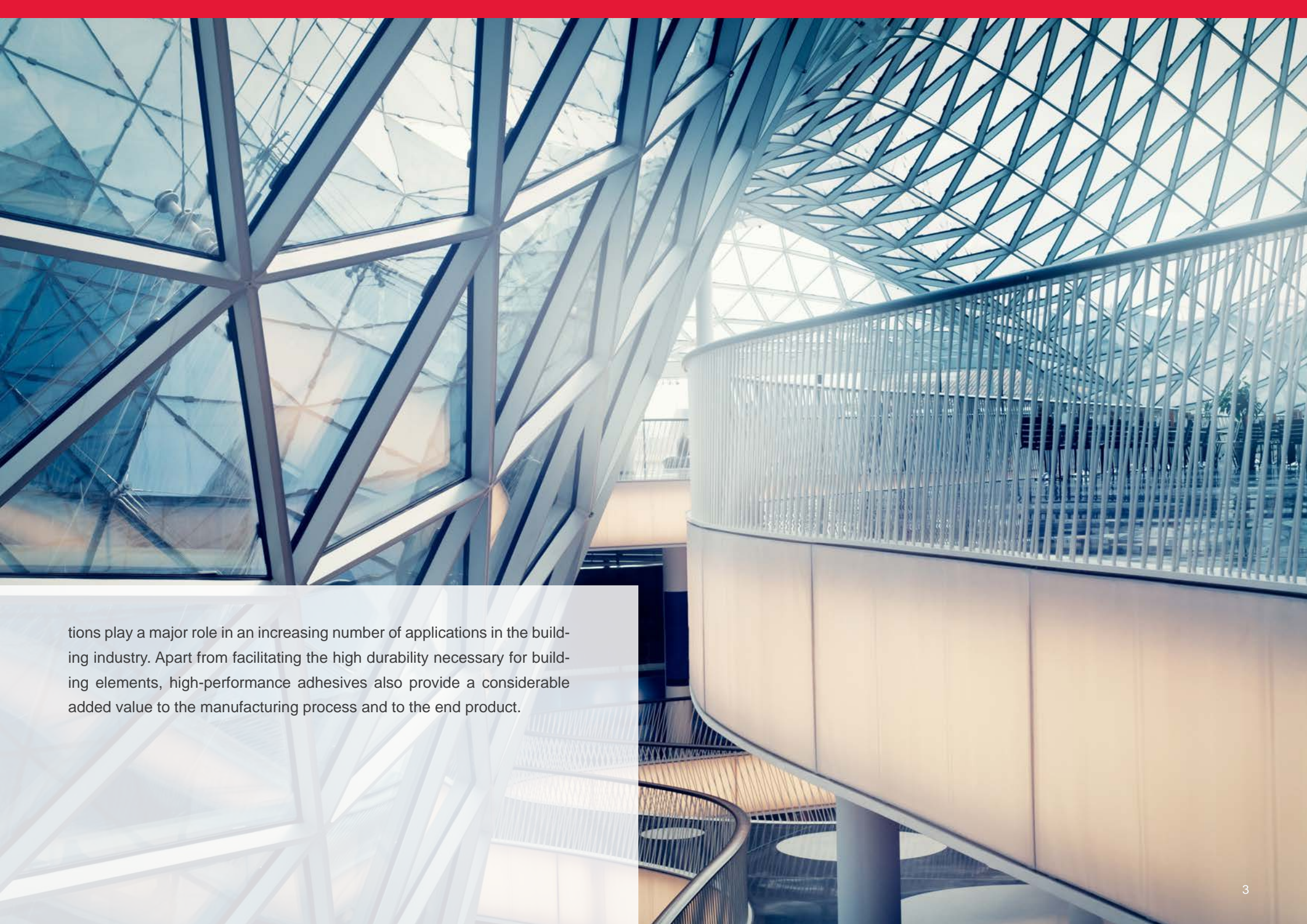
Whether façades, doors or floor systems - every building element fulfils unique and essential functions and therefore has different requirements to meet in the manufacturing process. Powerful adhesives from Jowat are adapted to the individual applications and are specialists for efficient production processes, high environmental resistance and reliable bonding of diverse material combinations.

Construction industry

The global construction sector is on a growth trajectory, reporting considerable gains in revenue, and demand for building elements is rising. At the same time, innovative solutions are needed which take into account the technological progress in the industry and meet the increasing requirements regarding energy-efficiency and sustainability. Façades, for instance, are no longer just building envelopes that look more or less the same, with the sole purpose to protect the interior from the environment. They have become multifunctional envelope systems which meet complex specifications. Due to the energy-saving construction method demanded, façades have become increasingly denser, and new ventilation systems

are needed to ensure a proper air exchange. “Smart” modern buildings can adapt to exterior conditions and are equipped with solar modules or electrochromic windows which darken automatically under direct sunlight. The visual appearance also plays an increasingly important role. Be it claddings made from environmentally-friendly and aesthetic wood, weathering-resistant and durable aluminium, or robust and highly demanded concrete – a large selection of different materials facilitates unique, striking facades which also fulfil different essential functions.

Going hand in hand with these new concepts, intelligent adhesive solu-



tions play a major role in an increasing number of applications in the building industry. Apart from facilitating the high durability necessary for building elements, high-performance adhesives also provide a considerable added value to the manufacturing process and to the end product.

Underlining



Wrapped up

Bonding solutions for a permanently functioning roof structure.

Due to increasing requirements regarding the energy efficiency of new or renovated buildings, modern roof structures also face greater challenges. Intelligent bonding solutions facilitate the manufacture of roofing liners and vapour barriers which support essential functions, such as ventilation and heat insulation.

Underlining and vapour barriers

Apart from the façade, the roof also plays a major role in meeting the increasing energy efficiency requirements for buildings. A system consisting of an underlining and a vapour barrier can fulfil several essential functions: Building textiles can facilitate the ventilation of the roof structure and prevent the diffusion of interior humidity into the insulation, while also serving as an effective protection against weather penetration.

Roof underlining consists of a multi-layer compound of diverse nonwoven materials laminated with breathable PU or PE membranes. These composite materials have a very high density to ensure a permanent resistance against the different climate conditions as well as against the mechanical stress during installation. At the same time, the material has to be breathable and facilitate the ventilation of the roof structure; excessive humidity diffuses through the textile to ensure a proper humidity exchange.

Vapour barriers may be manufactured of a hard foam board laminated with aluminium foil, of mineral or glass fibre insulation, or of thick plastic foils, and can provide the function of an airtight layer.

Jowat supplies a comprehensive portfolio of powerful adhesives for the lamination of functional textiles. These products are characterised by optimum adhesion to many material combinations and support the functions of the textile compounds. A reliable, permanent bond ensures the required durability and absorbs mechanical stress without limiting the essential breathability of the material. Hot melt adhesives based on polyolefin (PO) are the product of choice for laminating roof underlining. They meet the different requirements, are equipped with a very high UV resistance and deliver superior results – especially when polypropylene foils and nonwovens are to be bonded. Material composites which are exposed to very high mechanical stress are bonded with polyurethane hot melt adhesives.

There's more behind the façade

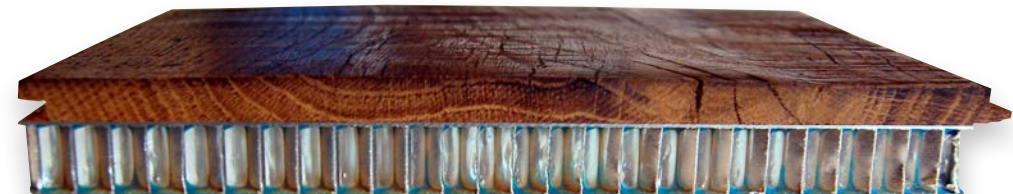
Adhesive specialists for modern building elements.

For many years, façades have already fulfilled more than only basic functions such as protection against weathering. Technological progress in the building industry and increasing demands regarding living conditions have led to the development of multifunctional building envelopes which improve energy efficiency, sustainability and comfort.

Composite elements

Whether as decorative cladding panels or as part of heat insulation – modern composites and sandwich elements play a key role in many applications. Intelligent high-performance adhesives have become indispensable in the manufacturing of these products due to the wide diversity of material combinations which have to be joined to meet different specifications. The broad spectrum of adhesion provided by special Jowat adhesives is essential to bonding different substrates such as wood, mineral materials, concrete, plastics and various insulation materials like mineral fibre, foams or aluminium foil. Apart from this, they also meet additional requirements regarding hydrolysis resistance, thermal stability, or fire protection. In addition to reactive polyurethane hot melt adhesives and one-component PUR prepolymer adhesives with different open times and initial strengths

which have been tried and proven for many years in the manufacture of high-performance composite elements, two-component SE polymer adhesives from Jowat have also become established in this application. Adhesives from the latter product group are characterised by excellent adhesion, high strength, and permanently elastic bondlines which absorb the tensions between the materials in sandwich structures.



Precast concrete parts

Adhesives used in the manufacture of precast concrete parts are expected to provide a very good adhesion and a fast build-up of strength, while also facilitating a clean removal from the sheathing elements after the concrete has dried. Jowat has developed two new assembly adhesives especially for this application that are characterised by excellent adhesion to sheathing elements with rough as well as smooth surfaces, for instance plastic, wood or sheet metal. The fast build-up of strength of the PO-based hot melts facilitates a fast manufacturing process in which the concrete can already be poured into the forms a few minutes after bonding. In addition, the adhesives are resistant to vibrations and provide a flexible bondline with high strength values, which can compensate for the vibrations when the concrete is compacted with plate vibrators and keeps the formwork elements in place. A key characteristic of the PO hot melt adhesives: They can be removed relatively easy from the formwork elements when cold. This means the formworks can be reused for the casting of concrete parts and facilitates a superior appearance of the bond – a major benefit in the manufacture of béton brut. Jowat supplies adhesive alternatives with different open times which are designed for lower and for higher ambient temperatures respectively.



A clear view

Optimum interaction between adhesive and primer for superior window profile wrapping.

Modern windows are expected to have a lifecycle of several decades. During that time, they are exposed to permanent, high mechanical stress, and frequently also to extreme weathering. The resistance necessary to meet this expectation is provided by a combination of robust materials coupled with certified high-performance adhesives and primers.

Window profile wrapping

Lamination applications in the manufacture of window profiles are characterised by a growing diversity of substrates and decor materials, further developed foil types, higher fluctuations in surface tension, and increasing feed speeds. These challenges can only be mastered with suitable adhesive products.

Jowat has expanded its portfolio of tried and proven bonding systems for wrapping window profiles and developed a new generation of an adhesive system consisting of a powerful PUR hot melt and a primer. The new high-performance adhesive is characterised by significantly improved properties, such as a wider range of adhesion for optimum adhesion to PVC and aluminium, considerably reduced open time, and a higher

green strength. The latter facilitates increased lamination speeds while maintaining process stability and providing a reliable bonding of window profiles and new, more rigid foils with higher restoring forces - even in applications with shorter pressing zones. In addition, the new hot melt adhesive also has a lower viscosity, which means it can be processed at lower temperatures, therefore facilitating shorter production cycles and a reduced thermal exposure of the thermoplastic foils to be laminated. The hot melt adhesive is certified according to RAL-GZ 716 for use in combination with conventional primers as well as with new VOC-reduced, NEP-free primers that are not subject to hazardous labelling restrictions.

The excellent process stability and outstanding processing characteristics



due to the optimum interaction between the new powerful adhesive and the latest generation of Jowat primers provides major benefits in window profile wrapping applications. For instance, the crosslinking of the PUR hot melt is accelerated when the primer components come into contact with the adhesive, facilitating a downline processing of the laminated window profiles after just 24 hours and representing a major contribution towards more efficient lamination processes.

Solutions for performance doors

Optimum bonding for internal and external applications.

Interior and exterior doors play a major role in the overall appearance of a building and can also influence the living atmosphere. At the same time, they provide protection against wind, noise and burglary, and are high-performance products - like the adhesives used in manufacturing.

Exterior doors

Exterior doors provide access into a building as well as the first, and ideally a lasting positive, impression. Apart from a superior appearance, modern doors also have to meet high requirements regarding permanent resistance to weathering, heat insulation, soundproofing or burglary protection. Aluminium doors for instance are usually powder-coated and provide a particularly durable and corrosion-resistant surface coupled with an attractive appearance. Therefore, the requirements for the door leaves and door frames in manufacturing are also very high.

Jowat provides a powerful adhesive system which has been developed especially for laminating exterior doors made of plastic and pre-coated aluminium with decorative foils: Tried and proven hot melt adhesives based on polyurethane (PUR) meet the highest demands for thermal stability

and hydrolysis resistance required for exterior applications. In addition to best adhesion characteristics, the new generation of reactive hot melt adhesives also provide a shorter open time and higher green strength, and therefore facilitate faster lamination processes. Just like for window profile wrapping applications, Jowat also supplies RAL-certified products for the production of exterior doors.



Interior doors

Interior doors also have to meet high and, depending on the application, different technical specifications. In addition, they are manufactured from an increasing diversity of materials to fulfil expectations for unique and striking designs. Adhesives used for flat lamination and profile wrapping have to provide adhesion to a wide range of material combinations like wood-based substrates, decor foils and pressure laminates (HPL or CPL), and be adapted to the specific process – from individual doors manufactured in small shops to high numbers in industrial serial production with increasingly faster process cycles. Jowat supplies a wide range of efficient, different adhesive systems for interior applications, which impress with very individual advantages: PVAc dispersion adhesives are used especially for laminating decor papers and foils as well as thermoplastic foils, and meet the requirements for durability class D3 bonding. Hot melt adhesives based on EVA and PO facilitate reliable bonds even in fast manufacturing processes. Highest levels of moisture and heat resistance can be reached by using Jowat PUR hot melt adhesives.



Good ground adhesion

Special solutions for floor systems.

Structural floor systems are the basis for the design of a room floor. They can fulfil special functions or facilitate a more efficient installation. Jowat supplies powerful adhesives for all situations.

Raised access floors

Access floor panels have high load-bearing capabilities, are extremely heat-resistant, anti-static, and cover the different building services installed below floor level. The floor system usually consists of two layers of compact laminate or multi-layer wooden composites. These mostly wood-based floor panels are laminated with a functional layer on the surface consisting of special foils, made for instance of aluminium, which provide anti-static and heat-absorbent functions. Powerful hot melts based on polyurethane (PUR) are the adhesives of choice for the lamination process. After manufacturing, the panels receive an edgeband which is usually also made of aluminium. The underside of the panels may also be coated with an additional protective layer. The PUR hot melts used in these applications have to meet very strict specifications regarding heat resistance and provide optimum adhesion to rigid materials, high green strength, as well

as a long open time. In addition, the bonding also has to be permanently resistant to high stress.





Dry screed

Dry screed provides a major advantage: It can be installed without having to observe any drying and hardening time. The screed panels can be made of different materials, for instance gypsum fibreboard or cardboard, perlite, or fibre cement, and are bonded on the overlap during installation at the construction site. Jowat supplies a product portfolio for bonding screed boards with special, one-component moisture-curing PUR prepolymer adhesives. The adhesives are free of solvents and formaldehyde, and are characterised by a wide range of adhesion to different materials, as well as by a short curing time which facilitates the fast fitting of further flooring materials.

Appretur

Jowat finishes (Appretur) based on PUR are used to finish and increase the value of hydrophilic substrates, such as materials based on wood or other fibres. The one-component finish provides advantages in many applications. It may be used to compact mineral fibre-based materials and improve the bond strength. The finish significantly reduces the risk of swelling due to moisture and prevents mould formation in warm and humid climates. Other applications may require drastically improved mechanical properties of the substrates or reduced surface roughness for subsequent lamination and lacquering processes. The considerably increased resistance against weathering of substrates treated with this finish is especially relevant in building applications. Appretur is mainly used in the construction sector for wood-based materials, such as OSB or veneer plywood, solid wood, floors, façade elements, sheathing and doors.

Specialists for every application

Jowat adhesives: Flexible high-performance products for the building industry.

The wide range of different building elements, each with very individual specifications, coupled with increasing expectations regarding energy-efficient construction require adhesives which are optimally adapted to the specific manufacturing processes and support the essential functions of the product.

Jowat adhesive products for the manufacturing of building elements provide superior results in operations where different materials are to be bonded, a very hard or very flexible bondline depending on the application, and can compensate for tensions due to their ductile properties. The high-performance adhesives facilitate a permanently resistant bondline as well as high hydrolysis and heat resistances which are essential for exterior applications.

Intelligent adhesive solutions can also add value to the manufacturing process and the end product. In the production of modern doors, for instance, PUR prepolymer adhesives are used to bond mineral wool between metal sheets. This provides the advantage of more stable doors, prevents wavy surfaces and reduces material consumption due to thin-

ner metal sheets. Adhesives used in this application easily resist temperatures of more than 200 degrees when the doors are heated in the curing oven.

Modern ventilation systems and shutter boxes are increasingly integrated into the façade. At the same time, it must be ensured that this does not lead to any heat escaping the building. Adhesives play a major role in this application as well, and facilitate an optimum bonding of the insulation materials.

Have we sparked your interest?

Jowat actively supports innovations in the manufacture of building elements and draws on a deep understanding of the challenges in the building industry – be it special physical properties, different material combinations, requirements for high resistance and durability in exterior applications, or energy- and cost-efficiency as well as an increasing range of applications.



We help processors meet their customer's specifications and provide a comprehensive advisory service for the entire process: From the constant search for and testing of new, sustainable raw materials, the development of innovative adhesive products in close contact with subsuppliers, in cooperation and service projects, to individual claim analyses. For years, Jowat has played a key role in safeguarding success and protecting investments by providing adhesive solutions for the many different applications in the building industry and facilitating the optimisation of products and processes.

Have we sparked your interest? Contact us!
We look forward to working together.



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