



on the way

The Purbond Newsletter No. 1/2009



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Dialog for improvement

Purbond was established in September 2003 as a joint venture between Collano of Switzerland and National Adhesives (USA), then the world's largest maker of industrial adhesives and now owned by Henkel of Germany.

The objective was to exploit the potential of PUR adhesives for the engineered-wood market. This goal involves the refinement of existing adhesives, intensive collaboration with approval authorities around the world, cooperation with manufacturers of applicator equipment, as well as the support and counseling of engineered-wood pioneers who recognize the opportunities of this new technology for their own competitiveness and have the courage to commit to it.

Today, five years after the company was founded, the new adhesives have firmly conquered the domain of engineered wood, the lumber industry's ultimate challenge. It is becoming apparent that the technology is gradually superseding old methods and processes in a vast range of applications. The productivity gains associated with the new adhesives, the bold structures that they enable, the advantages of clean and operator-friendly processing, and the undisputed ecological benefits have combined to form a tremendous force that will further accelerate the conquest of PUR adhesives.

Since we started out to conquer a new world with just a few staff members, we have learned one thing: ongoing development and continuous improvement are possible only on the basis of dialog; that is, the sharing of insights and experience and the involvement of people who advocate various standpoints. The history of Purbond is the history of dialog with customers, approval-agency representatives, machinery manufacturers, developers, application specialists, and people at the sales front, as well as specialists and connoisseurs from various disciplines, who together with us are willing to make a contribution to the recognition and refinement of a revolutionary technology.



We want to further intensify this dialog, and this newsletter is intended to help. We will use it to report where we are successful and why, what difficulties we need to overcome, how we rate different trends in the industry, and which ones we endorse or dislike. We hope it will become a further channel that informs our people in house as well as our external allies, that it will inspire discussions, elicit opinions, and present points of view. Why? Because one thing has always been clear to us: we can only remain a worthy leader in this magnificent PUR adhesive technology in the coming years if we succeed in remaining open-minded, in taking problems seriously, in asking questions, and in delivering convincing answers.

Walter Stampfli
General Manager, Purbond
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Cover photo: Road bridge, Egolzwil, Switzerland 2006
PURBOND HB 181

No approval: no go

In almost all countries on our planet, adhesives have to be certified before they can be deployed.

The first country that allowed PUR adhesives to demonstrate their suitability for engineered-wood applications was Switzerland. This is because here, adhesives can be deployed without the need for special certification processes. In Switzerland, the engineer is liable for the house he builds. He is responsible for the materials that he uses. In the event of defects, he has legal recourse against his suppliers. Thus, Switzerland is where initial experience was gained with the new Purbond adhesive, where tests were conducted, and where proof was delivered that a single-component PUR-based adhesive can have the same durability and strength previously thought attainable only with formaldehyde-based condensation adhesives.

In almost all jurisdictions around the world, adhesives must be certified before they can be deployed. Special certification agencies and standardization entities decide on approvals and thus access to markets. Although most of these bodies are generally only responsible for a certain market, the evolving globalization of engineered-wood companies calls for adhesives that are certified for all markets. But because different stakeholders can leverage their influence in standardization groups, approvals can be prevented or at least delayed for long periods of time.

Certification is often very difficult to obtain because the representatives of conventional technologies are also members of standardization workgroups, and they tend to defend their historically established privileges with full force. This is how it has always been and always will be. Breaking through the status quo calls for lots of work and close collaboration with the specialists of the Swiss Center of Competence as well as the most progressive individuals in the respective authorities and certifying agencies. It is at their discretion to create the prerequisites needed to introduce the new technologies in all of the world's important engineered-wood markets.

Railway station “wave”, Bern, Switzerland 2005 →
PURBOND HB 181



PSS – Purbond Security System

Adhesives only work if they are dependably applied in the correct way.

It is obvious: adhesives only work if they are dependably applied in the correct manner. Fingerjointing is a very important joining technique that is growing in significance. It calls for the methodologically secure application of adhesives. Conventional random sampling and inspection approaches fail by far to provide the necessary security that should be mandated. In many instances, the security aspect is addressed by coating both wood parts with adhesive to guarantee an effective bond even in the event of application defects. European standards govern this double-application technique, and a new technology was introduced only by Purbond's KEBA – fingerjointing with unilateral contact-free application.

The new Purbond Security System, developed in cooperation with Robatech, a Swiss company, guarantees maximum security. Most Purbond adhesives are formulated with a special additive that becomes visible when exposed to UV light. Thus, sensors can continuously monitor every single adhesive bead during the fabrication process. Irregularities or even gaps can be detected immediately. The mature system has been proven in real-world production environments; it offers maximum security and continuous process monitoring capabilities.



About the difficulties involved in launching a new technology

The division of labor entrenched in the industry not only enables productivity reserves to be tapped, it also constitutes one of the greatest obstacles when the issue is to bring about a breakthrough for a new technology.

The more commonplace and accepted a technology is, the greater the degree of specialization in the companies that use it. Often, the only remaining way to tap productivity reserves is to more systematically concentrate on discrete manufacturing steps. Established standards and generally recognized norms make sure the transition from one step to the next – often equivalent to a transition from one company to the next – is smooth and secure. In auto-making, this concept created a huge subcontracting industry with infinitely long supply chains not unlike those we see in the food or textile industries, or in ours: engineered wood.

The division of labor entrenched in an industry not only allows productivity reserves to be tapped, it also becomes a formidable obstacle when the issue is to achieve a breakthrough for a new technology. Even though PUR adhesives have obvious advantages over conventional ones, the rules of the game of an entire industry have to be changed to bring them to market. New standards are required, new legislation, new application equipment, new processes and methods in engineered-wood fabrication, and innovative users who are willing to accept the risks involved in every new technology. And

because this also changes the landscape of an entire industry, involves the loss of legacy privileges and rights, and causes long-established relationships to fade, many stakeholders will fight tooth and nail to thwart any attempt to pave the way for a new technology.

It appears that the fathers of Purbond, who established the company along the lines of a center of competence, foresaw this. A special task force of predominantly young staff members was called upon to fully focus on refining PUR technology for load-bearing engineered-wood applications and to exploit its potential on a worldwide basis. This task was taken on with in-house developers, highly qualified sales engineers, and committed application specialists who worked in concert to convince, support, and accompany the most innovative customers, certification agencies, architects, and builders.

Soon thereafter, an internationally networked fellowship emerged. It took on the challenge of expanding the scope of professional applications based on PUR adhesives, exchanging notes on experience gained, and supporting community members wherever possible. Purbond's specialists from Switzerland were constantly on the road, worked intensively with standardization bodies, and helped and accompanied customers in Europe as well as in South Africa, Japan, New Zealand, Australia, China, and the USA.

Today, after struggling for five years, they can report a positive outcome of the groundwork. Purbond adhesives have been certified in all major markets, the application systems developed in partnerships with others have proven themselves, the range of available adhesives has expanded, and – a very important point – the pioneering customers have succeeded in further expanding their businesses. A lot remains to be done, but the first steps have been successful.



Sajat lodge, Prägraten, Austria 2005

PURBOND HB 110 and HB 530

Bayer MaterialScience, a competent development partner

In 1938, Bayer was awarded the first patents for prepolymers and remains the world's undisputed leader in this field.

Innovations will be needed for Purbond adhesives to continue their conquest: new products that feature highly specific properties and capabilities for specific applications. The first generation of fibrous adhesives was followed by fiber-free products that were easier to apply and reduced the incidence of machinery problems. Then, adhesives had to become faster for certain applications or needed to exhibit enhanced stability, or – for instance for approval in the USA – had to meet special requirements. In the meantime, the first PURBOND HB 110 adhesive certified in Germany has spawned a range of nine different products that have all been certified.

Innovations are the result of close cooperation between customers, university science departments, and in-house development-center specialists. Bayer, our raw materials supplier, plays a very important role in this respect. In 1938, the company was awarded the first patents for prepolymers and to this very day remains the world's undisputed number one in this domain. And Bayer has lost none of its innovative potential. It is still eager to further refine this product family and to tailor the characteristics of the raw material to individual segments and specific applications. Bayer is a competent development partner that gives us the confidence to keep attaining the top rank along with the assurance that we can work with raw materials that deliver on their promises.

**Panorama deck, residence in Ennstal,
Austria 2008**

PURBOND HB 110, HB 360 and HB 530





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