



Jowatherm-Reaktant® Edgebanding



Polyurethane (PUR) hot melt adhesives for edgebanding

Modern adhesive portfolio with solutions for different process requirements

High moisture and heat resistance



INFO: PUR hot melt adhesives

One-component, reactive polyurethane hot melts (PUR HM) are characterised by a chemical crosslinking reaction with moisture after the physical setting process through cooling and solidification. During crosslinking, small amounts of CO₂ gas are formed, most of which is released through the adhesive film. The minimal amount of CO₂ gas is generally not visible to the naked eye at room temperature. The chemical reaction is initiated by humidity and/or moisture in the substrates. Therefore, PUR hot melts must be protected from humidity during production and storage to prevent a premature reaction. After complete chemical crosslinking, PUR hot melts cannot be molten again and provide superior resistance to water, solvents, and cleaners.

PUR hot melt adhesives for edgebanding

Finishing the trim edges of wood-based materials with different edgebands has been an established practice for decades. Adhesives for this application have to meet very specific requirements due to high expectations regarding the visual appearance of the product, advancing technology, and a virtually unlimited variety of materials. The value of furniture is increasingly measured by the quality of its edgebanding. Consumers expect furniture with a flawless bondline which is invisible to the naked eye. One-component, moisture-curing polyurethane (PUR) hot melt adhesives have been tried and proven in the wood and furniture industry for many years and are the product of choice for applications which require a superior bonding. PUR hot melt adhesives facilitate bonds with highest strength values and durability classes, for instance in kitchens and bathrooms.

Requirements and frame conditions for the bonding technology in the modern manufacturing of furniture and interior fittings are changing constantly. A few years ago, highest resistances, especially to water and steam, were generally demanded only of kitchen furniture. Today, the borders between kitchen and living room furniture become blurred. Highest

resistances are increasingly becoming a universal requirement for all furniture. Superior edgebanding quality has therefore become a real trend. However, not only the technological requirements have risen in edgebanding. At the same time, demands for an aesthetically appealing high-end edge have also grown over the last years. Especially since the introduction of the laser application method in 2009, the criteria by which the quality of furniture is evaluated have changed. Today, perfect, optically invisible bondlines are a basic requirement for superior furniture.

PUR hot melt adhesives master the balance to facilitate a bondline with highest resistances and a perfect appearance.



Technical Information

Application

Bonding thermoplastic edgebands (for instance ABS, PP, PVC, PMMA), edgebands made of resinated decor paper, CPL, HPL, veneer (with and without fleece backing), as well as solid wood edges. The suitability of the primer coating on the reverse side of the edgeband material has to be tested according to the application in each case.

Directions for use

PUR hot melt adhesives can be processed on throughfeed lines at different feed speeds, as well as on roller and nozzle applicators. All parts of the melting and application units coming into contact with the adhesive should have a non-stick coating to prevent possible catalytic reactions due to metal contact. A non-stick coating will also facilitate a considerably easier cleaning.

The melting and application units should be equipped with a precise temperature control to prevent local overheating and unwanted secondary reactions. Heating the adhesive to a temperature above the recommended processing temperature will usually lead to a fast increase in viscosity of the melt due to a so-called thermal crosslinking reaction in the adhesive (the allophanate reaction), which is triggered by heat and does not need moisture.

Cleaning

If necessary, flush out hot melt remnants from the melt and applicator units with flushing agent **Jowat® 930.94** (red). Crosslinked, solid material has to be dissolved with cleaner **Jowat® 930.60** (please test for suitability before use). For more information, please refer to the "PUR hot melt Manual" under the heading "Maintenance and Cleaning" (available upon request).





PUR for everyone

- Patented granulate manufacturing process
- Processing on conventional edgebanders is possible (no investment into new equipment necessary)
- Easiest way of getting started with PUR technology
- Especially for first-time processors and small companies
- For through-feed and stationary units
- Perfect dosing due to convenient packaging in pull-ring cans
- Different products available
- Easy changing from EVA to PUR – and back possible

INFO: Underwater granulation

In underwater granulation, the molten material to be granulated is extruded through the holes of a perforated plate into a cooling liquid (water in this case) and the string of extruded material is then cut off by fast rotating knives. The temperature difference between the hot adhesive and the cold water causes the adhesive string to contract instantly after it is cut off by the knives, leading to the typical ball shape of the underwater granulate. The round granules are characterised by an optimum flow behaviour and minimum contact surface, and therefore provide major benefits in dosing and dispensing compared to other geometries.

INFO: PUR MR hot melt adhesives

One-component, moisture-curing PUR hot melt adhesives contain an excess of free monomeric isocyanate (usually 4-4'-Diphenylmethan diisocyanate – MDI) of about 2 %. That isocyanate is largely released when the uncured adhesive is exposed to heat and may have a sensitising effect on the processor. Before PUR hot melt adhesives are processed, it is therefore required to install a suitable exhaust ventilation system and to use suitable personal protection equipment. Affected persons with a sensitisation or hypersensitivity to isocyanates have to be protected immediately and permanently from any exposure to isocyanates.

Since 2002, products with a free monomeric isocyanate content of 0.1 % or more have to be labelled with the GHS symbol No. 8 (health hazard) and the corresponding safety information (H (hazard) and P (precautionary) statements).

The product series **Jowatherm-Reaktant® MR** supplied by Jowat comprises a range of PUR hot melt adhesives with a significantly reduced content of free monomeric isocyanate (MR = Monomer-Reduced). Due to a monomer MDI content of less than 0.1 %, adhesives from that product group are not subject to hazardous substance labelling under current European regulation (EU 1272/2008 and the related amended regulation EU790/2009).



Jowat supplies PUR adhesive solutions with a reduced monomer content for many different purposes. **Jowatherm-Reaktant® MR 607.90** can be used in a wide range of general edgebanding applications. The adhesive has been established for bonding standard materials such as thermoplastic edgebands as well as edgebands made of resinated decor paper or fleece-backed veneer.



Product overview

The table below provides an overview of the tried and proven PUR hot melt adhesives from the Jowatherm-Reaktant® series for edgebanding. The product range comprises different product types with special

performance characteristics adapted to the general process requirements in edgebanding applications. The products have been developed to meet the different requirements which arise from the production process and from the substrates and edgebands to be bonded. Please contact our Sales Representatives for a more extensive advisory service and adhesive selection.

		ALL-PURPOSE	TRANSPARENT	CONTOURED PARTS	INDUSTRIAL	MONOMER-REDUCED
		Jowatherm-Reaktant® 607.40	Jowatherm-Reaktant® 608.00	Jowatherm-Reaktant® 606.60	Jowatherm-Reaktant® 607.60	Jowatherm-Reaktant® 607.90
Technical Data	Processing temperature [°C]	130 - 150	110 - 130	150 - 170	140 - 160	130 - 150
	Viscosity at processing temp. [mPas]	75,000 ± 25,000 at 140 °C	80,000 ± 20,000 at 120 °C	85,000 ± 35,000 at 160 °C	75,000 ± 25,000 at 140 °C	75,000 ± 25,000 at 140 °C
	Colour / appearance	light beige / white	colourless / white	light beige / white	light beige / white	light beige / white
	Open time (film 200 µm) at processing temp. [s]	8 ± 2	8 ± 2	7 ± 2	8 ± 2	8 ± 2
	Density [g/cm³]	1.35	1.1 (unfilled)	1.35	1.3	1.3
	Feed speed [m/min]	10 - 60	10 - 40	---	10 - 60	10 - 60
	PUR granulate	●	●	●		
Carrier substrates	Wood, wood-based materials (MDF, particleboard, plywood, ...)	●	●	●	●	●
	Rigid foam (PU, ...)	○	●	○		○
	Metal (aluminium elox. /chrom., ...)	○	●	○		
Edgebands	Melamine resin	●	●	●	○	○
	Thermoplastic edgebands (ABS, PP, PVC, PMMA, ...)	●	●	●	●	●
	Laminates (CPL, HPL, ...)	●	●	●		○
	Solid wood	●	○	●	○	○
	Veneer, fleece-backed	●	●	●	●	●
	Thick veneer	●	○	●	○	○
	Metal (aluminium with primer, ...)	○	●	○		

The information given in this leaflet is based on practical experience and on results of tests in our laboratory, and does in no way constitute any guarantee of properties. In light of the huge diversity of materials and the fact that we have no influence either on the substrates or on the process, no liability may be derived from these indications nor from the recommendations made by our free technical advisory service. Customer trials are absolutely necessary. Before processing, please request the corresponding data sheet and observe the indications in it!

○ technically possible
● technically preferred

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