Complete Line

Lamination ... with integrated edge sealing / wrapping

For a long time the demand of the furniture and interior fittings industry has been for products for the effective sealing of chipboard edges. Through filling of the porous middle layer, profiled chipboards can also be wrapped with very thin paper foils, without the danger of telegraphing. The use of more homogenous but significantly more expensive materials, such as MDF, can therefore be avoided.

1. *Highly porous middle layer of chipboard prevents wrapping with thin paper foils.*
2. *The sealing compound **KLEIBERIT EVA 762** or **KLEIBERIT PO 755** guarantees excellent filling of the middle layer.*
3. *The finished product: Edge and surface look exactly the same..*

Production: Friz Kaschiertechnik, Weinsberg

Edge sealing / Edge banding
FRIZ Kaschiertechnik, Weinsberg Germany, has developed a process together with KLEBCHEMIE in which the sealing of chipboard edges is integrated with the surface bonding and wrapping with thin paper. A PO or EVA based hotmelt adhesive is applied with a slot nozzle to the edge of the chipboard cross section for:
1. a very smooth surface
2. the use of paper foils for edge wrapping (edge banding)

Surface Lamination/ Edge Wrapping (Edge Banding)
Edge sealing is combined inline with surface lamination and edge wrapping (edge banding) for industrial use.
EVA or PO hotmelt adhesive is generally applied to the paper foil with a slot nozzle or doctor blade. The surface and edge are then wrapped.

Complete Line adhesive system for <u>normal</u> temperature resistance
Edge Sealing with KLEIBERIT 762.3 EVA if required
Surface Lamination / Edge Wrapping with **KLEIBERIT 742.3/743.5 EVA**
- exceptional application properties
- line speeds up to 60 m/min
- high initial strength
- excellent temperature resistance

Complete Line adhesive system for <u>high</u> temperature resistance
Edge Sealing with KLEIBERIT 755.0 PO
Surface Lamination / Edge Wrapping with **KLEIBERIT 750.0 PO**
- perfect compatibility
- line speeds 60 m/min and more
- very high initial strength
- outstanding high temperature resistance (especially for export markets)

Overview of adhesive for surface lamination with integrated edge sealing and edge banding

Product	Base	Viscosity at 180 °C [mPa·s]	Application temperature	Properties / Applications
742.3	EVA	10,000	180°C - 200°C	Lamination of paper foils on wood and wood based materials such as chipboard and MDF panels.
743.5	EVA	8,000	180°C - 200°C	Hotmelt for the surface lamination of wood based materials with thin paper foils.
750	PO	22,000	180°C - 200°C	
755	PO	29,000	180°C - 200°C	Sealing compound for the sealing of chipboard in preparation for the direct wrapping with décor paper foils. Excellent filling of the middle layer, minimal shrinkage, smooth surface, very high temperature resistance, excellent melting properties
762.3	EVA	15,000	180°C - 200°C	

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KLEIBERIT®
ADHESIVES • COATINGS

Flat Lamination

The New Age of Lamination with PUR Hotmelts

Roller and Slot Nozzle Application

www.kleiberit.com
Competence PUR

The New Age of **Flat Lamination**

The lamination of flat surfaces with foils, veneers, or papers using thermo laminating or cold laminating equipment is a proven process in the wood working industry.
These processes predominantly use EVA hotmelts and PVAC adhesives. Here the final bond strength is achieved purely by physical setting, either through the cooling of the thermo plastic hotmelt adhesive or by the absorption of the water contained in PVAC adhesives.

The use of PUR hotmelts with rollers or slot nozzles is relatively new. These processes require a new generation PUR hotmelts which provide long open time, high green strength and a high final bond strength. What all PUR hotmelts have in common is that in addition to the physical setting of the adhesive, they also cure chemically. This crosslinking creates significantly higher temperature and moisture resistance in comparison to EVA and PVAC adhesives.

Advantages
- Especially suitable for high bond strength requirements
- Very high temperature resistance
- Very high moisture and water resistance
- Simple application using roller and slot nozzle
- Flexible glue joint
- Adhesion to many different materials

These higher strength values have made it possible to explore new end user applications. This has enabled the technology of roller and slot nozzle application to develop rapidly. Roller applicators are predominantly in use in bonding large areas and less flexible materials. A typical example is all types of multi layer sandwich elements. Laminating large areas such as chipboard with more flexible materials such as foils and papers can be done using wide slot nozzles.
For special applications, either roller or slot nozzle applicators can be used. For example, double roller applicators in the textile industry or for fleece backing veneers.

Application
The application temperature of reactive PUR hotmelts is usually between + 120 °C and + 140 °C.
The PUR RHM is melted in its original delivery container using special equipment and is then pumped through heated pipes to the application roller. The adhesive is applied to the substrate via direct contact with the application roller.

The covering substrate is then either applied by hand or machine and the required pressure is applied via the press rollers. This process is mainly used for very large and rigid materials.
With slot nozzle systems the adhesive is usually applied to the flexible roll material and the online pressing is done immediately afterwards via large area calendars. The line speed is max. 80 m/min.

Competence PUR

Functional Panels
Sandwich panels / Lightweight Applications

Sandwich panels and lightweight panels are made up of multi-layer construction. Depending on the application, different core materials are bonded with different surface layers.
The sandwich panel first gets its high load capacity and rigidness as a result of bonding the shear connected core with the surface layers.
Modern lightweight panels feature high strength, lightweight components, versatile design and are cost-effective. Their excellent form stability, torsional stiffness and high load capacity make it possible for use in transportation and construction as well as in machine and plant construction.
Together with the unique characteristics of the individual constructive elements, KLEIBERIT's innovative adhesive systems provide for highly flexible bond and guarantees long-lasting functionality.

KLEIBERIT 706 (very short open time for automated process) and **KLEIBERIT 706.1** (short open time for regular process) are established in the market as a successful, universal PUR surface adhesive with a wide bond spectrum. In addition to its premium performance **KLEIBERIT 706.0** is certified for naval applications. ⎈

KLEIBERIT 706.2 with extended open time, flexible joint and excellent wetting on hard to bond substrates (e.g. spongue glueing). This grade is also vailable as ME.

KLEIBERIT 706.3 enables re-shaping after lamination. A typical application is forming of metal door jams.

KLEIBERIT 706.4 and **KLEIBERIT 706.6** can be used for applications with higher memory effect. The combination of good processing characteristics like smooth application texture, string free and roller stability is convincing.

KLEIBERIT 706.7 and **KLEIBERIT 711.9** are high end products with highest green strength. Especially for lightweight panel production with large HPL cover layers.

KLEIBERIT 706.9 is specialized to bond materials with high memory effect to pressure sensitive panels.

⎈ Bonding in Shipbuilding (according to IMO FTPC Part 5 & Part 2 / Approval per SeeBG test certificate for international use according to Module B)

Decorative Panels
High Gloss (Premium Surfaces) with ABS or PET Foils

In modern interior design, furniture and flooring, high gloss surfaces are increasingly gaining in importance. This trend gives many manufacturers the chance to enter a new market. However, the production of high gloss surfaces is also a challenge, as the visual requirements are very sensitive.

The specially developed PUR hotmelt adhesives from KLEIBERIT are perfectly formulated for bonding high gloss foils.
- Excellent application characteristics
- Optimised smoothing characteristics in calendering
- Perfect adhasion to various materials
- High green strength
- Brilliant optic also with thin foils
- Application with roller coater or slot nozzle with roller bar

KLEIBERIT 709.1 for **glass, ceramic and metal** lamination to wood based materials. The long open time allows large surface areas to be bonded.

KLEIBERIT 709.3 for **thin high gloss foil (e.g. ABS < 0,7 mm)** lamination. Due to the low processing temperature and the long open time, a homogeneous application property is achieved.

KLEIBERIT 709.4 for **thick high gloss foil (e.g. ABS > 0,7 mm)** lamination. The low processing temperature, the long open time and a very high green strength allows homogeneous application properties.

KLEIBERIT 710.1 for **bonding transparent foils (e.g. PET)** by roller coater application. High stability on the roller. Following cross linking, a highly heat resistant, cold and moisture resistant and durable bond is attained.

KLEIBERIT 711.1 for **bonding transparent foils (e.g. PET)** by slot nozzle application. Short open time, very high green strength. Excellent temperature and moisture resistance.

Machine Manufacturers:

BARBERAN S.A.
www.barberan.com

BLACK BROS. CO.
www.blackbros.com

ROBERT BÜRKLE GmbH
www.buerkle-gmbh.de

FRITZ Kaschiertechnik
www.friz.de

HARDO Maschinenbau GmbH
www.hardo-gmbh.de

HYMMEN GmbH
www.hymmen.com

OMMA
www.omma.com

OSAMA Technologies srl
www.osama-tech.it

SIMIMPIANTI S.R.L. Woodworking Machinery
www.simimpianti.it

TORWEGGE Holzbearbeitungsmaschinen GmbH
www.torwegge.com

UNION TOOL CO.
Email: uniontool.kconline.com

Flat Lamination

Product	Viscosity at 120°C [mPa·s]	Viscosity at 140°C [mPa·s]	Viskosität bei 160°C [mPa·s]	Open time at 20°C [min]	Shore A/D 7d	Characteristics / Applications
706.0	12,000	6,000	-	1 - 2	90/30	very short open time, for automated process
706.1	12,000	6,000	-	2 - 3	90/30	short open time, for manual process
706.2	10,000	5,000	-	9 - 10	85/25	extended open time, for sponge gluing
706.2.03 ME	12,000	6,000	-	2 - 3	90/30	ME Product
706.3	12,000	6,000	-	6 - 7	80/20	very flexible joint, for reshaping (eg metals)
706.4	35,000	15,000	-	3 - 4	95/35	high viscous, especially for HPL
706.6	12,000	6,000	-	2 - 3	96/39	medium viscous, especially for HPL
706.7	20,000	9,000	-	4 - 5	95/35	extreme high initial strength, especially for HPL
706.9	30,000	20,000	-	4 - 5	91/25	long open time, for pressure sensitive cores
709.1	11,000	5,000	-	3 - 4	90/30	for glass, ceramic and metal
709.3	8,000	4,000	-	3 - 4	90/35	for thin high gloss ABS (< 0.7 mm)
709.4	8,000	4,000	-	2 - 3	90/35	for thick high gloss ABS (> 0.7 mm)
710.1	12,000	6,000	-	2 - 3	91/30	for transparent PET, roller coater application
711.1	12,000	6,000	-	< 1	97/41	for PET, slot nozzle application
711.9	-	-	8,000	< 3	83/24	extreme high initial strength, especially for HPL

Cleaner

Product	Viscosity at 120°C [mPa·s]	Viscosity at 140°C [mPa·s]	Specific weigh [g/cm³]	Applications
761.7	11.000	6.000	0,98	cleaning of melting and applicator equipment when changing over from one PUR to another
761.8	-	-	1,14	special cleaner for application rollers on flat lamination and hotcoating lines

Cleaning properties Advantages:
- avoiding of blockages and reactive contamination
- good mixing properties with PUR hotmelts
- neutralising the isocyanate reaction

Storage: PUR RHM can be stored in factory sealed containers for approx. 6-12 months. For detailed information, see technical data sheet

Disposal information
Cross-linked PUR hotmelt can be disposed of with the normal waste disposal. In addition to this, our packaging materials are suitable for recycling and can, once emptied sufficiantly, be put through the appropriate recycling channels.