Hot Iron!

KLEIBERIT Builds Up a New Market Segment with “HotCoating”
A first glance, adhesives and surface coatings do not have much in common. The requirements placed on an adhesive for bonding materials together and on a surface coating, which is uniform, smooth or structured and more or less hard, contradict each other. Nevertheless there is a connection, or to be more precise, a company, who has made the connection. Klebchemie M.G. Becker GmbH, better known as “Kleiberit”, located in Weingarten Baden, created a sensation as adhesives specialists with their “HotCoating” - a new process for surface coating. It connects the characteristics of EVA hotmelt adhesives and PUR adhesives for a surface coating process with new, specifically adjustable properties including hardness/softness, gloss levels ranging from mirror finish to super matte, exterior use, pigmentation, etc. This process also offers new, interesting economical perspectives in regards to costs.

Managing Director and Shareholder, Klaus Becker-Weimann, already had the concept over 30 years ago and with the introduction of an irreversibly curing PUR adhesive with extremely good adhesion and universal application, Kleiberit became a leading manufacturer of this high quality adhesive and created the foundation for their position in the market today.

Next was the vision of a new surface which adheres to materials like an adhesive on one side and has the properties of a lacquer on the other side. Implementation began a good ten years ago and was first presented to the public at LIGNA 2001. Today “HotCoating” is in the market introduction phase. The editorial staff of Surface Magazin accepted an invitation to Weingarten to give readers a firsthand update on this interesting new surface. In addition to Klaus Becker-Weimann, Holger Scherrnbacher (Division Manager Construction and Furniture Adhesives), Dr. Peter Wulzinger (AWETA Manager Wood) and Peter W. Mansky (Marketing Communications Manager) also participated in the discussions and demonstrations.

Success – first large line started

A development project over the course of ten years, as was the case with “HotCoating”, is hardly imaginable at a large company. Klaus Becker-Weimann procured and provided all necessary resources on a long term basis, and without his belief in the marketability of this product, this sort of project would have been unthinkable. This also impacted the motivation of the 6 person development team and the construction of a new R&D wing in 2008/09 for 30 employees. The R&D building sets new standards with highly flexible furnishings, moveable walls, glass vaulted roof as a daylight lab and a total of four coating lines, including a complete 18 m Barberan “HotCoating” line.
length of this development project was not foreseen in October 2000. Nevertheless, there were continuous, encouraging advances in development and the first presentation at LIGNA 2001 generated a lot of interest from users. After two years, approximately 80% of the project requirements were fulfilled and focus turned to the mandatory 100% solution. For the first 5 years “HotCoating” was a solution for parquet and since 3 years for veneer. Last year all development goals were reached and market introduction began with comprehensive presentation at LIGNA 2011. The first awards (“Innovation Prize”) followed at Fimma/Maderalia in October in Valen-
cia and was awarded together with their project partner on the machinery side, Barberan, who installed a complete line at the exhibition. The first orders also came in 2011 – a line at a large Turkish wood material manufacturer was commis-
sioned in May 2012 and has capacity of 10 million m² per year. The line successfully passed the test run at Barberan prior to commissioning and is part of a large investment, including a clean room, for the production of high quality high gloss surfaces.

**Comprehensive Field of Application for “HotCoating”**

As of today, several lines have been sold and even more are projected. Kleiberit in Weingarten has about 200 projects relating to “HotCoating” coating. It approximately 1.4 million m² of such surfaces were produced in 2011, then the amount in 2012 has increased tenfold according to Klaus Becker-Weimann’s estimation with significant growth over the next years. Capacity purchased up to now is in the noted two figure million m² area. Quality, efficiency and versatility speak for the new process. Interior and exterior applications are possible and due to PUR components, nearly every material can be coated two dimensionally. And now some words regarding the cooperation between Kleiberit and the Spanish ma-
chine manufacturer Barberan which could be surprising given the proximity of several German machine manufacturers who could be considered as candi-
dates. This constellation which has proven to be very construc-
tive and goal oriented is based simply on the low interest of German machine partners in a cooperation. At LIGNA 2007 Barberan presented 4 lines in the first series with 2 being sold to external customers. The HotCoating system currently has more than ten technical patents. However, these do not apply for the formulation where Kleiberit’s time advantage, know-how and confidential-
ity regarding the composition are more important. It is a very complex chemistry with more than ten single components which can hardly be analyzed or readjusted. For a patent application, the process has to be disclosed which is not in their own interest. No other parties are included in the project. Even the development of the required UV end lacquer as a tailored system for final application of 10 g/m² (curing protective layer and gloss rate specification for “High Gloss”) took place exclusively in Weingarten for a year and a half in advance. Various test series were required to develop a new product here as well – the new lab offered the required infrastructure. The lab is naturally not just designed for “HotCoating”, but also as a problem solver for both internal and external matters. The lab is frequently visited by differ-
cent customers. Klaus Becker-
Weimann proudly points out the fact that so far all customer material could be successfully used to create surfaces – up to now there has not been an unrealistic customer request.

A fact that supports the good image of the company in the market and the industry as well as the reputation as one of the most innovative adhesive manu-
facters in Germany.

**Ironed-On Surface Quality**

The introduction of an innova-
tive surface with new possibili-
ties is fitting. To quote Holger Scharenbacher, metaphorically speaking, this is a surface similar to a PET bottle without white break. The new possi-
ibilities include production of high gloss surfaces with a gloss levels over 90 (60° angle) in one application step without sanding and including level-
ing/filler function. This type of surface, which has just recently become very popular, is one of the main target applica-
tions in Kleiberit development. Melamine decorative panels can be easily and efficiently enhanced with HotCoating. Intensive panel preparation or sanding is not required for varying panel dimensions so there is no generation of waste. The coating line has a small machine footprint, the principle and process is amazingly simple – similar to the everyday task of ironing. Three rollers are needed to apply the solid, meltable HotCoating material: the first is a smooth heated roller (approx. 150°C inside) to ensure uniform melting and

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**High Gloss**

Glossy Solutions from the World of KLEIBERIT Adhesives

Laminating high gloss foils and bonding onto transparent material with KLEIBERIT PUR hotmelt adhesives

High Gloss Finishing with KLEIBERIT HotCoating

Visit us at the KLEIBERIT Technical Center in Weingarten and test your material under production conditions.
material flow to the nearby second silicone coated applica-
tion roller. The third steel roller moves in reverse for uniform
distribution of the HotCoating film on the substrate. From the
quality perspective, this process is similar to molding. Origi-
nally a cooling conveyor was envisaged for the smoothing
process which led to adhesion problems among other things.
It turned out that cooling was not required since the “iron effect” was effective. Therefore
application of a very thin layer of UV lacquer TopCoat can be
immediately applied afterwards. The “iron effect” was
also reasonable due to the high impact strength of the
lacquer, high gloss foils or transparent foils. Depending on quality, avail-
ability and purchasing price of the materials to be coated in
various countries and the desired HotCoating system/ effect, cost savings of 25% up
to 30% can be realized. The development team in Weingar-
ten is convinced that the high adhesion on materials such as
melamine qualifies the Klei-
berit development as the only
reasonable coating process for
this large sector.

The investment costs are also reasonable due to the
compact technology of the
costing line (between
600,000–800,000€). XXL
lines with sanding in between
are approximately 1.5 million
€. Additional economic factors
to consider include operation
ings (energy, maintenance,
metal, personnel) – there is a
lot of potential here. Users with
2400 mm lines have reported
lines speeds of maximum
60-80 m/min for processing
furniture panels and increased
speed is imaginable.

The fields of application for
HotCoating is immense due
to universal use in interior and
exterior (consider every UV
lacquer here) applications.

Current target industries include
the furniture industry, panel
producers, wrappers, cork/
parquet/laminating flooring
producers, paper and techni-
cal coatings with their specific
products. In addition, linoleum,
PVC technical coatings for
building components (such as
slip-free surfaces) or top/base
coats for digital print. The last
mentioned possibility shows
that new technologies make
new and modern fields of ap-
plication accessible.

The time is right for HotCoat-
ing. The team in Weingarten
is sure of it and looks forward
to working with customers from
various industries and parts of
the world. When customers
visit the main office, they are
usually welcomed and hosted
in their native language – they
should feel comfortable and
experience an efficient stay. A
remarkable statement from a re-
markable company. The motto –
every new customer is a new
project and improves the qual-
ity – 3D applications have not
yet been realized. Develop-
ment work is ongoing with elas-
tic rollers – the breakthrough
for the nontrivial solution must
still be made. The broad use
by the current HotCoating
generation will surely provide
inspiration for new quality and
equipment technologies.
Supply can be guaranteed. The
production process is
complex with their own pro-
cess. The line currently in use
could create approximately
40% more with shift expan-
sion. A second line has been
purchased and a third is being
planned.