





Technocell

PAPER SOLUTIONS FOR INKJET DECOR PROCESSES

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OUR BUSINESS IS NOT ONLY DEFINED BY OUR PRODUCTS

PRESENTER



Name: Rick van der Zwan

Position: SVP Digital Solutions Technocell

CV:

- *since 1995 Schoeller Technocell in different positions*
- *1992 – 1995 Wood based Panel Industry*
- *Before 1992 Researcher*

Education:

- *Wood and Fibre Technology MSc.*

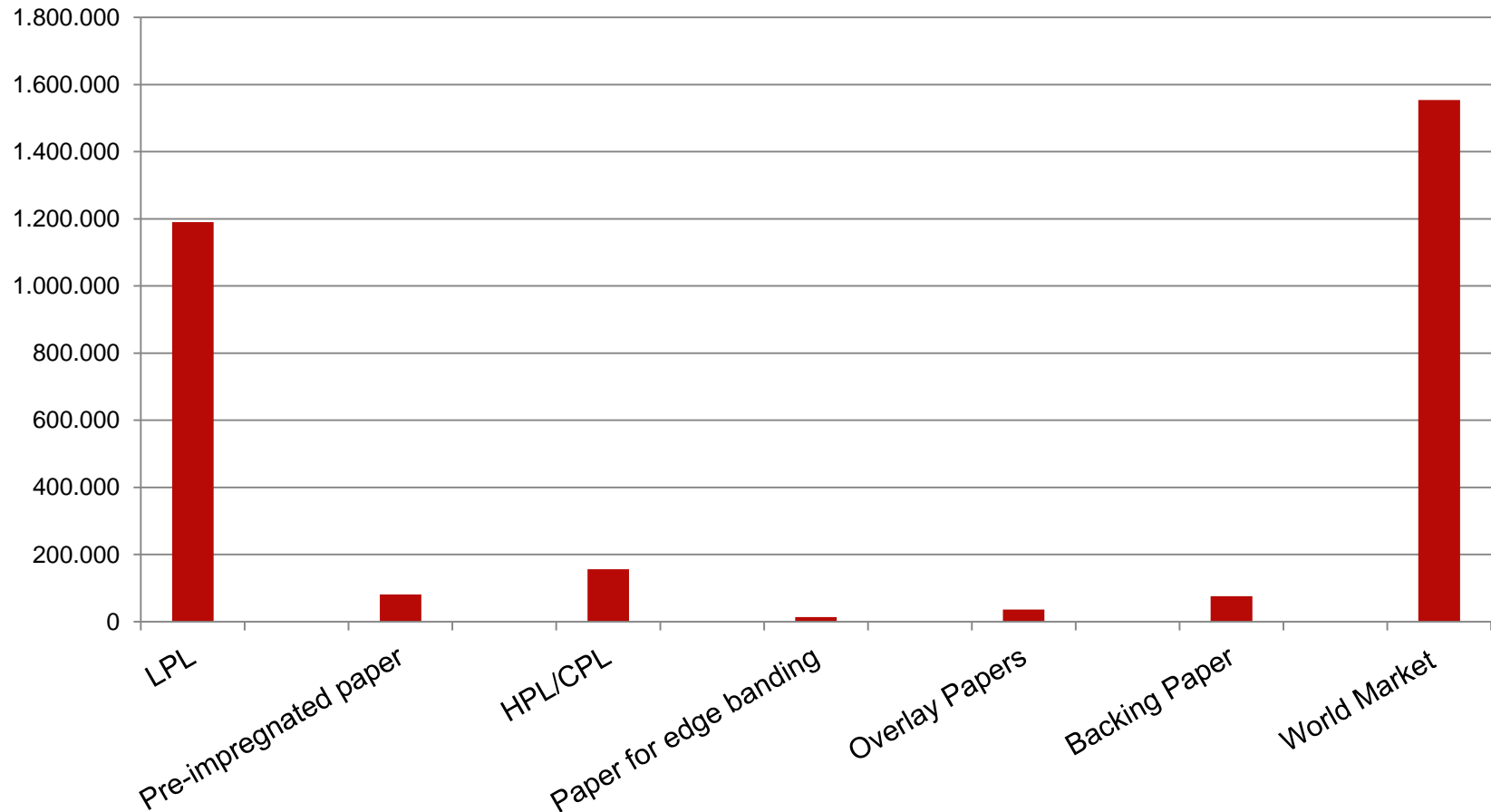
NAME GOAL OF THE MEETING WHICH IS REFLECTED BY THE OUTLINED AGENDA.

AGENDA

1. Decor paper market
2. Requirements in inkjet printing processes
3. Paper grades and characteristics
4. Further developments

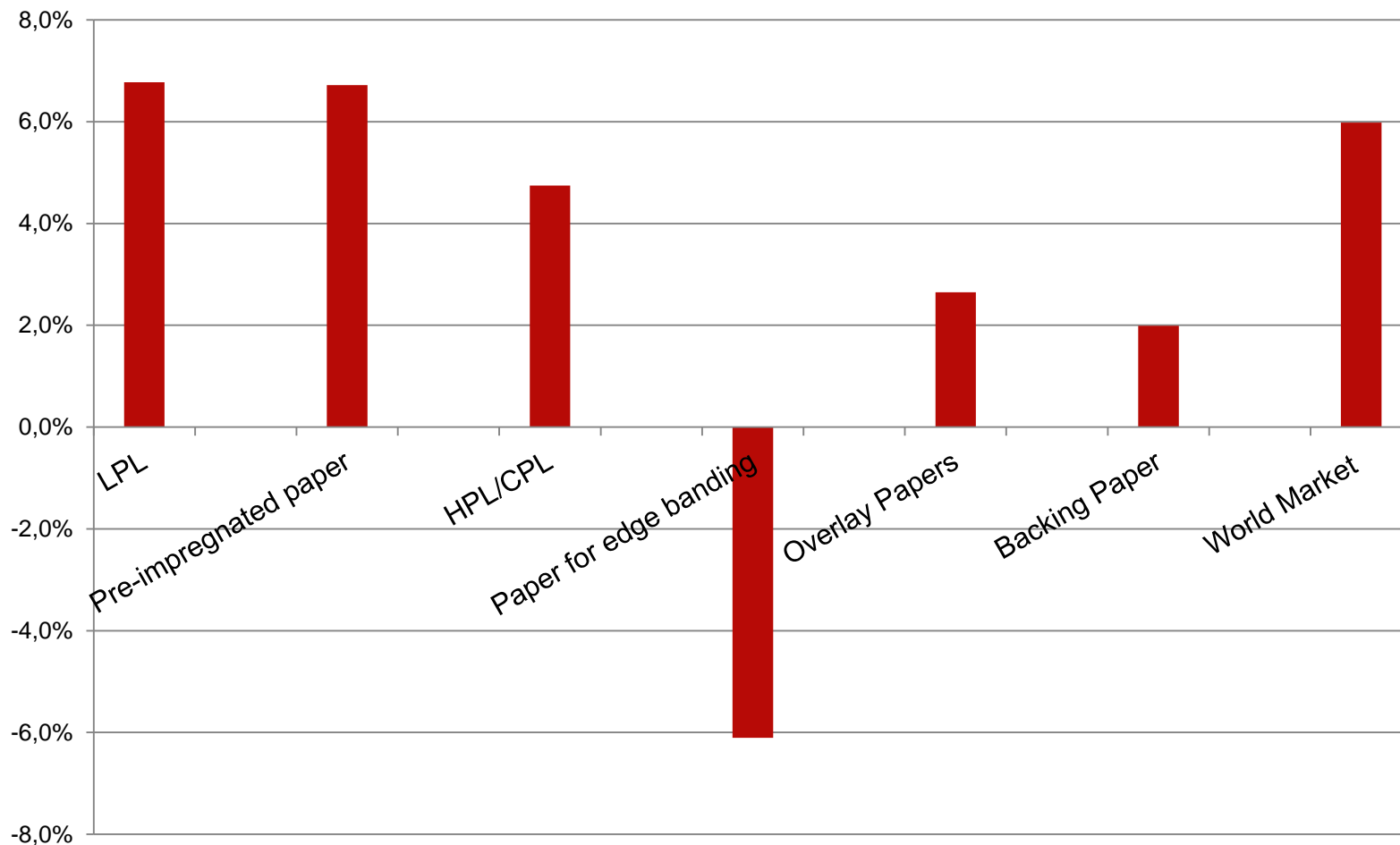
THE WORLD MARKET IN DECOR PAPERS IS DOMINATED BY LOW PRESSURE LAMINATES (PRINTED AND SOLID COLOUR)

Volume 2017 [tons]



LPL AND PAPERFOILS REPRESENT THE LARGEST GROWTH RATE.

CAGR 2010 - 2022



THE WOOD PANEL INDUSTRY HAS SPECIAL REQUIREMENTS TO INDUSTRIAL INKJET.

INKJET PRINTING EQUIPMENT FOR MELAMINE APPLICATIONS

Technical and process requirements for inkjet in wood working industry:

- Width up to 2.25 m. (“4 or 5 ft.” / HPL and “7 ft.” /LPL)
- Decor paper as substrate:
 - High filler content and as a consequence low fibre content
 - Compared to e.g.. graphical and photo papers: low basis weights and relatively low strength
 - Surface dusting due to high filler content
- After printing there is the start of a chain of processing steps:
 - Impregnation with resin
 - Pressing (Lamination)
 - Processing of laminated boards
- Inks compatible to Melamine impregnation
- Roll to roll Printing for further processing
- Coloured base papers (cross cuts in tone and ink efficiency)

ROLL TO ROLL SINGLEPASS INDUSTRIAL INKJET PRINTING

SEVERAL MACHINES HAVE ENTERED THE DECOR PAPER WORLD

- Schattdecor uses a Palis machine in 225 cm width (160 m/min)
- Interprint prints on a KBA Rotojet of 168 cm width. (150 m/min)
- Impress made the start up with a KBA machine with 225 cm width. (150 m/min)

These are printing systems with aqueous pigmented inks

For skirting and framing and some other applications singlepass systems with UV-curing inks are also in use. Major suppliers of such machines are Hymmen and Durst

Palis = Padaluma Inkjet Solutions
KBA = Koenig & Bauer

MACHINES WITH AQUEOUS INK CAN PRINT ON VARIOUS INKJET PAPERS.

PRINT SYSTEMS

Singlepass



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PRINT SYSTEMS

Singlepass



KBA RotaJet225

OUTPUT PER YEAR PER SINGLE PASS MACHINE IN FULL WIDTH IS COMPARABLE TO ANALOG MACHINES.

COMPARISON ANALOG VS. DIGITAL

- Single pass printing machines have a lower line speed than rotogravure machines
- The down time of inkjet machines is much less than that of rotogravure machines.
- The result is a comparable output in tons per year
- The reality may be different due to different designs and lot sizes in analog and digital processes and work flows

INKJET DECOR ACTIVITIES HAVE STARTED MANY YEARS AGO

THE FIRST DIGITAL PRINTING ACTIVITIES IN DECOR WERE SPECIALTIES

- Specialties in very low volume and highest image quality (Premium inkjet décor quality). Often for HPL products
- Proofing
- World wide there are many hundreds of tons décor printed on large format printers. This market is also still growing. The décor patterns seem to be for a minor part wood grains

Next phase :

- Proofing, design and sampling
- Traditional decors (mainly wood grains) in small lots
- New decors in big lots

INKJET DECOR PRINTING IS NOW ESTABLISHED

MACHINES, PAPERS AND INKS ARE AVAILABLE

Industrial (Single pass) printing is characterised by high capacity machines.

As a consequence:

1. Current decors in larger volumes and
2. Marketing push for a wider variety of decors (e.g. at the Interzum large stone decors)
3. Design separation between rotogravure patterns and inkjet printed patterns/
Expectation: hardly mixture of patterns/ decors in both technologies

FOR CURRENT DECORS THE PAPER SHOULD BE QUITE SIMILAR TO CONVENTIONAL PRINT BASE PAPERS FOR ROTOGRAVURE

CONVENTIONAL PAPERS CANNOT BE PRINTED BY INKJET

- Industrial manufacturing requires the right paper for every application
- Highly professional and efficient processes.
- Not too much adaptations and experiments can be accepted. Optimisations are normal industrial practice.
- Papers should be available in a few base colours

- One cannot expect, that adaptations for inkjet won't have any influence on the general specifications, but they are relatively marginal when we refer to IJ-DEKOR® standard of Technocell.

IJ-DEKOR® STANDARD FOR INDUSTRIAL PRINTING PROCESSES

AN IDEAL PAPER FOR AQUEOUS INKS, AVAILABLE IN A RANGE OF COLOURS



Benefits & Properties

- Wide variety of colors
- High color density
- Very good adhesion
- Good line and dot sharpness
- High light fastness
- Good opacity
- Good impregnation
- High temperature stability
- Certified FSC

Colour Range

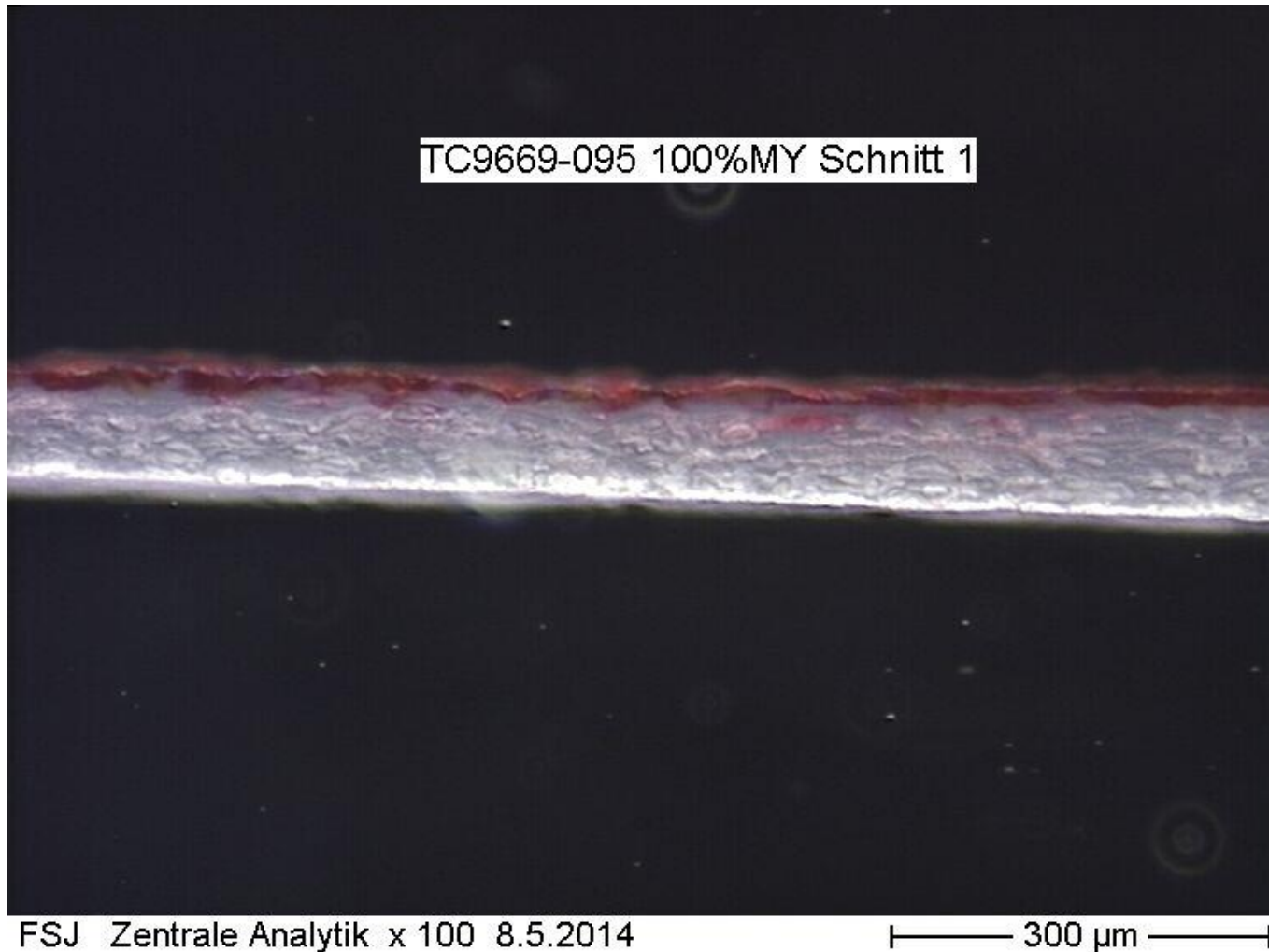
- White
- Beige
- Brown
- Grey

Applications

Suitable especially for industrial applications in single-pass and multi-pass printing machines with the use of water-based, pigmented inks. In further processing the paper behaves like conventional decorative paper

THE INK REMAINS IN THE UPPER LAYER OF THE FIBRE MASS.

IJ-DEKOR® STANDARD IN PRACTICE



PHOTOGRAPHIC IMAGES, OR PATTERNS WITH INTENSIVE COLOURS REQUIRE A SPECIAL COATED PAPER

HERE WE REFER TO IJ-DEKOR® PREMIUM

- If after printing a clear final image is required (in décor applications the image is evaluated generally after lamination) e.g. to keep the time of matching as short as possible, a special coated paper is advantageous
- These papers are fully appropriate for resin impregnation
- Practically these papers are also used for extremely small jobs like individual designs
- The premium paper can be printed with a wide variety of inks.
- They are available in a couple of colours.

IJ-DEKOR® PREMIUM FOR EXCELLENT IMAGES

AN IDEAL PAPER FOR IMAGING AND INTENSIVE COLOURS



Colour Range

- White
- Light colours
- White edge banding

Benefits & Properties

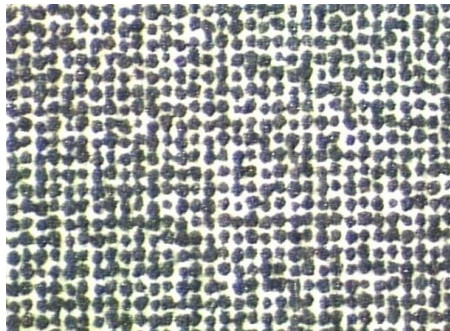
- Variety of colors
- Excellent color density
- Very good adhesion
- Optimal line and dot sharpness
- High light fastness
- Good opacity
- Good impregnation
- High temperature stability
- Certified FSC

Applications

Suitable especially for the contract business
Universal paper for all ink systems.
Photo quality

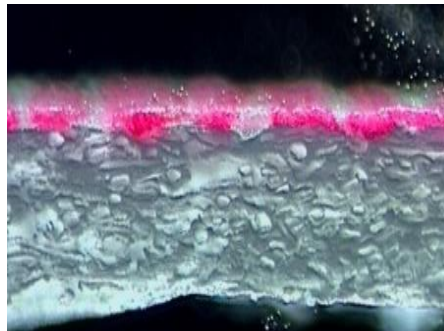
IJ-DEKOR® PREMIUM MEANS HIGH END PRINT QUALITY

Digital printing



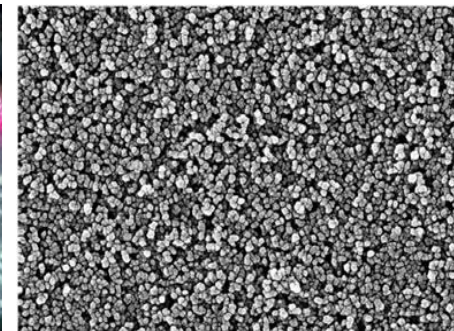
High resolution is possible
(depends on print technology)

Colour receiver layer



Ink embedded in top layer

Surface

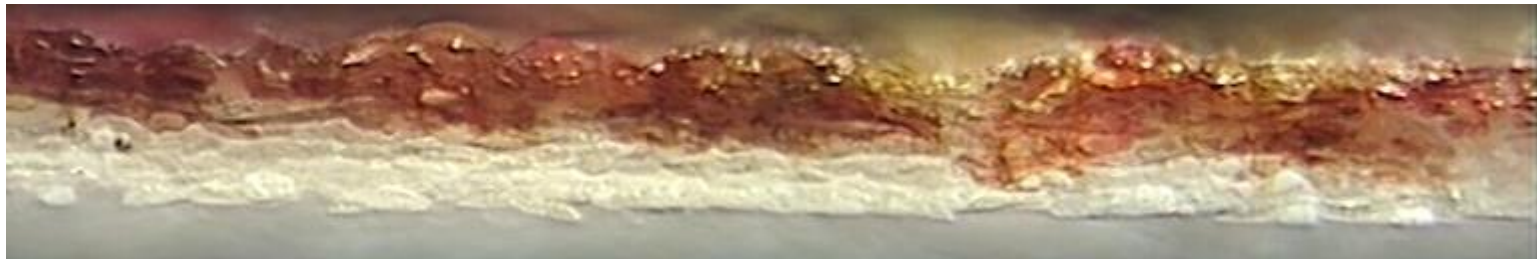


Good ink absorption and open for resin penetration

ONE PAPER IN THE FAMILY OF IJ-DEKOR® IS A PURE FIBRE WEB TO CATCH THE INK

IJ-DEKOR® PURE

- This paper contains no titanium or other fillers that cover the substrate optically
- Therefore the paper becomes transparent after lamination
- The paper is just a carrier for the ink and resin
- The application is anywhere, where base colour or opacity is not required or these characteristics are given by other layers



The pigments are retained in the upper part of the thin paper

IJ-DEKOR® PURE TO DESIGN SUBSTRATE SURFACES

AN IDEAL PAPER FOR REDESIGNING SUBSTRATES



Benefits & Properties

- Transparent after lamination
- Very good processing
- High light fastness
- Good impregnation
- High stability
- Certified FSC

Range

- Transparent after lamination
- Colourless
- 50 gsm

Applications

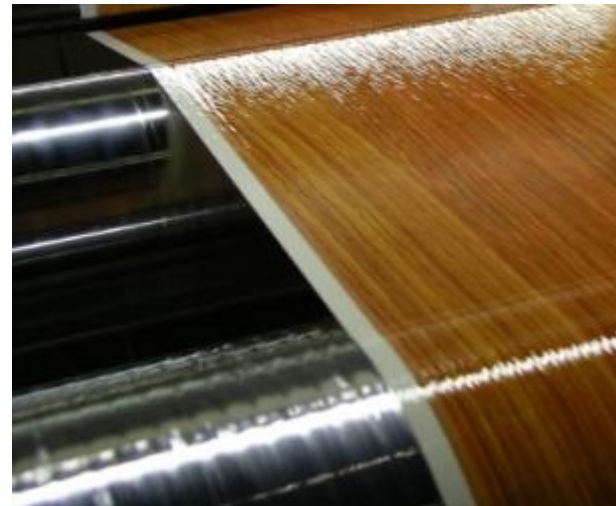
Suitable as pure print layer to be laminated with opaque coloured underlay.

Redesigning natural veneers

Outdoor applications

IJ-DEKOR® PREMIUM, IJ-DEKOR® STANDARD AND IJ-DEKOR® PURE ARE MEANT FOR RESIN IMPREGNATION

- With this portfolio of papers and paper products most laminate applications can be covered. This refers to large scale operations with single pass equipment as well as for small scale specialised products that were printed on multipass printers.
- Inkjet decor papers are adapted to the inkjet technology and they are still decor papers



FOILS ARE APPLIED IN SKIRTING, PANELS AND FURNITURE PARTS

IJ-PRIP®

- Preimpregnated papers are being printed and lacquered before application onto the substrate.
- These papers are also available for inkjet printing with a wide variety of ink types.
- From Technocell this material is known as IJ-PRIP® in a small range of colours.

IJ-PRIP®, THE BASIS FOR BEAUTIFUL PAPER FOILS

AN IDEAL MATERIAL FOR CREATIVE FURNITURE



Colour Range

- White
- Light and moderate colours

Benefits & Properties

- Excellent color density
- Wide variety of inks
- Very good adhesion
- Optimal line and dot sharpness
- High light fastness
- Good opacity
- Easy lacquering
- Good internal bond
- Simple lamination ability formaldehyde-free
- Certified FSC

Applications

Universally applicable as conventional foil with a very good process ability and suitability for all ink systems .

CHOICE OF PAPER

CRITERIA FOR THE RIGHT PAPER ARE E.G. THE FOLLOWING

- Application of the product
- Technical restrictions and requirements
 - Décor design
 - Required resolution
 - High or low ink load
 - Type of ink
- Base paper colour
- Available Hardware
- Amount of boards or laminate sheets in the order
- Economic aspects

THE MARKET DETERMINES OUR WORK

TECHNOCELL WILL CONTINUE DEVELOPMENTS

High lights in development are

- Papers for UV curing inks
- Lower substance weights
- Colour optimisation
- Steady optimising of printability and processing

THE MAIN APPLICATIONS OF IJ-DEKOR® ARE THE SAME AS CONVENTIONAL DECORATIVE PAPER.

APPLICATIONS

- furniture
- fronts
- surfaces
- flooring
- skirting
- window sills
- kitchen
- counter tops
- table tops
- panels
- doors
- bathroom surfaces
- commercial and domestic interiors
- cruise ships
- signage
- caravans
- individual design of surfaces in small or very small lot sizes



SUCCESSFUL INDUSTRIAL PRINTING

WE OFFER THE BASIS



