

mokka

Sappi's Mokka texture is a fantastic Nubuck type grain that redefines the perception of what is possible with release paper. Attaining the desired visual and tactile properties requires a focused attention to detail and optimized manufacturing conditions. Mokka is a new class of release paper and will require a modified set of operating parameters and expectations. While by no means unattainable, this tip sheet highlights key process and chemical variables.

Selecting the right paper:

Customers using single component PU adhesives, semi-PU and PVC constructions should select Ultracast Universal Mokka release paper. Customers who are using cross-linked two-component PU adhesive materials should select Ultracast Adva Mokka release paper for their application.

Pinholes / Wetting:

The micro structure of the Mokka texture can exaggerate pinholes and wetting defects in the first skin. The most obvious visual indication of pinholes or skin coating defects is the presence of small glossy points that sparkle in an otherwise matte surface. These defects are most easily seen under bright direct lighting.

To minimize entrapped air and pinholes we recommend the following

- Use a very low viscosity preskin (<800 cps)
- Low volatile solvent (DMF) should be the dominant solvent in the skin formulation, check for water content in solvent and minimize if present.
- De-aerate materials prior to use
- Reduce temperature ramp rate in first oven to prevent premature film formation
- Apply heat primarily from back side of the web in the first oven
- Wetting agents in first coating
- Reduce coating speed
- Pre-curing the paper by dry passing it at temperatures of 160C will raise surface energy and improve wetting.
- Employ backing dams in coating heads (Figure 1)
- *Without a back damn, the pond of liquid plastic is constantly rolling, falling over onto the running release web, trapping air as it falls. With a back damn, this rolling motion is eliminated and the chances of trapping air are greatly diminished. The higher the pond is kept, the more pressure is exerted at the interface with the paper and the less air will slip under the back damn.*
- Tilt the knife towards the backing damn to increase hydrodynamic pressure (Figure 1)

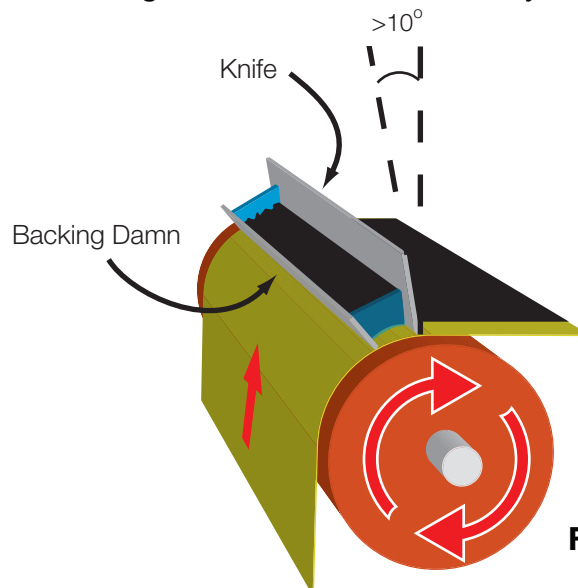


Figure 1: Recommended coating head configuration.

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Release:

Release is directly related to surface area of the release paper, chemical interactions between the cast film and the release paper and the speed at which the cast film is removed from the release paper. The Mokka texture has a very high surface area which is required to provide the hand feel and color depth. This fundamentally increases the release force compared to simple shallow textures.

Minimizing chemical interaction towards the release paper is critical, especially when using reactive two component (NCO or melamine crosslinked) PU adhesives.

- Eliminate pinholes as they negate the barrier properties of the skin
- Apply the adhesive 0.5 cm narrower than the skin.
- Reduce residual solvent levels post substrate lamination prior to off machine aging to reduce skin resolution.

The modulus (stiffness) of the PU or PVC coatings will influence the apparent release force. Softer urethanes and higher plasticizer content PVC's will result in harder release. Sometimes this is unavoidable to meet targeted design properties but it is important to realize the softness of the cast material is a component in the release equation.

There are some basic rules regarding stripping station configuration that apply to all release papers but the nature of the Mokka texture magnifies the need to adhere to the following recommendations, Figure 2.

- Always strip the plastic from the paper – not the paper from the plastic
- The forces generated at the point of strip are directly proportional to the stripping speed; therefore if releasing offline keep machine speeds under 15 m/min
- Strip the cast film from the release web at as high an angle as possible (135° or greater)
- Ideally the coated fabric should be cooled to room temperature prior to stripping as release force is dependant PU / PVC modulus (stiffness) which is also temperature sensitive

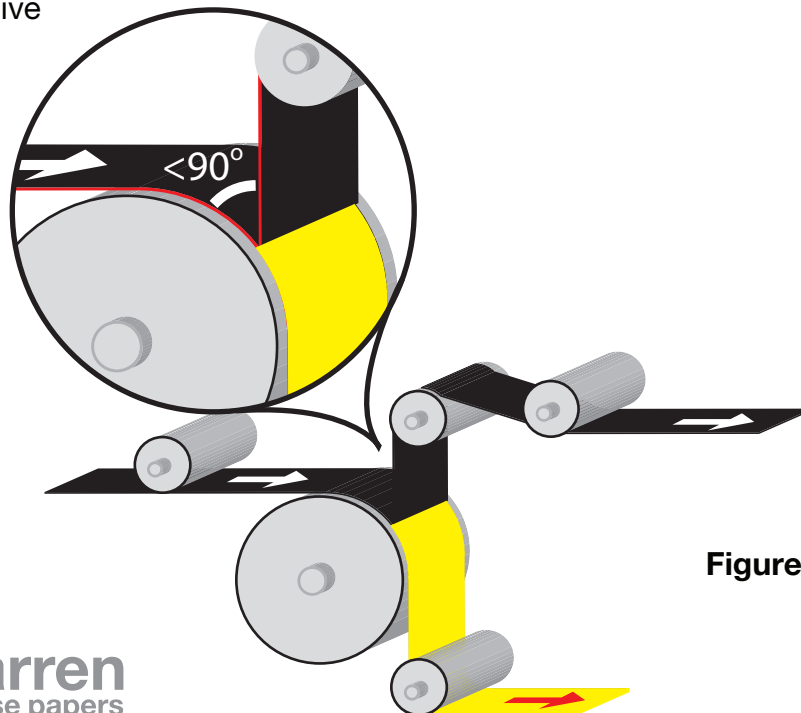


Figure 2: Recommended stripping station configuration



Release paper staining:

The Ultracast product line is very resistant to a wide range of dyes and colorant systems. Users may see a residual image of the cast material on the Mokka RP after use. This is not staining but residual PU or PVC that has not been released. The Mokka texture has a higher level of foam cavities compared to other textures in our lineup and it is these voids that are trapping cast material. The size of these voids is very small and not discretely visible without optical magnification; thus it appears the paper is staining. This is a normal characteristic of the Mokka RP and is not a product or process defect. This may limit the color flexibility of a roll of Mokka and thus we recommend light and dark colors be manufactured on dedicated rolls of RP.

It is possible to minimize potential color migration upon subsequent passes with the use of a clear pre-skin followed by a pigmented skin or adhesive. This is not an effective method for black coated fabrics as pigment is required in both the skin and adhesive for maximum black character.

Recommended Formulation:

We have successfully produced multiple coated fabric manufacturing runs using the Mokka release paper, examples of which can be seen in our Spring/Summer 2011 Trend Books. The formulation we used for these productions runs is as follows.

Skin:

Stahl Ex 55-959	100.00
DMF	10.00
Black pigment	15.00
IMAsil 20	2.00

Knife over rubber roll coating head.

Adhesive:

IMApur 5105 OCS type	50.00
IMA PHT-14 Pull-up	50.00
DMF	15.00
Noresil S 900	0.15
Black pigment	15.00

The product was dry laminated to Soteco's Elastina substrate