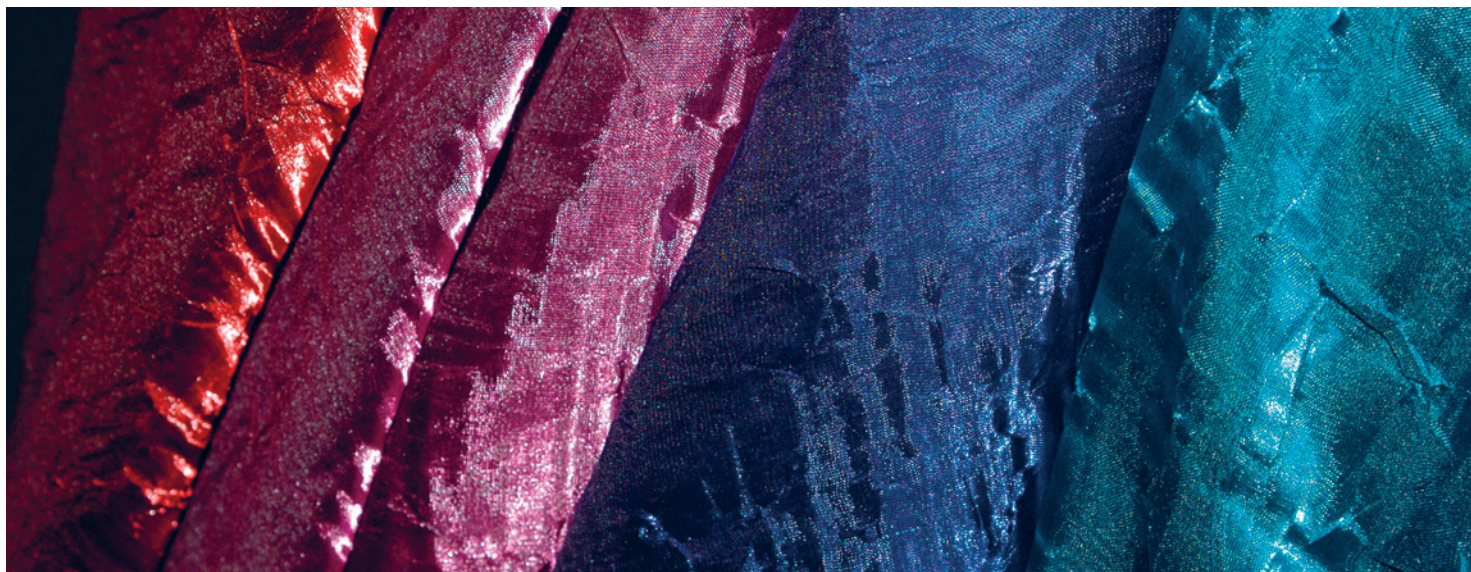




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## // PU SPECIALTIES FOR LAMINATION //

### Adhesive for lamination

#### Waterborne Polyurethanes adhesives for textile transfer coating

Many different techniques for textile coatings have been developed covering a wide range of substrates with differing characteristics. They all have the same objective: to produce a uniform and stable coating with the desired thickness and with good adhesion to the fabric surface.

Textile coating can be direct or indirect (transfer coating).

In the former, coating is directly applied on to the fabric, whereas in the transfer process the coating is applied to a temporary support (release paper) with a subsequent lamination step, in which the film is brought into contact with the textile substrate and detached from the temporary support.

### The Textile Institute

The Textile Institute defines a laminated or combined fabric as “a material composed of two or more layers, at least one of which is a textile fabric, bonded closely together by means of an added adhesive, or by the adhesive properties of one or more of the component layers”.

Adhesive is the critical application needed to bond the fabric to the component layers. This bond must be strong enough to resist any deterioration arising from normal wear and tear and repeated laundering.

To produce some special effects and different finishing characteristics a single direct coating process cannot always achieve the desired result and a lamination process is used, often referred to as “Reverse Coating”. This transfer lamination process is used most frequently on garment and synthetic leather production.

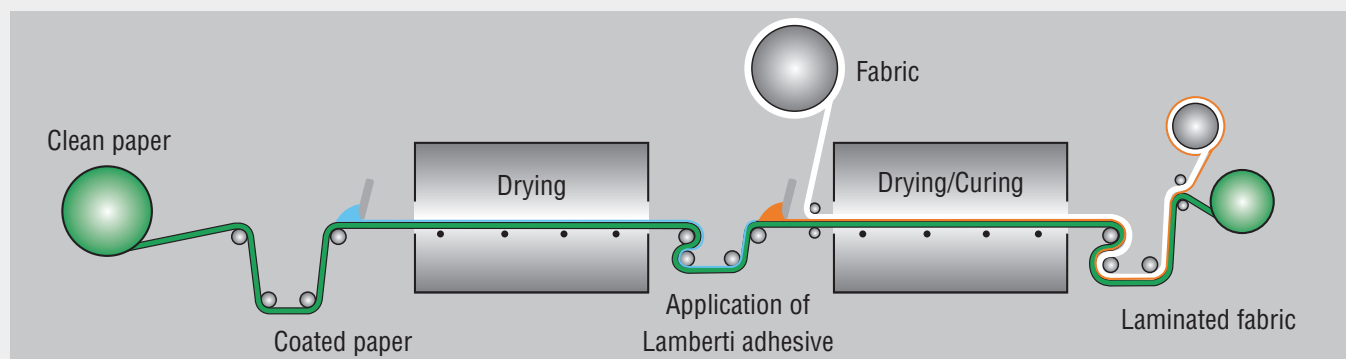
This reverse transfer coating process is distinguished by two types of coating: wet transfer coating and dry transfer coating.

#### Wet transfer coating

Wet adhesive is applied onto the lamination coating already prepared on the silicone release paper which then passes through pressure rollers, dried and cured in an oven and finally detached from the release paper.

#### Dry transfer coating

Wet adhesive is applied onto the lamination coating already prepared on the silicone release paper and then dried in an oven.





This multi-layer of coating and adhesive is then completely transferred onto the fabric by passing through heated calender rollers where thermo-reactivation of the adhesive ensures a good bond with the fabric.

A selection of waterborne polyurethane products from the ROLFLEX® range were chosen and tested to illustrate their adhesion properties in both the wet and dry transfer process. In the dry transfer examples illustrated below the fabrics were

tested at 3 different calender temperatures (110 °C, 130 °C and 160 °C).

Different fabric substrates were selected including Polyester, Polyamide and a Coagulated Solvent based PU substrate. In all tests ROLFLEX® BK9 catalyst was used in the PUD formulations. Adhesion tests were carried out on all products tested after the transfer process and one domestic machine wash of the fabric. The results are illustrated in the tables below.

### Wet lamination

Product	Film	Printing	Direct coating	Roll coating	Wet lamination	Note
ROLFLEX® ADT 7	Very soft		•	•	Very good	All round
ROLFLEX® DAK 07	Very soft		•	•	Very good	All round
ROLFLEX® ZB 7	Soft	•	•	•	Good	Transfer
ROLFLEX® T 63	Soft	•	•	•	Good	PVC
ROLFLEX® T 74	Medium rigid		•	•	Good	PVC
ROLFLEX® HD 17	Medium rigid		•	•	Good	High solid

### Dry thermo-reactivated lamination

Product	Film	Printing	Direct coating	Roll coating	110 °C	130 °C	160 °C	Note
ROLFLEX® DAK 07	Very soft		•	•	Very good	Very good	Very good	
ROLFLEX® K 110	Very soft		•	•	Good	Good	Moderate	
ROLFLEX® K 80	Medium rigid		•	•	Moderate	Moderate	Good	Very good for metal lamines, poor on PAM
ROLFLEX® BZ 78	Soft	•	•	•	Poor	Poor	Good	
ROLFLEX® ZB 7	Soft	•	•	•	Poor	Poor	Good	



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