

Product and application flash

Water soluble powder adhesives

Introduction and application

In textile and apparel industry water soluble powder adhesives are used as a sewing means for the production of textiles. Especially for men's wear fusible interlinings for shirt collars, wristbands or jackets are pre-fixed with the help of a thermoplastic powder before sewing. In a second step after sewing the work pieces are "de-powdered". An indispensable characteristic of the thermoplastic powder demands very good water solubility. During a cold wash the pre-fixed thermoplastic powder can be washed out of the fabric. After this procedure, the fabric can be stained if required.

Schaetti Fix 228V

With Schaetti Fix 228V we offer a water soluble thermoplastic powder on the basis of polyvinyl acetate which shows best adhesion values already at 100°C. The physical data of SF 228V are listed the following table:

	MFI 120/190 °C (g/10 min)	Density g/cm ³	DSC (°C)	TMA (°C)	Kofler on/off (°C)	Sintering (°C)	Water solubility (10 wt% at 22 °C)
228V	2.7 / 260	1.18	55-65	96.5	80..102	130	very good

Table 1: Physical characteristics of SF 228V

Application

SF 228V is ideally used with powderdot or scatter coating in the particle sizes of 0-200 µm or 0-500 µm respectively. In the best case the powder is sintered onto the fabric for 2 minutes under an infrared oven heated up to 130°C. After passing a polishing or cooling calender the coated fabric can be rolled up. To fix the coated fabric with the upper fabric both substrates are passing a rotary press at a fixing temperature of 100 - 120°C, pressure 16 - 18 N/cm², time 15 seconds. Depending on the application weight and the used substrate we got adhesion values as shown in table 2.

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Fixing Temperature	Cotton/Cotton applied weight: 20g/m ² (N/5cm)	Cotton/Polyester applied weight: 20g/m ² (N/5cm)	Cotton/Cotton applied weight: 40g/m ² (N/5cm)	Cotton/Polyester applied weight: 40g/m ² (N/5cm)
80 °C	1.1	1.7	1.4	2.0
90 °C	1.9	2.9	2.9	3.0
100 °C	2.0	3.4	3.7	5.8
110 °C	1.8	2.0	2.9	4.6
120 °C	1.4	1.1	2.2	2.1
140 °C	1.0	0.7	1.1	1.1

Table 2: SF 228V/ powder scattered - adhesion depending on fixing temperature, substrate and coating weight

Results

SF 228V features good adhesion with a coating weight of 20 g/m² with cotton/cotton as well as with cotton/polyester laminates. The highest adhesion of 2.0 N/5 cm, respectively 3.4 N/5cm is achieved at a fixing temperature of 100°C. Doubling the coating weight from 20 to 40 g/m² results in adhesion values of 3.7 N/5 cm and 5.8 N/cm respectively. Our tests show the "best" fixing temperature at 100°C. Adhesion values decrease slightly, both – in increasing as well as in decreasing the fixing temperature. Generally it can be said, adhesion values of SF 228V are in an acceptable range with the best fixing temperature, shown in the above table.

Summary

SF 228V is a new water soluble one time fuser which is through its low melting range a successful further development of SF 699. Non-yellowing sintering of SF 228V is already possible at 130 °C. The bonding afterwards can be executed under standard conditions with a fixing temperature of only 100 °C. As a polyvinyl acetate derivate SF 228V dissolves in 10 wt-% solution in water at room temperature within short time. The used adhesive can be washed out residue-free in only one cold machine wash.

Schaetti AG supplies 228V in particle sizes of 0-200 µm and 0-500 µm from February 2009 on. Prices and delivery conditions are available on demand.

