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PROCESS OF APPLYING ADHESIVE TO A FLEECE FABRIC

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FIG. 1.

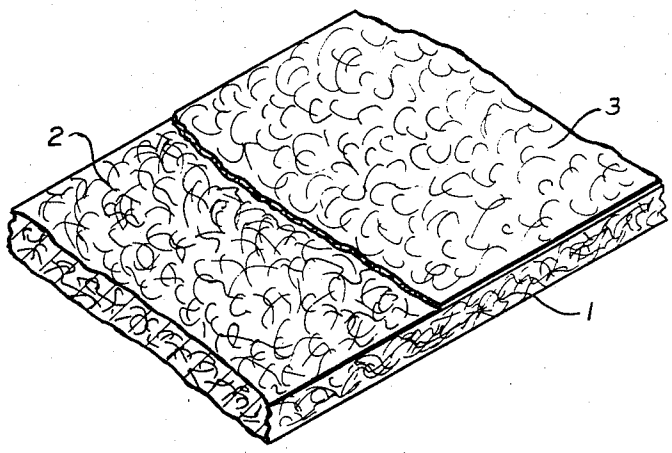
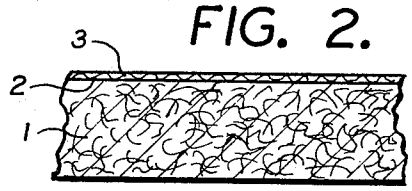


FIG. 2.



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PROCESS OF APPLYING ADHESIVE TO A FLEECE FABRIC

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U.S. Cl. 117—76 5 Claims

ABSTRACT OF THE DISCLOSURE

An adhesive is applied to the surface of a non-woven fleece, to make it suitable for use as an iron-on stiffening, by, for example, spraying a solution of the adhesive onto the surface and evaporating the solvent. To prevent penetration of the solution into the fleece, the fleece is impregnated with a small amount of oleophobizing agent, which causes the adhesive to be deposited on the surface.

In the prior art, articles of clothing have been provided with stiffening inserts to give them better shape and stability. Whereas some time ago horsehair inserts were used almost exclusively for this purpose, the so-called fleece cloths have been gaining in popularity. These are textile fiber sheet materials in which the fibers are joined to one another at their crossing points. As one of the numerous manufacturing processes, we shall mention only German Patent 920,211.

In order to eliminate the tedious task of sewing the stiffening fabrics into the garments, it has also been proposed to provide them with a powdered adhesive which softens when heated. In the case of the so-called iron-on stiffening fabrics, it is sufficient to lay the prepared interlining with the adhesive side against the fabric to be stiffened, and to pass a hot iron over it. Under the heat and pressure, the two fabrics are firmly bonded together. A process of this kind is known, for example, from German "Auslegeschrift" 1,146,028.

Attempts have also been made to apply polyamide to stiffening inserts as an adhesive. On account of the high melting or softening point of the polyamide, it is not sintered on, but instead, a solution of the polyamide, is sprayed on. In this manner, a coarse filamentary spray coating is obtained, or a fine, thin coating, depending on how the spraying is done, which, however, will partially penetrate into the interior of the fiber fleece on account of the high solvent content. Since the adhesive effect is produced only by those parts of the adhesive which are located on the surface, the spraying on of polyamide entails the above-indicated disadvantages, though it does have many advantages over the adhesive substances previously used. Thus, if excessively great quantities are sprayed on, the stiffening effect becomes so excessively great that the interlining materials become unusable for many purposes (bleed-through problems). If however, too little is sprayed on, the desired adhesive effect is insufficient.

If has now been found that the undesired penetration of solutions of polyamide and other adhesives can be prevented by treating the interlining with on oleophobizing agent. Particularly good results are achieved by the use of fluorocarbon resins, preferably in the form of non-ionic emulsion of such resin. The term "fluorocarbon resin" includes any fluor-containing organic compound which has been used already for oleophobizing textile material. The production of these fluor-containing

organic compounds is well known in the art. Reference is made only to U.S. Patents 2,662,835, 2,642,416, 2,592,-069, British Patent 759,356, Austrian Patent 209,309 or German "Auslegeschrift" 1,182,630. Whereas fabrics are generally oleophobized with fluorocarbon resins in such amounts that a weight increase of 6% results, quantities of as little as 0.25% suffice in the present case. The preferable amount will be 0.5 to 3%. Larger amounts will be detrimental because the adhesive will then not stick firmly to the base fabric.

When such small amounts are used, the oleophobizing effect is no longer present, so that the prevention of the penetration of the adhesive coating cannot be ascribed to the oleophobizing effect. It is more probable that the oleophobizing agents bring about an immediate coagulation of the polyamide or other adhesive from the solution. This coagulation occurs in the instant in which a polyamide droplet encounters the "oleophobized" surface of the interlining. The immediately coagulated polyamide then remains adhering to the surface. A similar effect occurs also when the polyamide solution is sprayed onto wet or moist goods because, as it is known, water has a coagulating effect on polyamide solutions. However, this effect is not to be compared with that which occurs when they are sprayed onto "oleophobized" material. The oleophobizing agent produces a much more pronounced effect than water.

EXAMPLE 1

A fiber bat, consisting of 50% polyamide fibers (3 deniers) and 50% staple rayon (3 deniers) and having a weight of 35 grams per square meter, is bonded with an acrylic resin dispersion (Acronal 30–D, a product of BASF) in such a manner that, after drying, it weighs 70 g. per m.^{2}.

This fleece cloth is saturated with a mixture consisting of 0.25% liquid Scotchgard Oleophobol P–68 in tap water, squeezed out to 100% wet absorption, and dried at 120° C.

On the fleece cloth thus prepared, 70 grams per m.^{2} of a 30% polyamide solution, consisting of:

	Weight-parts
Soluble polyamide (Ultramid 6–A, product of BASF)	32
p-Oxybenzoic acid derivative (plasticizer for the polyamide)	30
Methyl alcohol (solvent)	70
Methylene chloride (solvent)	30

is sprayed, and is dried at approximately 80° C. The resulting product has a coating that is entirely on the surface of the fleece cloth.

EXAMPLE 2

A fiber bat, consisting of 70% polyester fibers (Dacron) (2.5 deniers), 20% zellwolle (3 deniers), and 10% wool, having a weight of 40 g. per m.^{2}, is impregnated in two steps in a manner as described in U.S. Patent 2,719,806 with a latex (Perbunan N, a product of Farbenfabriken Bayer). After drying, the final product weighs 65 g. per m.^{2}.

This product is subsequently impregnated with a mixture consisting of 0.5% of a fluorocarbon resin as made according to German "Auslegeschrift" 1,182,630 in water, squeezed out to wet pick up of 100% and dried at 120° C.

On the fleece cloth thus prepared 60 g. per m.^{2} of a 35% PVC solution in tetrahydrofuran is sprayed and then dried at approximately 80° C. The resulting product is similar to that made according to Example 1.

An iron-on stiffening fabric according to the invention is shown in the drawing, wherein:

FIG. 1 is a perspective view of a fabric according to the invention; and

FIG. 2 is a side elevation, greatly enlarged.

Referring to the drawing, the fabric **1** includes the body portion **2**, which can be and preferably is a non-woven fleece, and the coating **3**, which coats the fibers of the fabric making up the upper surface of the fabric. The fabric is impregnated with the oleophobizing agent, and the adhesive is deposited on the surface, while the body portion of the fabric is substantially free of the adhesive. If desired, both of the surfaces of the fabric can be provided with an adhesive coating according to the invention.

Thus, the invention provides an improvement in the process for application of adhesive coating to a fabric surface wherein the adhesive dissolved in a solvent is deposited on the fabric and the fabric carrying the adhesive solution is dried to expel the solvent and deposit the adhesive on the fabric. The fabric is preferably a non-woven fleece, though it can be in another form such as a woven fabric. The solvent in which the adhesive is dissolved can be any of the known solvents for such service, and the amount of adhesive present in the solvent can be the conventional amount. The improvement of the invention involves applying to the surface of the fabric to which the adhesive is to be applied, an oleophobizing agent in an amount sufficient to coagulate the adhesive upon deposit of the solution thereof on the fabric, prior to substantial penetration of the solution to within the fabric. Preferably the fabric is impregnated with the oleophobizing agent in an amount of a fraction of 1% of the weight of the fabric. The solution containing the adhesive can then be deposited on the oleophobizing surface, whereupon coagulation occurs and the adhesive is deposited on the surface, without substantially penetrating the fabric.

While the invention has been described with respect to particular embodiments thereof, these embodiments are merely representative and do not serve to set forth the limits of the invention.

What is claimed is:

1. In a process for application of adhesive coating to a surface of a non-woven fleece, wherein the adhesive dissolved in a solvent is deposited on the fleece, and the fleece carrying the adhesive solution is dried to expel the solvent and deposit the adhesive on the fleece, the improvement which comprises applying to the surface of the fleece to which the adhesive is to be applied, an oleophobizing agent comprising the group of non-ionic fluoro-carbon resins in an amount of 0.5 to 5% by weight, based upon the weight of the fleece, and depositing the solvent containing the adhesive on said surface, said oleophobizing agent causing adhesive to be deposited from the solvent on said surface and prevenitng penetration of adhesive to below the surface of the fleece.

2. Process according to claim **1**, wherein the adhesive is a polyamide.

3. Process according to claim **2**, wherein said solvent is methyl alcohol and methylene chloride.

4. Process according to claim **1**, wherein the adhesive is a polyvinylchloride.

5. Process according to claim **4**, wherein said solvent is tetrahydrofuran.

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