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TEXTILE ADHESIVE AND METHOD OF USE

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ABSTRACT OF THE DISCLOSURE

Adhesive composition for temporarily adhering textile materials such as nylon stockings to the human skin, the composition being a solution containing an organic polymer, a plasticizer and a solvent.

This invention relates to adhesive compositions for textiles. More particularly, it relates to an adhesive system adapted for temporarily adhering textiles to the human skin.

The adhesive composition of this invention is designed so that it can be applied directly to the human skin under an appropriate garment or part of a garment such as male or female stockings or a shoulder strap to immediately but temporarily hold the garment or a part thereof in place without the use of additional supporting apparatus such as garters. The new composition is formulated so that no irritation or other harm is imparted to either the skin or the textile material. The bond obtained with the adhesive will generally last for a number of hours such as the normal wearing period for the particular garment involved. The bonded garment can at any time be readily removed with normal hand pressures and forces. Washing of the skin and textile item can be used for easy removal of all residues of the adhesive as desired.

The adhesive composition of this invention includes as essential ingredients a polymeric substance having the desired adhesive characteristics and a plasticizer that softens the polymer to enhance its adhesive characteristics. The polymer and plasticizer both must be non-irritating to the skin and provide a comfortable feeling when applied. Suitable polymeric substances include those materials having molecule weights in the range of 10,000–500,000 such as polyvinyl pyrrolidone, casein, vinyl methyl ether/maleic anhydride polymer, vinyl methyl ether/maleic acid monobutyl ester polymer, and vinyl methyl ether/maleic acid monoethyl ester polymer. Vinylpyrrolidone polymer with a molecular weight of 10,000 to 360,000 is particularly effective.

Useful plasticizers include organic esters and fatty alcohols. Examples of effective plasticizers include acetyl triethyl citrate, acetyl tri-n-butyl citrate, dibutyl phthalate, dimethyl phthalate, diethylene glycol, ethoxylated lanolin, glycerine, nonylphenol ethylene oxide adduct, oleyl alcohol, vinyl acetate and sorbitol.

Although certain alcohol-type plasticizers with relatively low boiling points can also act as a solvent, other adhesive systems have been found to benefit from inclusion of an additional solvent. Typical solvents include alcohols such as methanol, ethanol, isopropanol, 1,4-butanediol, propylene glycol; ketones such as acetone; esters such as ethyl acetate, n-butyl acetate, isopropyl myristate; and chlorinated hydrocarbons such as in ethylene chloride, 1,1,1-trichloroethane; and the like as well

as mixtures thereof. Furthermore, water can also be used as a portion of the solvent. In addition, any solvent that is non-irritating to the skin and relatively volatile is acceptable provided that it functions to adjust viscosity and solid concentration, and will readily volatilize when subjected to body heat.

In general, the polymer/plasticizer ratio can be varied widely. However, a weight ratio in the range of 30:70 to 70:30 has proved to be particularly effective. The amount of solvent that can be incorporated with the polymer/plasticizer mixture can also be varied widely. However, from 10.0 to 65.0% by weight has been found to be especially useful. As will be appreciated by one skilled in this art, other substances such as perfumes, artificial coloring and the like can also be included as a minor portion of the adhesive composition.

The preferred practice of the invention is to thoroughly blend the composition into a physical state capable of application from a conventional "roll-on" applicator container such as a ball and socket dispenser. Other useful applicators include those having a brush tip or nozzle tip.

To further illustrate this invention, the following example is provided. It should be understood that the details thereof are not to be regarded as limitations as they may be varied as will be understood by one skilled in this art.

The following ingredients were formulated in the proportions, in weight percent, set forth:

	Percent
Polyvinylpyrrolidone (M.W., approx. 40,000)	28
Vinyl acetate	12
Isopropanol	40
1,4-butanediol	20
Perfume, coloring trace amounts	

The resulting polymeric film composition was applied to the human leg with a ball and socket dispenser. Nylon stockings were positioned in the normal manner over the composition and found to be provided with continuous adhesion to the leg. This continuous surface tack proved to be sufficient to bind the separate surfaces together. The adhesive was found to readily dissolve in water when removal from the skin and the stocking was desired.

Similar formulations were prepared using the following range of proportions:

	Percent
Polymer	10.0–42.5
Plasticizer	3.0–30.0
Solvent	10.0–65

While one embodiment of the invention has been described in detail, it will be apparent that other adaptations and modifications can be made without departing from the true spirit and scope of the invention.

What is claimed is:

1. A non-irritating adhesive composition for bonding textiles to human skin comprising:
polyvinylpyrrolidone and vinyl acetate in an alcoholic medium, wherein the weight ratio of polyvinylpyrrolidone to vinyl acetate is 30:70 to 70:30.

2. A composition according to claim 1, wherein said alcoholic medium is a mixture of isopropanol and 1,4-butanediol.

3. A composition according to claim 1, wherein said polyvinylpyrrolidone is present in from 10 to 42.5 weight percent, said vinyl acetate is present in from 3 to 30

weight percent, and said alcoholic medium is present in from 10 to 65 weight percent.

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