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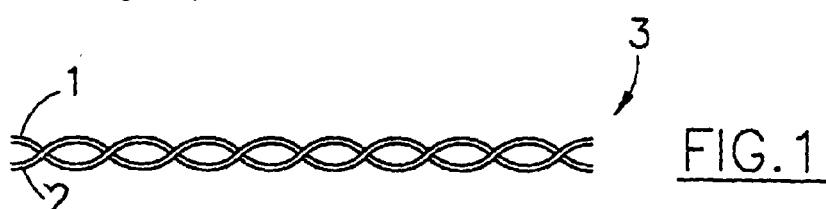
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### (54) Process for the manufacture of a pure cashmere textile article

(57) Process for the manufacture of an article of pure cashmere, characterized in that it comprises the following sequence of steps: (a) association of first fibres of pure cashmere (1) with second fibres (2) of material dissolvable in slightly acid liquid solution at high temperature; (b) weaving of the obtained association; (c) dissolution of said second fibres by means of a slightly acid liquid solution at high temperature. Prefera-

bly said second fibres of material dissolvable in slightly acidic liquid solution at high temperature are made up of a synthetic yarn.

In addition said association is, preferably, obtained by doubling a yarn (3) of pure cashmere with a yarn of synthetic fibre.



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**Description**

**[0001]** The present invention refers to a process for the manufacture of a textile article made of pure cashmere, whether a literally called fabric or a knitted fabric or a jersey fabric.

**[0002]** The cashmere is known to be a valuable material that is highly demanded by high level customs.

**[0003]** At the same time it is also a material that at its pure state and at a count higher than a determined maximum value has such a low mechanical strength to make its weaving impossible.

**[0004]** The known technique, as described in the patent application No. MI98A000899 of April 28, 1998 in the name of the applicant, provides that a very thin yarn of cashmere is assisted by a vegetable support yarn, as for instance cotton, that is then eliminated by a devouration operation by means of an acid development salt.

**[0005]** The devouration does not allow to eliminate the residues of the vegetable thread completely when working in selvedge.

**[0006]** In addition the use of a vegetable reinforcement thread involves supply and costs problems.

**[0007]** In view of the state of the art herein described, purpose of the present invention is to realise a process that allows to obtain a high count pure cashmere textile article at a low price.

**[0008]** According to the present invention, such purpose is attained by means of a process characterized in that it comprises the following sequence of steps: (a) association of first pure cashmere fibres with second fibres of material dissolvable in a slightly acid liquid solution at high temperature; (b) weaving of the obtained association; (c) dissolution of said second fibres by means of a slightly acid liquid solution at high temperature.

**[0009]** Preferably said second fibres of material dissolvable in acid liquid solution at high temperature are made up of synthetic fibres.

**[0010]** In addition said association is, preferably, obtained by doubling a yarn of pure cashmere with a yarn thread of synthetic fibre.

**[0011]** The characteristics and the advantages of the present invention will become evident from the following detailed description of an embodiment thereof that is illustrated as a non limiting example in the enclosed drawings, in which:

Figure 1 shows a doubled cashmere and synthetic yarn before the weaving;

Figure 2 shows a portion of cloth weave obtained by weaving coupled yarns as the one in Figure 1;

Figure 3 shows the same portion of cloth after the operation of dissolution has been performed.

**[0012]** The yarn of cashmere can have a count varying from 50,000 Nm to 120,000 Nm, size beyond which the yarn of cashmere has a sufficient strength to allow

its weaving without any support yarn. According to a currently preferred embodiment of the present invention the yarn of cashmere being used has a count of 80,000 Nm.

**[0013]** The synthetic fibre yam can be of the type known by the trade name of Kuralon K-II, having the followings characteristics:

Technical Characteristics	Values
<b>Flock</b>	
Fineness	3.2 ± 0.3 dtex
Length:	
square cut	38 and 51
oblique cut (CV 35%)	85
Strength	8.5 ± 1.5 cN/dtex
Elongation	11 ± 4 %
<b>Bale</b>	
Fineness	2.2 ± 0.3 dtex
Cut (diagonal)	85 ± 30 mm
Weight	20 g/m
<b>Solubility in water</b>	
Fibre as such	80 ± 10 °C
Mixed in fabric	90 ± 10 °C
<b>Vaporisation</b>	
Temperature:	
cardboard tubes	90 °C max
plastic tubes	80 °C max
<b>Dissolution</b>	
Water temperature:	
soak (for ca. 30 min)	85 - 95°C
rinse ( for ca. 10 min)	40 °C
Water/fabric ratio	50/1 by weight
Water acidity	4 - 4.5 pH

**[0014]** As an alternative an algaenic fibre known by the trade name of Solvron can also be used.

**[0015]** The doubling operation is carried out in a sense opposite to the one of the individual yarn, that is with S torsion.

**[0016]** The doubled yarn 3 thus obtained undergoes an operation of weaving according to the known art, for example in order to obtain a cloth weave as the one shown in Figure 2.

**[0017]** Other types of weave can be used, as for

instance Batavia 2/2, Saglie, etc., up to Jacquard. In addition it is possible to provide for a knitted or jersey weaving.

**[0018]** The synthetic yarn is eliminated in a slightly acid liquid solution, having a pH comprised between 4 and 4.5, when the temperature of the solution reaches 85 °C by means of an operation that is defined of dissolution.

**[0019]** This is made possible owing to the dissolution characteristics provided by Kuralon K-II.

**[0020]** Said synthetic material does not leave any kind of residue in the fabric thus obtained even if working in selvedge thus guaranteeing much higher quality standard than the ones that can be obtained by the known techniques.

**[0021]** The fabric thus obtained is then submitted to a dyeing process, for example comprising soaking in a neutral bath for 10 min at 80 °C, dyeing with acid colours for 100 min at 80 °C and fulling with wet enzymatic detergents at room temperature for 25 min.

**[0022]** Finally the article thus obtained is dried and submitted to vapour.

**[0023]** It is clear that the above described process is characterized by two fundamental operations, to associate cashmere fibres with synthetic fibres and to dissolve such synthetic fibres by means of a slightly acid liquid solution at high temperature.

**[0024]** The association of the two types of fibres is preferably carried out by an doubling operation of a yarn of cashmere with a synthetic yarn, as previously described with reference to the drawings.

**[0025]** As an alternative a preventive mix of the two materials not yet spun can be used.

## Claims

1. Process for the manufacture of a textile article of pure cashmere, characterized in that it comprises the following sequence of steps:

- (a) association of first fibres (1) of pure cashmere with second fibres (2) of material dissolvable in slightly acid liquid solution at high temperature;
- (b) weaving of the obtained association;
- (c) dissolution of said second fibres (2) by means of a slightly acid liquid solution at high temperature;

2. Process according to claim 1, characterized in that said second fibres of material dissolvable in slightly acid liquid solution at high temperature consist of synthetic fibres.

3. Process according to claim 1 characterized in that said association is obtained by means of a doubling operation of a yarn of pure cashmere with a yarn of synthetic fibre.

- 4. Process according to claim 3, characterized in that the yarn (1) of pure cashmere has a count comprised between 50,000 Nm and 120,000 Nm.
- 5. Process according to claim 4, characterized in that the yarn (1) of pure cashmere has a count of 80,000 Nm.
- 10 6. Process according to claim 3, characterized in that the yarn (2) of synthetic fibre is a yarn known on the market by the name of Kuralon K-II.
- 15 7. Process according to claim 6, characterized in that the yarn of Kuralon K-II has a bale fineness of 2.2 ± 0.3 dtex, a square cut length of 38 and 51 mm, an oblique cut length of (CV 35%) 85 mm, a strength of 8.5 ± 1.5 cN/ dtex and an elongation 11 ± 4%.
- 20 8. Process according to claim 6, characterized in that the Kuralon K-II yarn has a bale fineness 2.2 ± 0.3 dtex, a diagonal cut of 85 ± 30 mm and a weight of 20 g/ m.
- 25 9. Process according to claim 6, characterized in that the Kuralon K-II type yarn has a temperature of solubility in water of 80 ± 10 °C as yarn per se and of 90 ± 10 °C as yarn mixed to fabric.
- 30 10. Process according to claim 6, characterized in that the Kuralon K-II type yarn has a vaporisation temperature of 90 °C max for cardboard tubes and of 80 °C max for plastics tubes.
- 35 11. Process according to claim 6, characterized in that it uses for the dissolution a water temperature of 85-95 °C for the soaking operation (for around 30 min), and of 40 °C for the rinse operation (for around 10 min), a water/fabric ratio of 50/ 1 by weight and a pH of 4 - 4.5 as acidity of the water.
- 40 12. Process according to claim 1, characterized in that the dissolution is preceded by processes of soaking, dyeing and fulling of the fabric.
- 45 13. Process according to claim 12, characterized in that the soaking of the fabric is carried out in a neutral bath.
- 50 14. Processes according to claim 12, characterized in that the dyeing is carried out by means of acid colours.
- 55 15. Process according to claim 12, characterized in that the fulling is carried out by means of wet enzymatic detergents.
- 16. Process according to claim 1, characterized in that said second fibres (2) are made up of an algeanic

type yarn that is known on the market by the name  
of Solvron.

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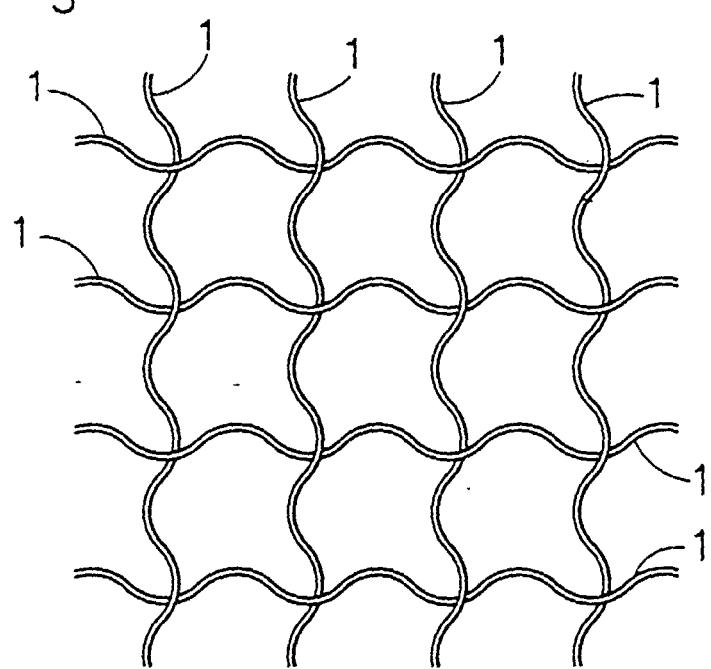
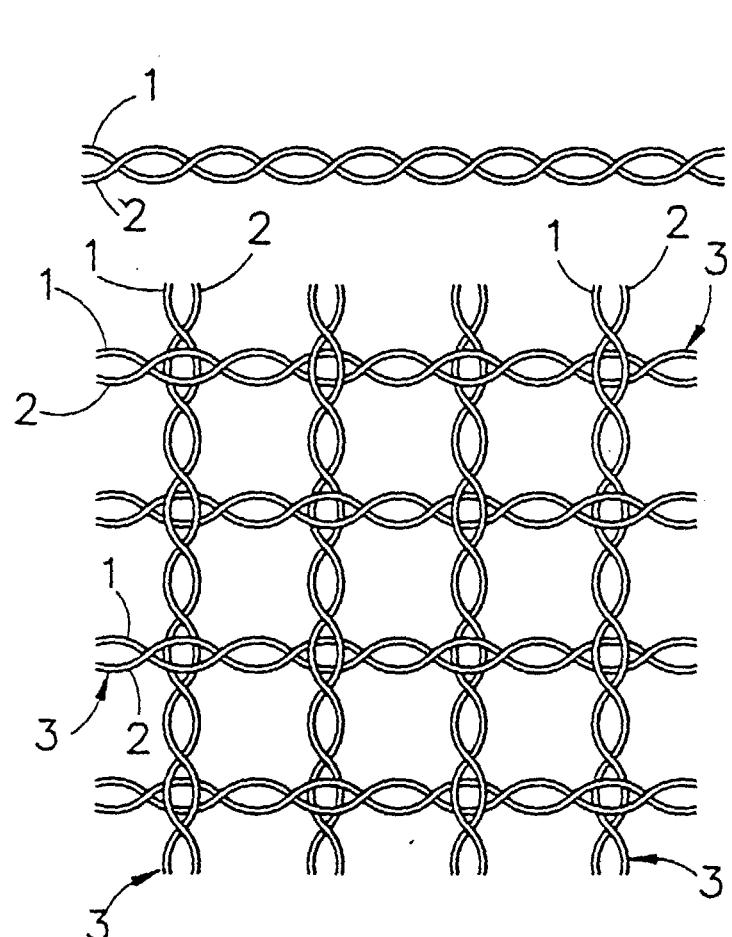


FIG. 3



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## EUROPEAN SEARCH REPORT

Application Number

EP 00 20 1095

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Place of search		Date of completion of the search	Examiner
THE HAGUE		22 September 2000	Munzer, E
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
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