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(54) **Process for the production of a fabric made of extrafine animal fibres which are not industrially weaveable and a fabric obtained thereby.**

(57) A process for the production of a fabric made of extrafine animal fibres which are not industrially weaveable, comprising the following sequence of steps:
a) spinning of blended yarns (1) made of extrafine animal fibres, specifically cashmere fibres and silk fibres;
b) doubling of each of said blended yarns (1) with a corresponding yarn made of synthetic fibres (2), preferably having an equivalent count, soluble in a slightly acidic liquid solution at a high temperature; the doubling is pref-

erably carried out with a torsion S in a direction opposite to the torsion Z of the blended yarns (1);
c) weaving of the doubled yarns (3);
d) dissolving said synthetic fibre yarns (2) by means of a slightly acidic liquid solution at a high temperature.

An extremely soft fabric consisting only of extrafine blended yarns (1) made of animal fibres and silk fibres, which are not industrially weaveable per se, is thereby obtained.

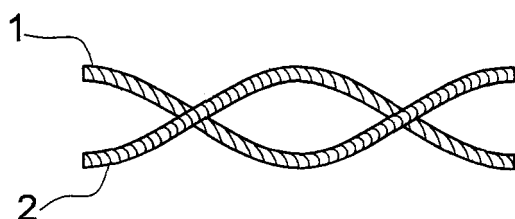


Fig.1

Description

[0001] The present invention relates to a process for the production of a fabric made of extrafine animal fibres which are not industrially weaveable and a fabric obtained thereby.

[0002] In the field of extrafine animal fibres, it is known that fibre yarns having a very high count may industrially be made, for instance worsted yarns having a count in the range between 200 and 50 dtex. However, it is similarly known that such yarns have a kinetic resistance which is so low as not to allow them to be subjected to an industrial weaving operation, requiring a breaking strength not lower than 80-100 grams.

[0003] It is the object of the present invention to provide a process allowing the weaving of yarns made of extrafine animal fibres, specifically cashmere fibres, which are otherwise not industrially weaveable.

[0004] In view of such a purpose, the process according to the present invention is characterised in that it comprises the following sequence of steps:

- a) spinning of blended yarns made of extrafine animal fibres and silk fibres;
- b) doubling of each of said blended yarns with a corresponding yarn made of synthetic fibres soluble in a slightly acidic liquid solution at a high temperature;
- c) spinning of the doubled yarns;
- d) dissolving said synthetic fibre yarns by means of a slightly acidic liquid solution at a high temperature.

[0005] Fabrics made of extrafine animal fibres, specifically cashmere fibres, which up to now could not be subjected to industrial weaving, may be obtained industrially in this manner.

[0006] Blended yarns (or so-called "intimate blend yarns") indeed allow to achieve incredibly high counts by mixing very soft though very low tenacity short fibres, such as extrafine cashmere fibres, with extremely fine and very high tenacity long fibres, such as silk.

[0007] An appropriate percentage of the two kinds of fibres may be for instance 80% cashmere (WS) and 20% silk (SE).

[0008] The doubling is preferably carried out with yarns having substantially the same count and provides for a torsion in the direction opposite to that of the blended yarns. In particular if, as common, the torsion of the single yarns is of the Z type, the doubling torsion is of the S type.

[0009] An extremely soft and together resistant fabric is the result of the doubling torsion in a direction opposite to that of the blended yarns, even though extrafine animal fibres which are not otherwise industrially weaveable have been used.

[0010] An exemplary embodiment of the process according to the present invention will now be described in detail with reference to the accompanying drawings, in which:

Figure 1 shows a blended yarn made of extrafine animal fibres, specifically extrafine cashmere fibres, and silk fibres, doubled with a yarn made of synthetic fibres soluble in a slightly acidic solution at a high temperature, specifically polyvinyl fibres;

figure 2 shows a portion of a coarse fabric obtained by weaving of doubled yarns such as those in figure 1;

figure 3 shows the same portion of fabric after dissolving the yarns in synthetic fibres.

[0011] A blended yarn 1 formed by 80%WS - 20%SE with an extrafine 66 dtex count is considered here by way of example. The yarn 1 has been made by traditional spinning with a torsion Z, preferably 1100 rounds/linear meter.

[0012] The blended yarn 1 is then doubled with a yarn 2 having a substantially equivalent count, and the same torsion Z, preferably 1000 rounds/linear meter, consisting of synthetic (so-called "water-soluble") fibres, that is fibres which may be dissolved in a slightly acidic aqueous solution at a high temperature, specifically polyvinyl material (PVA). The yarn 2 may be made of woven fibres with a cotton cut (thus having a discontinuous nature).

[0013] The doubling is carried out with a torsion S, preferably equivalent to 440 rounds/linear meter, so as to obtain a correct final balancing of the doubled yarn.

[0014] The resulting doubled yarn, indicated by numeral 3 in figure 1, is obviously made of 50%PVA, 40%WS and 10%SE.

[0015] As shown in figure 2, an appropriate number of doubled yarns 3 is subsequently subjected to a traditional warp and weft weaving (or weaving on a circular Jersey type machine), in which the polyvinyl yarns 2 serve as a support to allow the weaving of the blended yarns 1, which are otherwise not industrially weaveable.

[0016] The coarse fabric thus obtained, which may have any cloth, twill or jacquard-type weave, clearly has the same composition as the doubled yarn 3.

[0017] Such a coarse fabric is then subjected to a scouring dyeing step, during which it is dipped in an aqueous solution of about 50 litres per kg of polyvinyl with a slightly acidic pH (about 4,5) at a temperature between 30°C and 100°C (depending on the nature of the PVA yarn).

[0018] The PVA yarn 2 is thus eliminated by dissolution or melting, leaving a final fabric (fig. 3) consisting exclusively of blended yarns 1 and therefore having a final composition of 80%WS - 20%SE with a 66 dtex count, which is impossible to achieve industrially by traditional techniques.

[0019] In virtue of the doubling torsion S in a direction opposite to that of the single yarns 1 and 2, after the melting of the PVA yarns 2, the remaining yarn 1 has a torsion which is equivalent to the sum of the spinning torsion (1100 Z) and the doubling torsion (440 S), that is in the example considered equivalent to 660 Z. In virtue of this reduced torsion the resulting fabric is therefore

extremely soft, as well as having an extrafine count.

[0020] Finally, with the process according to the present invention a fabric may be made having the following unique properties:

- a) it is formed by a yarn having an extrafine count which would not otherwise be industrially woven;
- b) it is extremely soft.

Claims

1. A process for the production of a fabric made of extrafine animal fibres which are not industrially weavable, **characterised in that** it comprises the following sequence of steps:
 - a) spinning of blended yarns (1) made of extrafine animal fibres and silk fibres;
 - b) doubling of each of said blended yarns (1) with a corresponding yarn made of synthetic fibres (2) soluble in a slightly acidic liquid solution at a high temperature;
 - c) weaving of the doubled yarns (3);
 - d) dissolving said synthetic fibre yarns (2) by means of a slightly acidic liquid solution at a high temperature.
2. A process according to claim 1, **characterised in that** said extrafine animal fibres have a count in the range between 200 and 50 dtex.
3. A process according to claim 1 or 2, **characterised in that** said extrafine animal fibres are cashmere fibres.
4. A process according to claim 3, **characterised in that** said blended yarns (1) are made of 80% cashmere and 20% silk.
5. A process according to any of the preceding claims, **characterised in that** the doubling is carried out with yarns (1) and (2) having substantially the same count.
6. A process according to any of the preceding claims, **characterised in that** the doubling is carried out with a torsion in a direction opposite to that of the blended yarns (1).
7. A process according to claim 6, **characterised in that** the doubling is carried out with a torsion S.
8. A fabric made of extrafine animal fibres which are not industrially weavable, **characterised in that** it consists only of extrafine blended yarns (1) made of animal fibres and silk fibres, which are not industrially weavable per se.
9. A fabric according to claim 8, **characterised in that** said extrafine animal fibres have a count in the range between 200 and 50 dtex.
10. A fabric according to claim 8 or 9, **characterised in that** said extrafine animal fibres are cashmere fibres.
11. A fabric according to claim 10, **characterised in that** said blended yarns (1) are made of 80% cashmere and 20% silk.
12. A fabric according to any of the preceding claims, **characterised in that** said blended yarns (1) are low torsion Z blended yarns.

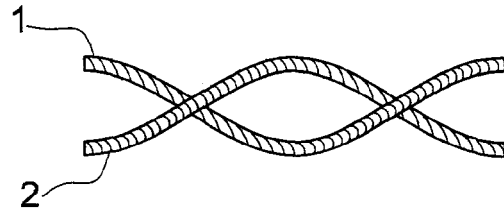


Fig.1

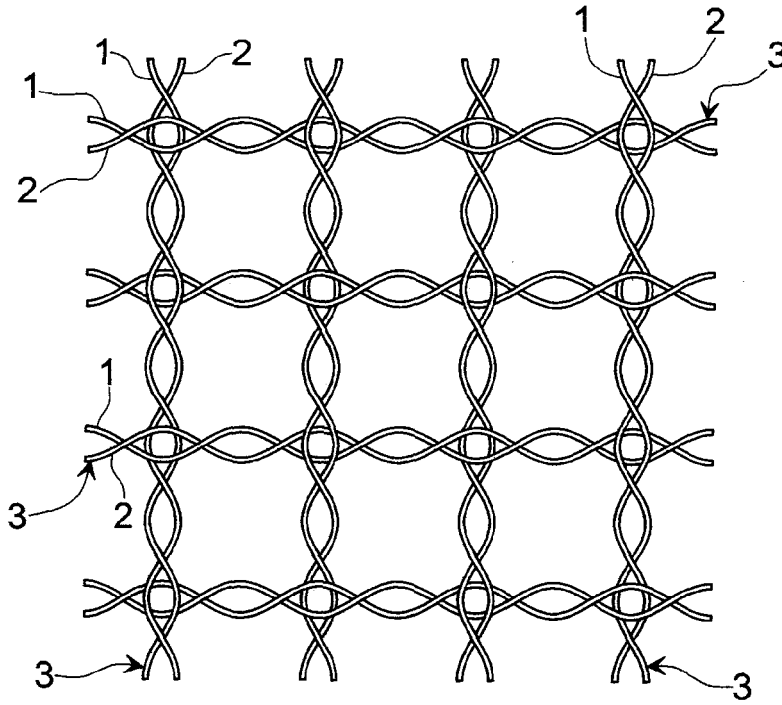


Fig.2

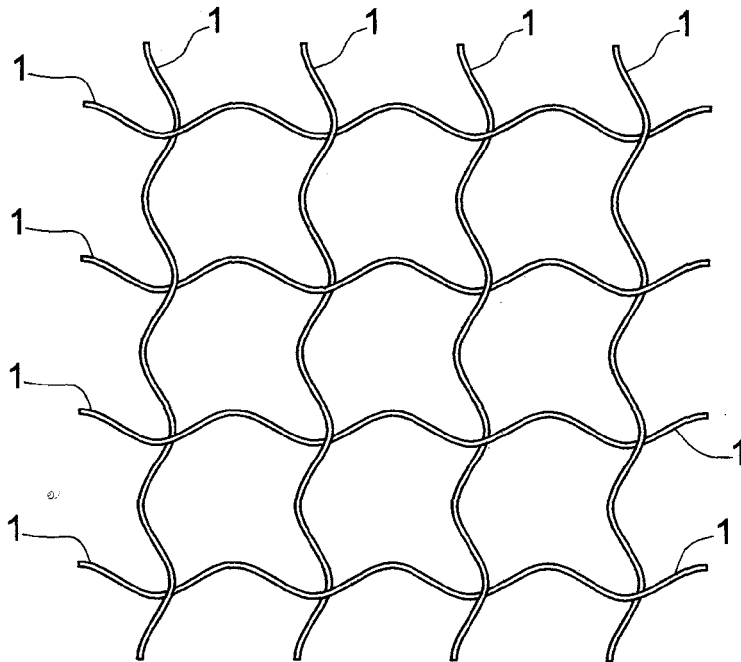


Fig.3