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**Datasheet for the decision
of 29 May 2009**

Case Number: T 0280/07 - 3.2.06

Application Number: 00201095.7

Publication Number: 1061162

IPC: D02G 3/02

Language of the proceedings: EN

Title of invention:

Process for the manufacture of a pure cashmere textile article

Patentee:

Geraldini, Jacopo

Opponent:

CANEPA S.p.A.

BISETA S.r.l.

Kuraray Co., Ltd.

Headword:

-

Relevant legal provisions:

EPC Art. 123(2)

Relevant legal provisions (EPC 1973):

EPC Art. 84, 56

Keyword:

"Added subject-matter (no)"

"Clarity and inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0280/07 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 29 May 2009

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
21 December 2006 concerning maintenance of
European patent No. 1061162 in amended form.

Composition of the Board:

Chairman: P. Alting Van Geusau
Members: M. Harrison
W. Sekretaruk

Summary of Facts and Submissions

I. The appellant (opponent OII) filed an appeal against the opposition division's interlocutory decision dated 21 December 2006 according to which European patent number 1 061 162 in its amended form was found to meet the requirements of the European Patent Convention, and requested revocation of the patent.

II. With its grounds of appeal filed 16 February 2007, the appellant filed the following documents:

D30: Fibre Tessili Filatura, Tecnologia Tessile, 1960, Volume 1, pages 24 and 81;

D31: Processi di lavorazione dei prodotto tessili, Italian translation from 2001 of "Textile Fertigungsverfahren - Eine Einführung, 1998", pages 126 - 128;

D32: Tecnologia Della Lana, Volume III, Part III, pages 20 and 21;

D33: Filatura della lana cardata e pettinata, 1954, page 307.

The appellant objected to a lack of clarity of claim 1 and to insufficiency of the disclosure of the invention, as well as to lack of novelty and inventive step as regards the subject-matter of claim 1, mentioning *inter alia* the following additional documents:

D1: "IWS product development", International Wool secretariat and Kuraray Co., Ltd.;

D2: GB 1 068 662;

D16: JP-A-53 126 336, with English translation;

D29: JP 49-101 666 with English translation.

- III. With its letter of May 27, 2007 translations of extracts of documents D30 to D33 were filed.
- IV. With its response, the respondent (proprietor) requested dismissal of the appeal.
- V. The Board issued a summons to oral proceedings together with a communication stating its provisional opinion. The Board opined *inter alia* that claim 1 was not clear with regard to the term "the individual yarn", that the objection of insufficient disclosure seemed to be unfounded if the requirement for clarity were met, and that a difficulty was apparent with regard to Article 123(2) EPC. The Board also noted that each of D2, D16 and D29 lacked a disclosure of certain features of claim 1 and that no objection to lack of novelty had been made to the claims on file before the opposition division, together with comments regarding inventive step issues in relation to these documents. Additionally it was stated that the reference to previous submissions in general by the appellant and respondent was not considered to fulfil the requirements of Article 12(4) of the Rules of Procedure of the Boards of Appeal (RPBA) as being part of the appeal.
- VI. In its letter of 2 April 2009, opponent OIII declared that it would not be represented at the oral proceedings.
- VII. With its letter of 12 May 2009, the respondent provided further argumentation on certain aspects mentioned by the Board and filed first and second auxiliary requests

each containing an amended claim 1. Additionally, the respondent filed *inter alia*:

D34: Technical opinion of Prof. Ceriani, 30 April 2009.

VIII. With its letter of 14 May 2009, one of the four common opponents forming opponent OII withdrew from the opposition and appeal, and the appellant filed further observations together with the following documents:

translations into English of documents already cited in opposition proceedings, namely:

D3: IT 1 240 487;

D8: Technical sheet of Kuralon K-II;

D35: The Wool Products Labeling Act of 1939 (15 U.S.C. § 68).

IX. In its letter of 28 May 2009, two of the remaining three common opponents forming opponent OII withdrew from the opposition and appeal.

X. During the oral proceedings of 29 May 2009, opponent OI (which had not filed any submissions throughout the procedure), and opponent OIII as announced previously, were not present. The appellant confirmed its request for revocation of the patent, but withdrew its objection of insufficiency of disclosure and its objection to lack of novelty. The respondent confirmed its request for dismissal of the appeal and withdrew its first and second auxiliary requests.

The appellant and respondent each filed a datasheet, dated 6 November 2006 and 25 May 2009 respectively.

XI. Claim 1 of the sole request reads as follows:

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

- (a) doubling of a first yarn (1) of high count pure cashmere having a count comprised between 85 dtex and 200 dtex with a second yarn (2) of synthetic fibres dissolvable in slightly acid liquid solution at high temperature, the doubling operation being carried out in a sense opposite to the one of the individual yarn, that is with S torsion;
- (b) weaving the doubled yarns (1, 2);
- (c) dissolution of said second yarns (2) by means of a slightly acid liquid solution having a pH of 4-4.5 and a temperature of 85°-95°C."

XII. The appellant's arguments may be summarised as follows:

On the issue of Article 123(2) EPC, no extra comments were required beyond those made by the Board.

Claim 1 was not clear because "the individual yarn" defined therein could be either the cashmere yarn or the synthetic yarn. Since either yarn could have an S or Z twist independently of the other, the sense of doubling during manufacture could not be ascertained. It made sense that the direction of doubling could be opposite to the synthetic yarn because the doubling operation was described in the description immediately following the description of the synthetic yarn, and the synthetic yarn could be beneficially unwound by this sense of doubling to assist its dissolution.

Nothing indicated that the cashmere yarn should be the yarn considered as the "individual yarn". Kuralon K-II, the synthetic yarn disclosed in the patent, was supplied to order with either S or Z twist. Whilst the S torsion might result in twisting towards a crepe yarn, the patent did not exclude crepe twisting and any importance possibly attached to the direction of twist of the cashmere yarn would anyway not mean that the doubling in claim 1 must be understood to be opposite exclusively to the cashmere yarn; this left the situation as to whether the "individual yarn" might be understood to be the synthetic yarn, and thus making the direction of doubling with respect thereto, entirely unclear.

As regards inventive step and using the problem and solution approach, either D3 or D14 was the closest prior art. It was clear that these were highly relevant as a starting point compared to other documents. Starting with D3, this disclosed high count cashmere in the last paragraph of the description. The technical datasheet dated 6 November 2006 filed during the oral proceedings showed that the fabric of 270 g per linear metre weight in D3 could certainly be regarded as "high count" in accordance with the claimed dtex values, merely depending on the number of yarns and the dtex values chosen, as well as standard cloth width. The only differences of D3 compared to claim 1 were that doubling was made with a vegetable yarn not a synthetic yarn, the weft yarns were unspecified and it was not explicitly disclosed that twisting was opposed to the direction of twist of both yarns. The problem to be solved when starting from D3 was how to produce a high count pure cashmere yarn article. D2 taught the

solution by doubling a PVA yarn with a wool yarn to provide the required strength, weaving and then dissolving the PVA yarn. It also discussed high count wool yarns having a high count of 50s in Example 29. Although D2 specified a bulky yarn, Example 29 showed that high count was used as well. Cashmere was a wool type, so the skilled person would adopt this teaching when solving the problem. D8 showed the specific conditions for dissolution of a specific PVA yarn which were the same as those in claim 1, which features thus added no inventive step. Also, the twist of doubling being in a sense opposite to the twist direction of both yarns was standard practice as shown on pages 11 and 17 of e.g.

D26: Technical opinion by Prof. Ceriani, 18 September 2006,

which in fact disclosed that the "normal" twist pattern was indeed Z for each individual yarn and doubling being in the S direction. Further evidence that this was the normal sense of doubling was found in e.g. D31 and D32.

Starting from D3, the subject-matter of claim 1 was equally obvious when considering that D14 disclosed a high count worsted wool yarn having similar properties to cashmere which was also merely a wool type, as evident from e.g. D35. Pure animal fibre yarns in general were also disclosed, not only wool yarns, thus the process was clearly applicable to all types of wool at least. D14 concerned production of crepe fabric by doubling of wool yarns with PVA, but the fact that a crepe was produced caused no negative incentive since

the teaching of D14 was that warp and weft high count yarns could be doubled to obtain the required strength and then woven.

Similarly, starting from D3, the subject-matter of claim 1 was also obvious for the same reasons when considering D16, because D16 disclosed pure animal fibre yarn doubled with PVA for strength, followed by weaving of the doubled yarns.

The subject-matter of claim 1 was also obvious starting from D14 and considering the problem of producing a high count cashmere article. It would be evident to a skilled person starting with D14 that the process, which already disclosed doubling warp and weft yarns with PVA, would also be usable for the pure animal fibre cashmere as disclosed in D3 and that warp and weft yarns could thus be made strong enough in this way, thereby obviating the conventional weft yarns used together with the cashmere/vegetable doubled yarns in D3. D14 yarns were indeed twisted to a crepe, but if a high count non-crepe article were desired the skilled person knew that doubling should merely be in the opposite direction.

It should also be considered that the invention merely involved the idea of strengthening weak yarns by doubling with PVA yarns, such as known from D8, weaving them and then dissolving the PVA. This was a generally well known technique as shown in e.g. D29. No inventive step was present in applying this technique to cashmere.

XIII. The respondent's arguments may be summarised as follows:

The objections under Article 84 EPC 1973 and Article 123(2) EPC were not raised against the amendments during the proceedings before the opposition division. It was inadmissible to raise them during appeal.

In regard to Article 123(2) EPC, the introduction of the term "high count" in the claim together with the thicker yarns at the upper end of the range, i.e. 200 dtex, was within the content of the filed application, because the skilled person understood from his knowledge in the art that 200 dtex yarns were yarns of high count. D34 provided evidence of this and was uncontested by the appellant.

As regards Article 84 EPC 1973, claim 1 was clear, since the "individual yarn" could only be the cashmere yarn. This was the only yarn of importance in the final product. Doubling in the opposite direction referred to the cashmere yarn because this allowed softness and good handle to be obtained; the production of high count pure cashmere was only relevant if good handle were achieved. It made no technical sense for a skilled person to produce high count pure cashmere in a crepe, as this would remove the reason for using high count cashmere which was costly. When forming a crepe with cheaper ordinary wool or high count cashmere the feel of the article was the same, so the cashmere would be more expensive without advantage. The direction of twist of the synthetic yarn could be S or Z; its twist direction was irrelevant as this yarn was vastly stronger than the cashmere yarn whichever way it was

twisted, so the term "individual yarn" only had technical relevance to a skilled person if it was understood as the cashmere yarn. A skilled person also knew that all yarns were supplied with a Z twist unless requested specifically to be with S twist. Thus, if cashmere yarns would have had an S twist this would be special, and would be specified. However, at the same time, the skilled person would recognise that the synthetic fibre, although its twist direction was not specified, could have either direction, S or Z, as it had no importance for the final product, because it was dissolved at the end. There was no evidence that any advantage could be obtained by doubling in a sense such that the synthetic fibre should untwist during doubling.

As regards inventive step, the starting document D3 did not relate to pure cashmere, and in as far as it related to cashmere at all, this was not "high count" cashmere in terms of claim 1. Moreover, where the original Italian document D3 mentioned cashmere, it was not stated as being high count cashmere; this was a translation error because "titolo fine" did not mean "high count". A weight of 270g per linear metre as quoted in D3 was not high count material, as could be seen from the dtex values specified in the claim. The respondent's datasheet provided during oral proceedings, dated 25 May 2009, was evidence of this and confirmed that the appellant's datasheet had not taken into account the need for PVA yarns. The doubled yarns in D3 were not strong enough to be woven by themselves, so that conventional weft yarns had to be used, whereby D3 gave no teaching towards a pure yarn article. Further, the vegetable yarns used in D3 caused many other problems such as their dissolution which required

highly acidic sulphuric acid solutions, which were harmful to cashmere.

D2 involved the use of bulky stretchable yarns, not cashmere. The count of 50s in Example 29 was for wool, and even if this were considered high count, which was disputed, it only related to a stretchable yarn of that count. High count cashmere was neither bulky nor stretchable.

D14 concerned worsted yarns and cashmere was not mentioned. Whilst these had certain similarities with cashmere yarns, D14 was entirely concerned with a crepe process, which a skilled person would disregard when trying to produce a high count cashmere article, because creped high count cashmere would lose all its desirable properties. Also, worsted wool of D14 and cashmere have different strengths, so are not comparable. Thus a skilled person had no incentive to consult D14, and would anyway not find a solution due to the different direction twist involved. Applying the teaching of D14 to D3 and altering the twist direction of D14 during doubling would be pure hindsight.

D16 was aimed at producing high bulk yarns. Although it disclosed pure animal fibre yarns, its teaching concerning high bulk yarns would lead a skilled person away from the invention when trying to produce a high count cashmere yarn. The prior art method referred to in D16 was disadvantageous and mentioned nothing about cashmere.

D29 did not mention cashmere yarns only bulky yarns and gave no teaching to arrive at the invention.

Reasons for the Decision

1. *Admissibility of objections under Article 84 EPC 1973 and Article 123(2) EPC*

1.1 The respondent objected that these objections were inadmissible because no such objections had been raised in this regard previously in the opposition proceedings.

1.2 However, it is well established in Board of Appeal case law that when a claim has been amended during opposition proceedings, the amendments are open to scrutiny as to whether they meet the requirements of the EPC (see e.g. G 9/91 OJ 1993, 408, Reasons 19), even where no objection is made by a party (see also Article 114(1) EPC).

The objections under Article 84 EPC 1973 and Article 123(2) EPC each concern amendments made to granted claim 1, the amendments coming from the description. Therefore, contrary to the submission of the respondent, these objections are admissible.

2. *Article 123(2) EPC*

The Board raised an objection in the annex to the summons to oral proceedings, concerning the amendments made to the granted claim, whereby the added features defined a yarn of "high count pure cashmere" which at the same time should have a count "between 85 dtex and 200 dtex". In the application as filed, yarns for producing an article of pure cashmere and not

necessarily an article of "high count" pure cashmere were described as being in this range. Thus it did not at first sight appear evident that the count of 200 dtex, corresponding to 50,000 Nm in the filed application (notably being incorrectly quoted in the patent on page 2, line 27 as being 120,000 Nm, which is the approximate value for 85 dtex), necessarily concerned yarns of "high count" cashmere.

D34 filed by the respondent is however a technical opinion which states that 50,000 Nm (approx. 200 dtex) is the lower value of count for which cashmere can be defined as being of high count, in part based on the conclusion that this is the approximate value at which production costs change markedly. This technical opinion is not disputed by the appellant and, based on the assumption that it is therefore correct (for which the Board has no reason itself to find doubt), the Board can only conclude that a skilled person would understand the application as filed as disclosing cashmere yarns of high count across the entire defined range of 85 dtex to 200 dtex.

The Board is thus satisfied that the value of 200 dtex for cashmere yarn is regarded by a skilled person as being a cashmere yarn of high count, and therefore that this disclosure, as now defined in claim 1, is directly and unambiguously derivable from the application as filed.

Since no further objections have been made by any of the parties based on this ground, the Board concludes that the requirements of Article 123(2) EPC are met.

3. *Article 84 EPC 1973*

3.1 The objection to lack of clarity of claim 1 concerns the sense (i.e. direction) in which doubling, which is defined in claim 1 as being "with S torsion" (i.e. doubling of the yarns in the S sense), should be carried out with respect to the "individual yarn".

3.2 First it is to be noted that the claim has no antecedent basis for the term "individual yarn", so that from the claim wording alone it cannot be deduced which yarn is intended. The description also cannot solve this issue because the same wording is used there. The fact that the description of doubling with respect to the individual yarn occurs immediately following the description of the synthetic yarn is found inconclusive in terms of which yarn is being discussed, in particular since the description immediately following the recitation of the individual yarn concerns the doubled yarn and not only the synthetic yarn.

3.3 Since however no information has been given in the description as to whether a Z or S twist is present in either yarn, the Board finds that both yarns, the cashmere yarn and the synthetic yarn, would be understood by a skilled person as having a Z twist. As also argued by the respondent, without any indication as to the contrary concerning a yarn twist direction, a skilled person would normally understand that a Z twisted yarn is being discussed. This is confirmed by e.g. D26, pages 11 and 17, which concerns the twisting during doubling in a "normal" manner and showing both starting yarns having a Z twist. Further confirmation of this is found in D31, Figure 4.4, and in D32, page 1,

which states that "generally, torsion in the Z-direction is used for simple yarns and torsion in the S-direction for twisted yarns". Thus, although it is undisputed that both synthetic and cashmere yarns may also be supplied with an S twist, the Board concludes that, because this would be a special case, the absence of any twist indication leads the skilled person unambiguously to conclude that both yarns used to make the doubled yarn have a Z twist.

As a result of this, the lack of information in the claim and the description concerning which yarn is the "individual yarn" does not however lead to a lack of clarity in the claim, since both starting yarns (i.e. the cashmere and synthetic yarns) have Z twist and it is therefore irrelevant for the clarity of the claim which yarn is referred to as being the "individual yarn".

- 3.4 The appellant argued that the cashmere and the synthetic yarn could each be supplied with S or Z twist and that since the respondent had not disputed this, the individual yarn could not be identified. However, this does not alter the Board's conclusion, which is based on the understanding that when no contrary information has been stated, the skilled person implicitly understands that a Z twist yarn is meant, irrespective of the fact that a different twist yarn may be obtainable when specified in any particular case.
- 3.5 The respondent argued that the only technically sensible meaning of claim 1 was that the cashmere yarn was the "individual yarn", because twisting in the same direction as the cashmere yarn would produce a crepe,

which was undesirable. Even if the respondent were correct in its allegation, which anyway would appear to depend on the amount of twisting which the cashmere yarn had undergone prior to doubling (which amount is notably not stated in the claim), this would anyway not imply that the "individual yarn" referred to in claim 1 could not be the synthetic yarn, but merely that the doubling sense would always be opposed to the cashmere yarn twist direction, leaving it unknown and unclear whether the doubling direction was in a sense opposite to the synthetic yarn or not.

Likewise, although it was argued by the respondent that the twist direction of the synthetic fibre would have no effect on the final article due to it being dissolved, this, even if correct, would still leave unresolved the question as to whether the claim is to be understood in the sense that the individual yarn should be the synthetic yarn, irrespective of any technical effect which might or might not occur. In this regard it must be noted that the patent contains no description of any effect to be achieved by any particular twist direction of either yarn with respect to doubling, apart from providing a doubled yarn which is strong enough to be woven when using high count cashmere. Thus, either the synthetic yarn or the cashmere yarn could, from a functional point of view, be the individual yarn referred to in claim 1, even if the other of the yarns might have a particular twist direction for any particular, albeit undisclosed, reason.

Although the appellant argued that the twist direction of the individual yarn made technical sense also when

the individual yarn is the synthetic yarn, since the yarn resulting after doubling should allegedly be more easily dissolvable, no evidence was filed in support of this allegation. Moreover, even if evidence had been supplied to this effect, this would not alter the fact that claim 1 remains unspecific as to which yarn is to be considered as the individual yarn. The same applies to the respondent's argument that the twist direction of the synthetic yarn has no technical effect, because the presence or absence of a technical effect of twisting that might be achieved as a result of the doubling direction with respect to the synthetic yarn is not disclosed in the patent.

- 3.6 In conclusion, claim 1 fulfils the requirement of Article 84 EPC 1973 in terms of clarity, because claim 1 would necessarily be read by a skilled person as meaning that the synthetic and the cashmere yarns both have a Z twist. The "individual yarn", although unspecified, can therefore be either the synthetic yarn or the cashmere yarn without however giving rise to lack of clarity of the claim, since the doubling sense with S torsion is opposite to both yarns.

4. *Inventive step*

- 4.1 The appellant, during oral proceedings, stated that either D3 or D14 was the closest prior art starting point for consideration of inventive step. The respondent did not dispute this, nor did the respondent object to the new line of argument being made compared to those presented with the grounds of appeal, even though these later arguments do not form part of the appellant's complete case upon filing its grounds of

appeal (Article 12(2) RPBA) and are thus an amendment to the appellant's case. The Board also agrees with the appellant that either D3 or D14 may be considered as the closest prior art starting point for considering inventive step, particularly in comparison to the documents already cited in the grounds of appeal which appear less relevant. The Board therefore exercised its discretion under Article 13(1) RPBA to allow this change to the appellant's case. In this regard it is also to be noted that the respondent was prepared to address the issue without adjournment, the documents had been mentioned in previous written submissions of the appellant, the issues to be discussed were not made further complex as a result of the change of case, and the appellant did not further pursue its original argumentation based on other document starting points, thereby leading to procedural economy.

- 4.2 Starting with D3 as the closest prior art, this discloses, using the wording of claim 1 and references from D3 in parentheses:

a process for the manufacture of a textile article of cashmere (see translation, page 1, description first five lines, and page 6, last paragraph of the description) comprising the following sequence of steps: (a) doubling (see step (a) on page 3 of the translation) of a first yarn (10) of pure cashmere with a second yarn (11) of fibres dissolvable in acid liquid solution (see translation, page 4, last seven lines and first four lines on page 5) the doubling operation being carried out in a sense opposite to the one of the individual yarn, that is with S torsion (this is not stated, but implicit from the second paragraph on

page 4 of the translation stating that these are "traditional operations" and "the only aspect modified by this method is ...");

(b) weaving the doubled yarns (10, 11 - see translation, page 3, e.g. step (b),)

(c) dissolution of said second yarns (2) by means of acid liquid solution (see translation, page 4, last seven lines and first four lines on page 5).

Claim 1 differs over D3 in that:

(i) a high count pure cashmere article is produced, whereas D3 uses "traditional" weft yarns 12 of unknown material (see translation, page 4, first paragraph); D3 also does not unambiguously disclose high count cashmere (see explanation below);

(ii) the high count pure cashmere has a count comprised between 85 dtex and 200 dtex; and

(iii) the yarns doubled with the cashmere are yarns of synthetic fibres (whereas those in D3 are vegetable fibres, such as cotton rayon or viscose), which are dissolved in a slightly acid solution having a pH of 4-4.5 and at a temperature of 85°-95°C.

- 4.3 The appellant argued with respect to items (i) and (ii) above, that also a high count cashmere was disclosed in D3, since the translation into English on page 6 states "high-count wool or cashmere", which is alleged to be a translation of "di lana o cashmere titolo fine". This citation appears, as argued by the respondent, to refer to a fine count rather than a high count, in particular as other parts of D3 (see e.g. page 2 last paragraph) use the expression "a titolo alto (finissimi)" to describe the wool or other animal fibres in general,

which has also been translated as high count. It cannot therefore be concluded that "titolo fine" as used to describe a resulting cashmere fabric having a linear weight of 270 g/m in D3 must unambiguously be understood to mean high count cashmere of between 85 dtex and 200 dtex as defined in claim 1 at issue.

Whilst the appellant produced its own datasheet during oral proceedings to show that the weight of 270 g/m linear weight implied a high count cashmere with a count falling in the range defined in claim 1, the respondent also produced its own datasheet to demonstrate that the information in the appellant's datasheet was erroneous. However, since both parties filed their respective datasheets entirely without any supporting evidence as to the methods and criteria used to arrive at the differing calculations, the Board cannot find convincing evidence in either datasheet. Further, since each datasheet was filed very late, the Board exercises its discretion not to admit these datasheets into proceedings in accordance with Article 13(1) RPBA, in particular because the issue of correctness of one or the other datasheet is clearly complex and requires further investigation, and the procedural economy is not assisted by the filing of these datasheets in particular at the very late stage of oral proceedings.

Thus, the Board cannot unambiguously conclude that D3 discloses a method for producing high count cashmere articles, even though it is accepted by the Board that D3 does disclose, generally, wool or other animal fibres with high count.

- 4.4 With regard to these differences, the problem to be solved when starting from D3 is how to produce a high count pure cashmere article, since cashmere yarns of very high count are notably very weak and cannot be woven in both warp and weft, as shown in D3 where only the warp yarns contain cashmere, whereas the weft yarns which are subject to continual high tensions are made from conventional yarns.
- 4.5 D2 (see e.g. page 1, lines 8 to 15; line 64 to page 2, line 29) involves a process in which a bulky stretchable yarn is doubled with a further unstretchable yarn such as a PVA yarn and bound together with a further yarn, which may also be of PVA, whereupon these bound yarns are woven. D2 also discloses (see page 2, line 117 to page 3, line 2) that the bulky yarn may be made from "silk, wool, and rayon, as well as from synthetic yarns of low plasticity, etc."

The Board finds that the teaching of D2 does not allow the skilled person to arrive at the invention without using inventive step, since whilst a PVA yarn is doubled with a yarn which may be of wool, and whereby the PVA is later dissolved in such a way that a pure animal fibre article may be obtained, the teaching of D2 is that this starting yarn (e.g. animal yarn) should be both bulky and stretchable. This is the exact opposite of the properties which may be attributed to yarns of high count cashmere. These are very fine and have very low stretchability. In this regard it should also be mentioned that merely because cashmere is a type of wool, this does not mean that a document mentioning the processing of wool can be understood to

imply that its process is suitable for cashmere wool; cashmere wool has for example its own specific mechanical properties which make it easily rupturable when of high count. The skilled person thus finds no teaching in D2 which leads, without using more than common knowledge, towards the invention defined in claim 1.

The appellant argued that D2, Example 29, concerns a 50s wool yarn which is a high count yarn and thus that a teaching is present to apply the D2 process to that in D3 so as to produce high count pure cashmere articles. However, the Board finds this argument unconvincing, because whether or not the value of 50s may correspond to a value of high count for the yarns defined in claim 1, which allegation is anyway disputed by the respondent due to the presence of different wool or cotton count scales both allegedly in use for wool at the date of D2, the yarns in D2 must necessarily be stretchable and bulky yarns, which as explained above are fundamentally different to cashmere yarns.

- 4.6 D14 (see e.g. claim 1) discloses a method for producing a fabric of high count worsted wool, wherein PVA synthetic fibres yarns are doubled with the worsted yarns and wherein the worsted fabric has a crepe due to a twisting in the same direction as the twist of the worsted yarn, whereafter the warp and weft yarns are woven (see page 5, second paragraph) and wherein the PVA is then dissolved at between e.g. 85° to 95° (see page 5 last paragraph). Further, D14 discloses that the worsted yarn need not only be wool, but more generally may be a "pure animal fiber" yarn (see e.g. page 4 first complete paragraph).

The Board concludes however that D14 does not provide a teaching, when starting from D3 and considering the objective problem to be solved, which would lead the skilled person to the subject-matter of claim 1 without using an inventive step. Whilst D14 discloses the use of high count yarns, there is no disclosure of high count cashmere yarns. Whilst worsted yarns may be somewhat similar to high count cashmere yarns in terms of e.g. length and strength, the whole purpose of D14 is the production of a fabric which has a crepe (see e.g. page 2, penultimate paragraph and page 6, last paragraph) which may be deep and uniform, and not a disclosure of producing a high count pure article as in claim 1. The production of a crepe fabric involves doubling in the same direction as the twist of the starting yarns, i.e. opposite to that defined in claim 1. This creping twist reduces the handle and feel of the fabric and is thus a step which would lead the skilled person away from using cashmere yarns, since cashmere is a more costly yarn and twisting cashmere to a crepe removes at least some of the desirable properties of cashmere, such that the resultant fabric becomes far closer to wool. Although the maintenance of desirable properties in high count cashmere by avoiding a crepe is not explicitly disclosed in the patent, the fact that a high count cashmere is known to be expensive because of its qualities, the production of a crepe negating many of such qualities would be counterintuitive. The Board thus concludes that a skilled person would not be taught by D14 to modify the process of D3 in such a way that a high count pure cashmere article should be produced as defined in claim 1, since this requires not only a substitution of

cashmere yarns for the worsted wool yarns (or animal fiber yarns) from D14 but also the use of a procedural step contrary to that in D14, namely doubling in the opposite sense to the twist of the starting yarns, before applying this process to not only the warp yarns but also to the weft yarns of D3. Whilst the skilled person could have modified D3 by taking such steps, the Board finds that the skilled person would not have done so without the benefit of hindsight.

Although the appellant argued that a skilled person is aware that creping yarns or untwisting during doubling is known, this does not alter the fact that a further step (beyond using cashmere as the animal yarn in D14), is required to be performed by a skilled person, in particular a step contrary to the method described in D14, in order to use its teaching to then further adapt the method of D3 in such a way as to arrive at a pure cashmere article of high count. Nothing in D14 however provides a teaching to a skilled person involving the provision of a non-creped fabric.

- 4.7 D16 (see e.g. page 3, line 4 to page 5, line 13) discloses a prior art method for producing a yarn which should be of high bulk (page 4, lines 15 to 20 and, page 5, lines 6 to 8), whereby a pure animal yarn (page 4, line 5) may be doubled with a PVA yarn. This is followed by weaving the doubled yarns before dissolving the PVA yarns in hot water. Bulky yarns made of pure cotton yarns (see e.g. page 5, line 6) are given as an example. This process is found undesirable in D16 as the result obtained did not give "rich bulkiness" (see e.g. page 5, line 13). The invention in D16 (see e.g. the claim) involves compounding the water

soluble yarn with a natural fibre and spinning while twisting to provide a highly bulky yarn (see e.g. page 5 penultimate paragraph).

The teaching of D16 would not lead a skilled person to the step of modifying the process in D3 by use of a cashmere yarn, largely for the same reasons as apply to D2, because D16 concerns the production of bulky yarns which are quite the opposite of the properties of high count cashmere yarns to which the process of claim 1 relates. The mere fact that pure animal yarns are mentioned, also does not by itself imply that cashmere yarns should be considered, but merely that pure animal yarns which are bulky yarns should be produced.

The skilled person thus finds no teaching in D16 to solve the objective problem when starting from D3, unless an inventive step is used.

The appellant argued that bulky yarns in D16 do not exclude bulky cashmere yarns, so that D16 allegedly teaches towards the invention in claim 1 when combined with the teaching in D3. The Board however finds this argument unconvincing since the problem to be solved when starting from D3 is how to produce a high count pure cashmere article, namely an article with low bulkiness, and thus something quite opposite to that which should be produced in D16.

- 4.8 Starting from D14 as the closest prior art, claim 1 differs in respect thereto (see the foregoing explanation of the disclosure in D14) at least in that the sense of doubling of the starting yarns is opposite to that in D14, and in that cashmere as opposed to

generally worsted wool or other pure animal fibre is used for these high count yarns.

The appellant argued that the objective problem to be solved when starting from D14 is also how to obtain a high count cashmere article and that the teaching of D3 would be combined with that of D14, together with the simple step of providing doubling in the opposite direction to that disclosed in D14, as is well known *per se* from e.g. D31 to D33, so as to obtain a non-crepe article.

The Board however concludes to the contrary. Firstly, there is no indication in D14 that cashmere yarns should be substituted for the worsted yarns. Even though D14 discloses the use of pure animal fibre yarns for use as the worsted yarns (see page 4, lines 6 to 10), cashmere yarns are not specifically mentioned. Whilst cashmere falls in the group of pure animal yarns and also woollen yarns, it is however a selection amongst such yarns and, when considering the creping process of D14, the skilled person is not taught to use cashmere as a specific worsted wool type, due to the loss of many of cashmere's special handle characteristics if creping were to occur. Considering the objective problem to be solved, the skilled person is not led to combine D14 with D3, because D3, whilst it mentions cashmere does not use pure cashmere, let alone cashmere of high count, but requires weft yarns of traditional fibre. D3 also discloses nothing concerning a creped process, so that a combination of the teaching of D3 with D14 to arrive at a pure cashmere article requires as a first step that the skilled person should select the cashmere yarns used as warp yarns and apply

this to both warp and weft yarns in D14. However, a skilled person is led away from performing such a step because this would require creping of cashmere and, as explained previously, loss of e.g. the handle which is the underlying reason for which high count cashmere, as opposed to high count worsted wool (i.e. wool of another type), is used. Thus, whilst a skilled person could opt to double yarns in a sense opposite to a crepe twist, there is no teaching to do so when considering the disclosure in D14.

- 4.9 The appellant argued further that the general concept underlying the invention was the strengthening of weak yarns by doubling them with a well known PVA fibre, such as known from D8, and then weaving them before dissolving out the PVA, which thereby made D29 relevant to the matter of inventive step when considering the skilled person's knowledge, whereby the use of cashmere would allegedly be applied to D29. The appellant also submitted that D29 already used PVA for doubling, albeit not specifying the dissolution conditions in claim 1, although these were already known from D8 and thus not inventive.

However, the Board is not convinced by the appellant's arguments in this regard, because D29 concerns only a yarn and fabric having "bulkiness" (see translation, page 1, claim, and page 2, first paragraph and the translated title "producing method for fabric having bulkiness"). Thus, whilst D29 indeed contains a disclosure that the fibres of the ordinary spun yarn to be doubled may have fibres "of at least a type other than" PVA (see translation page 3, third complete paragraph, and the claim on page 1), this would not

teach a skilled person to consider the process for use with weaving of cashmere yarns as defined in claim 1, unless an inventive step were used. As explained *supra*, cashmere yarns are specifically not bulky and nor is the fabric produced thereby. Merely because a doubling operation imparts additional strength to weaker yarns, this does not by itself teach a skilled person to apply a process employing bulky yarns to yarns which are not bulky. Further, whilst D29 generally discloses yarns for doubling with PVA which may have fibres of any other type than water soluble ones, the only example yarn used in D29 is disclosed in Examples 1 to 3 as being a cotton yarn, which has very different properties to those of a fine count cashmere yarn. Thus neither based on the general disclosure, nor on the examples in D29 would the skilled person be given an incentive to apply cashmere in the D29 process to arrive at a process using high count cashmere yarns in order to produce a high count cashmere article.

- 4.10 The Board thus finds no reason to differ from the conclusions reached by the opposition division, such that the subject-matter of claim 1 involves an inventive step when considering the prior art cited in the appeal proceedings.

The requirements of Article 56 EPC 1973 are therefore fulfilled.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau