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Datasheet for the decision of 13 February 2015

Case Number: T 1677/13 - 3.3.03

Application Number: 05711762.4

Publication Number: 1709117

IPC: C08L23/08, D01F8/06

Language of the proceedings: EN

Title of invention:
FIBERS AND NONWOVENS COMPRISING POLYETHYLENE BLENDS AND MIXTURES

Patent Proprietor:
The Procter & Gamble Company

Opponent:
Fitesa Germany GmbH

Headword:

Relevant legal provisions:
EPÜ Art. 83, 56, 54
EPC Art. 123(2)
RPBA Art. 13(3)

Keyword:
Amendments - added subject-matter (no)
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:
T 0934/96

Catchword:

Beschwerdekammern
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Case Number: T 1677/13 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 13 February 2015

Appellant: (Opponent)	Fitesa Germany GmbH Woltorfer Strasse 124 31224 Peine (DE)
Representative:	Von Kreisler Selting Werner - Partnerschaft von Patentanwälten und Rechtsanwälten mbB Deichmannhaus am Dom Bahnhofsvorplatz 1 50667 Köln (DE)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	Mather, Peter Geoffrey NV Procter & Gamble Services Company SA 100 Temselaan 1853 Strombeek-Bever (BE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 24 May 2013 rejecting the opposition filed against European patent No. 1709117 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairwoman	B. ter Laan
Members:	F. Rousseau
	R. Cramer

Summary of Facts and Submissions

I. The appeal by the Opponent lies from the decision of the Opposition Division posted on 24 May 2013, rejecting the opposition against European patent No. 1 709 117.

II. The European patent was granted on the basis of 11 claims, independent claim 1 reading as follows:

"1. A polymeric blend comprising:
(a) a first polyethylene having a density ρ_1, and a melt index MI_1, and
(b) a second polyethylene having a density ρ_2, and a melt index MI_2;
wherein said polymeric blend has a density ρ_b of from 0.920 g/cm^3 to 0.950 g/cm^3, a melt index MI_b of from 10 to 40 g/10 minutes characterized in that:
ρ_1 is between 0.900 g/cm^3 and 0.935 g/cm^3;
MI_1 is between 5 g/10 minutes and 25 g/10 minutes;
ρ_2 is between 0.935 g/cm^3 and 0.965 g/cm^3;
MI_2 is between 30 g/10 minutes and 45 g/10 minutes;
and $\rho_1 < \rho_b < \rho_2$, $MI_1 < MI_b < MI_2$, and $MI_2/MI_1 \geq 2.0$"

Claims 2 to 5 were directed to specific embodiments of claim 1. Claims 6 to 11 defined products comprising a polymeric blend according to claim 1, i.e. polymeric mixtures (claims 9 and 10), fibres (claims 6 and 11), a nonwoven material or an absorbent article comprising the fibre of claim 6 (claims 7 and 8).

III. A notice of Opposition had been filed requesting revocation of the patent as granted in its entirety on the grounds that it extended beyond the content of the application as filed (Art. 100(c) EPC) and lacked

sufficiency of disclosure (Art. 100(b) EPC), novelty and an inventive step (Art. 100(a) EPC). The following documents were cited in support of the opposition:

D1: EP-A-0 314 151 and
D3: US-A-6,015,617.

IV. According to the reasons of the decision the deletion throughout the description as filed of the term "about" that preceded various numerical values did not offend against Article 123(2) EPC. As to sufficiency of disclosure, it was held in essence that the skilled person was able to carry out the invention because he had access to the two polyethylene components of claim 1 and merely needed to blend them in order to obtain the claimed blend, or to apply the information provided in the specification to prepare the claimed products. Novelty was acknowledged, in particular over the disclosure of D1 and D3. As to inventive step, D1 was considered to represent the closest prior art, from which the polymeric blends of the patent in suit were distinguished by the density ranges of their first and second components. Reference was made to the passage in D1 on page 2, last line to page 3, line 10. The problem to be solved over D1 was to provide polymeric blends resulting in fibres exhibiting increased extensibility, as was shown in particular by the examples of the patent in suit. D3 did not point to the use of the present density ranges for the first and second components, nor did it suggest that an increased elongation could be obtained by using polyethylene resins having different densities. Thus, the Opponent had not shown that the claimed subject-matter was obvious in view of the cited prior art. An inventive step was therefore acknowledged.

V. An appeal against that decision was lodged by the opponent and the statement of grounds of the appeal was filed with letter of 27 September 2013. Additional written submissions were made by the appellant with letter of 5 June 2014.

VI. The rejoinder of the respondent (patent proprietor) was submitted with letter of 4 February 2014, which contained Auxiliary Requests 1 and 2, and additional written submissions were made with letter of 13 January 2015, which contained Auxiliary Request 3.

VII. A communication sent by telefax on 27 January 2015 was issued by the Board in preparation of the oral proceedings.

VIII. Oral proceedings were held on 13 February 2015 in the absence of the appellant, as announced with letter of 10 February 2015.

IX. The arguments of the appellant given in writing in so far as they are relevant for the present decision, can be summarised as follows:

a) The feature in claim 1 defining the melt index of the second component as being "between 30 g/10 minutes and 45 g/10 minutes" could not be based on the expression "more preferably from about 30g/10 minutes to about 45 g/10 minutes" as defined in the description of the application as filed. The consciously vague definition of the limits of that range did not provide any indication that they should be exactly 30 and 45. Moreover, original claim 1 contained the requirements $MI_1<MI_b<MI_2$ and $MI_2/MI_1 \geq 2.0$. In view of the vague values defined by the term "about" in the passage cited above,

those inequalities were also to be read in a vague manner when the range “of from about 30g/10 minutes to about 45 g/10 minutes” was applied to original claim 1. There was therefore a contradiction concerning melt index values that could be the same, lower or higher, although for example a value of 2.0 was disclosed for MI_2/MI_1. Thus, decision T 934/96 was applicable to the present case, meaning that a deletion of "about" before the numerical values 30 and 45 was not allowable under Article 123(2) EPC.

b) The patent in suit did not specify the exact conditions of the methods used for determining the density and the melt index allowing an exact determination of those parameters, either for the single components or for the blends. Furthermore, the TREF methodology which was necessary in order to separate the various polymeric components of the claimed blends or articles, was not sufficiently described so that it could not be verified whether a blend or article was in accordance with the claims of the patent in suit. The invention was therefore insufficiently disclosed.

c) Both D1 and D3 disclosed the subject-matter of the patent in suit. The appellant submitted a list of the various features of claim 1 as granted, as disclosed in D1 and D3, respectively. The density and melt index of the blend of D3 could be calculated from the values of the first and second components.

d) As to inventive step, the closest state of the art was D1. The opposition division had determined that the subject-matter of claim 1 of the granted patent only differed from that of D1 in the claimed densities. D1 and D3 concerned the same technical problem, namely improvement of elongation properties while retaining the additional properties desired for spun fibres. D3 did not only disclose broad ranges of density and melt index, but also sub-ranges thereof which were said to be advantageous for solving the technical problem, also with respect to processing properties, elongation and tensile strength. D3 therefore recommended the use of blended components having different densities for solving that problem. Thus, starting from D1 and in the light of D3, the claimed subject-matter was obvious.

X. The arguments of the respondent in so far as they are relevant for the present decision can be summarised as follows:

a) The main claim as granted was based on claim 1 and the description, both as filed. The deletion from the claims of the word "about" was wholly consistent with EPO case law. Thus claim 1 did not extend beyond the content of application as filed.

b) The methods of measurement of specific density and melt index, international standard methods ASTM D1505 and ASTM D1238, respectively, were indicated in the patent specification. A full disclosure of how the blends were to be prepared, including working examples, was also provided. Thus the claimed subject-matter was sufficiently disclosed.

c) The allegation that the "TREF" method which was indicated in paragraphs [0074] and [0075] of the patent specification, was unsuitable or unreliable, was contested. However, it was irrelevant for the issue of sufficiency of disclosure, because the method did not form part of the definition of the claimed subject-matter, nor were there any "TREF" results reported in the examples.

d) As to novelty, neither D1 nor D3 disclosed, in combination, the claimed density range and melt index range. Accordingly, the claims as granted were novel over D1 or D3.

e) Concerning inventive step, in the written submissions the respondent had indicated that they agreed with the conclusion reached by the opposition division when starting from D1 as the closest prior art. At the oral proceedings before the Board the problem solved by the claimed subject-matter over D1 was defined as providing polyethylene material suitable for use in a fibrous nonwoven that was readily extensible and had improved abrasion resistance (low fuzz). This was shown by the examples of the patent in suit, in particular by comparing Blend G (as claimed) with Blend J (not as claimed). D3 did not provide any pointer to the claimed solution as it did not suggest the combination of a component having high density and high melt index with a component having low density and low melt index, let alone in order to provide blends suitable for spinning fibres that are readily extensible and exhibit low fuzz. Thus, an inventive step had to be acknowledged.

XI. The appellant requested that the decision under appeal be set aside and the patent be revoked.

XII. The respondent requested that the appeal be dismissed, or alternatively that the decision under appeal be set aside and that the patent be maintained in amended form according to Auxiliary Request 1 or Auxiliary Request 2, both filed with letter of 4 February 2014, or alternatively on the basis of Auxiliary Request 3 submitted with letter of 13 January 2015.

XIII. The Board's decision was announced at the end of the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. As indicated in section VIII above, the appellant, although duly summoned, was absent from the oral proceedings. In accordance with Article 15(3) RPBA, the appellant was treated as relying only on their written case.

Article 100 (c) EPC

3. The deletion of the term "about" before numerical values does not infringe Article 123(2) EPC according to normal practice under the Case Law of the Board of Appeals, unless the skilled person would understand, from the whole content of the application as filed, that an exact value as such could not have been meant, as was the case in T 934/96. That decision concerns a situation in which a value defined to be "about

15%" ("ca. 15%") in an explanation concerning a figure could not be taken as an upper limit of exactly 15% in a claim since it would define subject-matter that was in contradiction with the information provided by said figure. In other words, the whole context of the disclosure concerning the value of about 15% did not provide a direct and unambiguous basis for defining an upper value of 15% in the claim.

3.1 In the present case, the range "between 30 g/10 minutes and 45 g/10 minutes" is clearly and unambiguously disclosed in the expression "from about 30 g/10 minutes to about 45 g/10 minutes" defined on page 9, third paragraph of the application as filed, representing the more preferred range for component 2 of the blend. Its introduction in claim 1 as originally filed does not lead to any contradiction between the subject-matter of claim 1 as granted and the passage specifying the range "from about 30 g/10 minutes to about 45 g/10 minutes" because that range is not defined in a specific context, but is clearly meant to be generally applicable, *i.e.* to the general context of claim 1 as filed. Thus, decision T 934/96 is not applicable to the present case.

3.2 In view of the above, the claimed subject-matter complies with Art 123(2) EPC.

Article 100 (b) EPC

4. For sufficiency of disclosure the question needs to be answered whether the patent in suit provides sufficient information to enable the skilled person to perform the invention as defined in the claims, taking into account common general knowledge; in the present case, to

obtain the claimed blends and fibres or objects made therewith.

4.1 Regarding the definition of the polyethylene components (a) and (b) as defined in claim 1, those components are either known or their manufacture, conventional in the art, does not necessitate any inventive skill. Also measurement of the density and melt flow rate of the obtained polymers is conventional, as shown for example by D7 and D9. As to the claimed compositions, they can be obtained by blending the two components as shown in paragraph [0031] and Example 1 of the patent in suit, so that the skilled person is in a position to obtain the composition. Furthermore, the density and melt flow rate of the mixture can be either approximated using the conventional relationships, as in document D1 (page 4, lines 10-17), or measured using the methods described in D7 and D9. The methods to be employed in order to prepare articles or polymeric mixtures from those polymeric blends as defined in claims 7 to 11, are also known to the skilled person, which has not been denied by the appellant, so that the subject-matter defined in any of claims 1 to 11 is sufficiently disclosed.

4.2 The appellant’s objection regarding lack of sufficiency refers to an ambiguity and/or difficulty in determining the melt flow rate or density of the polymeric components of the claimed composition/articles, because components thereof were held to be difficult to separate and the values of the melt flow rate might depend on the type of procedure used within the method ASTM D 1238. The appellant’s objection therefore concerns the determination of the exact limits of the claimed subject-matter, in particular in view of the question how it can be determined whether a mixture or

article falls within the ambit of the present claims. That question has nothing to do with the question whether the skilled person can obtain the claimed blends and fibres or objects made therewith and is a matter of clarity (Article 84 EPC), not of sufficiency of disclosure(Article 83 EPC). Since the appellant's objection does not arise out of any amendment made in opposition or appeal proceedings, any lack of compliance with the requirements of Article 84 EPC cannot be objected to. The appellant has not shown that a certain ambiguity in determining the exact limits of the claim would prevent the skilled person from obtaining the claimed subject-matter.

4.3 In view of the above considerations, the requirements of Art. 83 EPC are complied with.

Article 100 (a) EPC - Novelty

5. The question to be answered for novelty is whether any of D1 or D3, cited by the appellant as anticipatory prior art, provides a clear and unambiguous disclosure of the claimed subject-matter.

5.1 D1 describes a blend of linear polyethylenes suitable for spunbonding at throughput rates of 1,0 to 1,2 grams/minute/hole, at linear spinning velocities of at least 3500 meters per minute, to produce fiber sizes of less than 3.0 denier/filament, comprising
high molecular weight linear polyethylenes having a MFR value within the range between 0,5 to 25 g/10 min. and a density above 0,91 g/cm^3, and
low molecular weight linear polyethylene having a MFR value within the range between 25 to 300 g/10 min. and a density above 0,91 g/cm^3(claim 1).

D1 page 2, line 56 to page 3, line 3, describes a density of the first component in the range of 0,91 to 0,96 g/cm^3 and a melt index of less than 25g/10 min., preferably less than 20 g/10 min. The density of the second component is disclosed to be in the range of 0,91 to 0,96 g/cm^3 and its melt index as greater than 25 g/10 min., preferable greater than 40 g/10 min (page 3, lines 7 to 10). The density and melt index of the blend of D1 are from 0,91 to 0,96 g/cm^3 and from 25 to 300 g/10 min., respectively (claim 2).

Those passages do not disclose that the low molecular weight component of the blend has a density which is equal to or higher than that of the high molecular weight component of the blend, let alone that those have to be comprised in the ranges of 0.900 g/cm^3 to 0.935 g/cm^3 and 0.935 g/cm^3 to 0.965 g/cm^3, respectively. Those passages of D1, cited by the appellant, merely indicate that both components should have a density in the range of 0.91 g/cm^3 to 0.96 g/cm^3. Hence, the objection for lack of novelty over the disclosure of D1 fails to convince.

5.2 D3 describes a fiber having a diameter in a range of from 0,1 to 50 deniers which is prepared from a polymer blend, wherein the polymer blend comprises:
A. from 0,5 percent to 25 weight percent (by weight of the polymer blend) of a first polymer which is a homogeneous ethylene/α-olefin interpolymer having:
i. a melt index of from 0,5 to 100 gram/10 minutes,
ii. a density of from 0,850 to 0,920 gram/centimeters^3, and
B. a second polymer which is an ethylene homopolymer or an ethylene/α-olefin interpolymer having:
i. a melt index of from 0,5 to 500 gram/10 minutes, and

ii. a density which is at least 0,01 gram/centimeters^3 greater than the density of the first polymer, wherein the fiber is bondable at a temperature of less than 165°C (claim 1).

The first component of D3, which is a homogeneous linear or substantially linear ethylene polymer, has a density of at least 0.850 grams/centimeters^3, preferably at least 0.855 grams/centimeters^3, and more preferably at least 0.860 grams/centimeters^3; and typically no more than 0.920 grams/centimeters^3, preferably no more than 0.900 grams/centimeters^3, more preferably no more that 0.890 grams/centimeters^3, and most preferably no more than 0.880 grams/centimeters^3 (column 6, lines 47 to 56). The melt index of the first component is generally at least 0.1 grams/10 minutes, preferably at least 0.5 grams/10 minutes, more preferably at least 1 grams/10 minutes; generally no more than 100 grams/10 minutes, preferably no more than 30 grams/10 minutes, more preferably no more than 10 grams/10 minutes, even more preferably no more than 5 grams/10 minutes, and most preferably no more than 1,5 grams/10 minutes (D3, column 7, lines 9 to 19).

Regarding the second component, when it is an ethylene polymer, it will have a density which is at least 0.01 grams/centimeters^3, preferably at least 0.03 grams/centimeters^3, more preferably at least 0.05 grams/centimeters^3, and most preferably at least 0.07 grams/centimeters^3 greater than that of the first polymer. The second polymer will typically have a density of at least 0.880 grams/centimeters^3, preferably at least 0.900 grams/centimeters^3, more preferably at least 0.935 grams/centimeters^3, even more preferably at least 0.940 grams/centimeters^3 and most preferably at least 0.950 grams/centimeters^3 (column 6, lines 56 to 67). Its melt

index is generally at least 0.5 grams/10 minutes preferably at 3 grams/10 minutes, and more preferably at least 5 grams/10 minutes. In the case of melt blown fibers, the melt index for the second polymer is preferably at least 50 grams/10 minutes, more preferably at least 100 grams/10 minutes; preferably no more than 1000 grams/10 minutes, more preferably no more than 500 grams/10 minutes. For spunbond fibers, the melt index of the second polymer is preferably at least 15 grams/10 minutes, more preferably at least 25 grams/10 minutes; preferably no more than 100 grams/10 minutes, more preferably no more than 35 grams/10 minutes For staple fibers, the melt index of the second polymer is preferably at least 8 grams/10 minutes, more preferably at least 10 grams/10 minutes; preferably no more than 35 grams/10 minutes, more preferably no more than 25 grams/10 minutes. For flash spun fibers, the melt index of the second polymer is preferably at least 0.1 grams/10 minutes, more preferably at least 0,5 grams/10 minutes; preferably no more than 3 grams/10 minutes, more preferably no more than 2 grams/10 minutes (D3, column 7, lines 20 to 37).

There is no indication that those passages, cited by the appellant, should be read in combination, in particular in the combination now being claimed. In fact, in view of the broad disclosure of D3, such a combination of the various possibilities disclosed in D3, providing various preferred lower and upper limits for the density and melt indices of the two components, can only be arrived at with knowledge of the subject-matter now being claimed. Moreover, the argument that the density and melt index of the blend as defined in the patent in suit could be calculated from the values of the first and second components disclosed in said passages of D3 is not supported by any evidence. Not

only did the appellant not provide such calculation, but also do the cited passages of D3 not disclose any proportion for the first and second resin components, which is necessary in order to carry out such calculation. Hence, no case has been made for lack of novelty over D3 either.

5.3 For the above reasons, the claimed subject-matter complies with Art. 54 EPC.

Article 100 (a) EPC - Inventive step

6. The patent in suit concerns polymeric blends comprising a mixture of two different polyethylene resins, which blends are used to produce fibres and nonwoven materials comprising said fibres (paragraph [0001]). D1 which concerns spunbonded webs or fabrics prepared using similar blends (see claims 1 and 9, page 4, lines 18-32), was considered by both parties to represent the closest prior art, in particular in view of the blend components disclosed on page 2, line 55 to page 3, line 13 of D1. The Board sees no reason to take a different view and sees D1 as an appropriate starting point for assessing inventive step.

6.1 The respondent submitted that the problem solved by the claimed subject-matter over the blends of D1 was to provide polyethylene material suitable for use in a fibrous nonwoven that was readily extensible and had an improved abrasion resistance (low fuzz).

That line of argument for inventive step was brought forward for the first time at the oral proceedings before the Board, *i.e.* at a very late state of the appeal proceedings. Concerning inventive step the respondent had not submitted any arguments in writing,

but had merely indicated to agree with the conclusion reached by the Opposition Division, starting from D1 as the closest prior art. In view of the new argument, the conclusion has to be drawn that the respondents' written submissions were not complete and did not contain all the facts, arguments and evidence upon which it relied in support of its case, contrary to Article 12(2) RPBA. Admitting the respondent's new line of argument would have the effect of introducing a crucial point in the assessment of inventive step, namely an advantage over D1 allegedly brought about by the claimed subject-matter, that had not been considered in the contested decision and in appeal until the oral proceedings.

6.2 The Respondent's failure to submit this crucial point in the assessment of inventive step at an earlier stage deprived the appellant of the opportunity to present their comments thereon and/or to reconsider their intention not to attend the oral proceedings. The introduction of this new line of argument at the oral proceedings - in the absence of the appellant - raised the question whether the board could arrive at a decision on the basis of this belated submission without contravening the respondents' right to be heard, or whether the proceedings should be adjourned. Therefore, the Board does not admit the respondent's new line of argument to the proceedings and decides to assess inventive step merely on the basis of the argumentation submitted by the parties in writing (Article 13(3) RPBA).

7. The statement of grounds of the appeal does not provide any indication that the appellant contests that the claimed blends provide a successful solution to the problem of providing polymeric blends that, compared to

those of D1, result in fibres exhibiting increased extensibility. Concerning the issue of inventive step, the letter of 5 June 2014 in reply to the respondent's rejoinder only contains a general reference to earlier submissions made before the first instance. Such a general reference cannot replace an explicit indication that the problem as formulated in the contested decision is not considered to be successfully solved, let alone arguments to support that view. It cannot be expected that the Board substitutes itself for the appellant and, in breach of the principle of equal treatment of the parties, investigates, in lieu of that party, whether the experimental data provided in the patent in suit constitute sufficient evidence that the problem indicated in the contested decision is successfully solved.

Under those circumstances and in the absence of any apparent reason for a contrary finding, the claimed subject-matter is considered to constitute a successful solution to the problem of providing polymeric blends that result in fibres exhibiting increased extensibility.

8. It remains to be decided whether or not the skilled person, starting from D1 and wishing to solve the above defined problem, would have been guided by the available prior art to use a blend as defined in claim 1 of the patent in suit, characterized by, among other things, a first component having a density between 0.900 g/cm^3 and 0.935 g/cm^3 and a melt flow index between 5 g/10 minutes and 25 g/10 minutes and a second component having a density between 0.935 g/cm^3 and 0.965 g/cm^3, its melt flow index being between 30 g/10 minutes and 45 g/10 minutes.

8.1 In this respect, the appellant referred to the blends described in D3, from column 6, line 47 to column 7, line 37. That passage, however, merely describes preferred upper and lower limits for the density and melt flow index of each of the first and second component of the blend. Those preferences provide a pointer towards the component with the lower density, preferably 0,860 to 0,880 g/cm^3, to have a melt index preferably of 1 to 1,5 g/10 minutes, i.e. both ranges are below those defined in claim 1 of the patent in suit. Moreover, the appellant did not provide any explanation, for example on the basis of calculations, that showed that the modification of one of the components of the blend disclosed in D1 using a component of D3, would result in a blend necessarily having the density and melt index required by present claim 1. In the absence of any indication to this effect, let alone any indication in that passage that such a modification would result in an improvement of the extensibility of the fibres made with the blend, it cannot be concluded that, starting from D1, D3 renders the claimed subject-matter obvious.

8.2 Therefore, no case has been made by the appellant that, having regard to the state of the art, the subject-matter of claim 1 was obvious to the skilled person. Consequently, the subject-matter of present claim 1 and by the same token that of dependent claims 2 to 5 meets the requirements of Article 56 EPC.

9. As the appellant did not make any submissions in relation to claims 6 to 11 which define products comprising a polymeric blend according to claim 1, the Board also concludes that the subject-matter of claims 6 to 11 was not obvious to the skilled person (Article 56 EPC).

Order

For these reasons it is decided that:

1. The appeal is dismissed

The Registrar: The Chairman:

B. ter Heijden B. ter Laan

Decision electronically authenticated