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**Datasheet for the decision
of 3 February 2009**

Case Number: T 1268/06 - 3.3.09

Application Number: 89900949.2

Publication Number: 0397696

IPC: B32B 5/12

Language of the proceedings: EN

Title of invention:

Ballistic-resistant composite article

Patentee:

AlliedSignal Inc.

Opponent:

E.I. DU PONT DE NEMOURS AND COMPANY

Headword:

-

Relevant legal provisions:

EPC Art. 54, 123, 108

EPC R. 99(c)

Keyword:

"Novelty - no (main request and auxiliary requests 1, 3, 5, 6) "

"Amendments not allowable (auxiliary request 2, 4) "

"Admissibility of requests 7 to 13 (no, going beyond the scope defined in the statement of appeal) "

Decisions cited:

G 0001/03, G 0001/99

Catchword:

(see point 9)



Case Number: T 1268/06 - 3.3.09

DECISION
of the Technical Board of Appeal 3.3.09
of 3 February 2009

Appellant: AlliedSignal Inc.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 28 June 2006
revoking European patent No. 0397696 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Kitzmantel
Members: J. Jardón Álvarez
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the Patent Proprietor against the decision of the Opposition Division dated 28 June 2006 revoking the European patent No. 0 397 696.

II. The following documents are referred to in the present decision:

D3: Wincklhofer, R.C. "Ultra-high strength from polyethylene" Clemson (South Carolina), February 5-6 1985,

D6: Dorey, G. "Can hybrids improve composite reliability?", *Astronautics & Aeronautics* July/August 1982, pages 63 - 66

D9: US - 4 403 012

D10: US - 4 623 574

E11: Summary of calculations based on D9 and D10 filed by the Opponent on 17 March 2005 during the oral proceedings before the Opposition Division.

III. The patent is based on the European patent application No. 89900949.2, filed on 11 July 1988 as International application PCT/US88/02314 (WO 89/06190) in the name of AlliedSignal Inc. The grant was announced on 12 October 1994 (Bulletin 94/41) on the basis of 10 claims.

Claim 1 read as follows:

"1. An impact resistant composite comprised of one or more layers; at least one of said layers comprising a network of filaments having a tensile modulus of at least 1350 g/tex (150 g/denier), an energy-to-break of at least 8 J/g, and a tenacity equal to or greater than 63 g/tex (7 g/denier) in a matrix, characterized in that the ratio of the thickness of said layer to the equivalent diameter of said filaments is equal to or less than 12.8."

Claims 2 to 10 were dependent claims.

IV. Notice of Opposition requesting the revocation of the patent in its entirety on the grounds of Article 100(a) EPC was filed against this patent by E.I. Du Pont De Nemours and Company on 11 July 1995.

V. By its interlocutory decision announced orally on 17 March 1997 and issued in writing on 10 June 1997, the Opposition Division held that the grounds for opposition raised by the Opponent did not prejudice the maintenance of the patent in amended form.

This decision was based on two sets of claims according to a main and a first auxiliary request, both filed on 17 March 1997 during the oral proceedings. The Opposition Division concluded that the subject-matter of Claim 1 of the main request lacked inventive step having regard to the combined teaching of documents D6 and D3. On the other hand, the Opposition Division decided that the subject-matter of the claims according to the first auxiliary request met the requirements of the EPC.

Independent claims 1 and 11 of the main request read:

"1. An impact resistant composite comprised of one or more layers; at least one of said layers comprising a network of filaments having a tensile modulus of at least 1350 g/tex (150 g/denier), an energy-to-break of at least 8 J/g, and a tenacity equal to or greater than 63 g/tex (7 g/denier) in a matrix, characterised in that the ratio of the thickness of said layer to the equivalent diameter of said filaments is equal to or less than 12.8 and said filaments are aligned substantially parallel to one another along a common filament direction and the filaments comprise polyethylene or polypropylene filaments.

11. Use for ballistic protection of an impact resistant composite comprised of one or more layers; at least one of said layers comprising a network of filaments having a tensile modulus of at least 1350 g/tex (150 g/denier), an energy-to-break of at least 8 J/g, and a tenacity equal to or greater than 63 g/tex (7 g/denier) in a matrix, characterised in that the ratio of the thickness of said layer to the equivalent diameter of said filaments is equal to or less than 12.8 and said filaments are aligned substantially parallel to one another along a common filament direction"

Claims 2 to 10 and 12 to 19 were dependent claims.

VI. Appeals were filed by both the Patent Proprietor and the Opponent against this decision of the Opposition Division. In decision T 0853/97 of 20 September 2000, Board 3.3.6 decided to admit two additional citations, i.e. documents D9 and D10, into the proceedings and to

remit the case to the Opposition Division for further prosecution.

- VII. The Opposition Division revoked the patent by a second decision announced orally on 17 March 2005 and issued in writing on 28 June 2006 because, in its view, the subject-matter of the claims of all the pending requests lacked novelty or inventive step.

The Opposition Division held that the subject-matter of Claim 1 of the main, the first and the second auxiliary requests lacked novelty having regard to the disclosure of D9 and the subject-matter of Claim 1 of the third to fifth auxiliary requests lacked inventive step having regard to the disclosures of D10 and D9.

- VIII. On 14 August 2006 the Patent Proprietor (Appellant) lodged an appeal against the decision of the Opposition Division. The appeal fee was paid on 17 August 2006.

In the Statement of Grounds of Appeal filed on 24 October 2006, the Appellant requested that the decision of the Opposition Division be set aside and the patent be maintained on the basis of the main request refused by the Opposition Division. The Appellant also filed sets of claims for thirteen auxiliary requests.

- IX. By letter dated 3 November 2006, the Appellant submitted a complete set of claim requests including some corrections in the sixth and ninth auxiliary requests.

Claim 1 of the main request reads as follows:

"1. Use for ballistic protection of an impact resistant composite comprised of more than one layer comprising a network of filaments having a tensile modulus of at least 1350 g/tex (150 g/denier), an energy-to-break of at least 8 J/g, and a tenacity equal to or greater than 63 g/tex (7 g/denier) in a matrix, and in which the ratio of the thickness of said layer to the equivalent diameter of said filaments is equal to or less than 12.8 and wherein said network of filaments comprises a sheet-like filament array in which said filaments are aligned substantially parallel to one another along a common filament direction and the filament alignments in each adjacent layers are rotated with respect to each other."

Compared to the main request the following amendments were made to the Claims 1 of the auxiliary requests 1 to 6:

- Auxiliary request 1. Claim 1 is identical to Claim 1 of the main request apart from the feature that the

"ratio of the thickness of said layer to the equivalent diameter of said filaments" (hereinafter referred to as 'Ratio') "is equal to or less than 8".

- Auxiliary request 2. Claim 1 is based on Claim 1 of the first auxiliary request with the additional requirement that "the filaments do not consist of polyethylene".

- Auxiliary request 3. Claim 1 is identical to Claim 1 of the main request except that now the 'Ratio' "is equal to or less than 6".

- Auxiliary request 4. Claim 1 is based on Claim 1 of the third auxiliary request with the additional requirement that "the filaments do not consist of polyethylene".

- Auxiliary requests 5 and 6. Claim 1 of these requests is identical to Claim 1 of the main request except that the 'Ratio' is defined as "from 1 to 5" in the fifth auxiliary request and "from 1 to 3" in the sixth auxiliary request.

Claim 1 of the seventh auxiliary request reads as follows:

"1. A method of making an impact resistant composite comprised of more than one layer comprising a network of filaments having a tensile modulus of at least 1350 g/tex (150 g/denier), an energy-to-break of at least 8 J/g, and a tenacity equal to or greater than 63 g/tex (7 g/denier) in a matrix, and in which the ratio of the thickness of each said layer to the equivalent diameter of said filaments is equal to or less than 12.8 and wherein said network of filaments comprises a sheet-like filament array in which said filaments are aligned substantially parallel to one another along a common filament direction and the filament alignments in each adjacent layers are rotated with respect to each other the method comprising

forming each said layer by a method comprising the steps of

- (a) aligning bundles of high strength filaments comprising a plurality of high strength filaments, said filaments having a tenacity of at least 63 g/tex (7 grams/denier), a tensile modulus of at least 1350 g/tex (150 grams/denier) and an energy-to-break of at least 8 joule/gram in a sheet like array in which said filaments are arranged substantially parallel to one another along a common filament direction;
- (b) passing said aligned bundles of filaments through a plurality of spreading means under tension to align individual filaments contained in said bundles of filaments in a substantially coplanar fashion such that tension-upstream of said plurality of spreading means (T_1) is equal to or less than 2.7 g/tex (0.3 grams per denier, "gpd"), and tension downstream of said plurality of spreading means (T_2) is equal to or less than 5.4 g/tex (0.6 gpd), and T_1 and T_2 individually are not greater than the tensile strength of the weakest filament and said spreading means comprising at least one elongated body having a substantially circular cross-section positioned substantially perpendicular to the longitudinal axis of said aligned bundles of filaments and positioned relative to said aligned bundles filaments such that the arc of contact between said means and said aligned bundles of filament is equal to or greater than 30° , thereby spreading said bundles of filaments to increase the coplanarity of filaments contained in said bundles to any extent;
- (c) coating said spread filaments with a matrix material, and
- (d) consolidating said coated filaments to form a layer comprising a network of said filaments dispersed in

said matrix material such that the ratio of the thickness of said layer to the equivalent diameter of said filaments is equal to or less than 12.8."

Claim 1 of the eighth to the thirteenth auxiliary requests corresponds to Claim 1 of the seventh auxiliary request but including the same amendments to the 'Ratio' and the exclusion of polyethylene as in the corresponding first to sixth auxiliary requests.

- X. The Respondent (Opponent) presented its arguments in a written submission dated 20 June 2007. The Respondent disputed all the arguments submitted by the Appellant and requested that the appeal be dismissed.

- XI. On 20 August 2008 the Board dispatched the summons to attend oral proceedings on 3 February 2009. In the annexed communication the Board expressed its preliminary opinion that the subject-matter of Claim 1 of the main request lacked novelty and drew the attention of the parties to the points to be discussed during the oral proceedings.

- XII. By letter dated 12 November 2008 the Appellant informed the Board that it would not attend the oral proceedings and that it withdrew its request therefor. The Appellant also pointed out that it maintained all other requests.

- XIII. By fax submitted on 26 January 2009 the Board informed the parties that the oral proceedings were cancelled.

XIV. The arguments presented by the Appellant in its written submissions, insofar as they are relevant for the present decision, may be summarized as follows:

- The Appellant argued that all the Respondent's calculations were fallacious and based on arbitrary assumptions concerning the disclosure of D9 and D10. It pointed out that a conclusion of lack of novelty of the subject-matter of Claim 1 would only be possible if D9 and D10 clearly and unambiguously disclosed that the 'Ratio' was equal to or less than 12.8.
- The Appellant maintained that the relevant information in the examples of D9 and/or D10 was inadequate to derive therefrom any particular 'Ratio'. This was clear from the fact that the Respondent had modified its calculations several times in the course of the proceedings each time obtaining different values for the 'Ratio'. However an example could only disclose one 'Ratio' and not several as calculated by the Respondent.
- In its opinion the Respondent also ignored the fact that each single layer of perfectly cylindrically aligned filaments comprised a 21% void volume. Moreover crossovers of yarns and filaments were unavoidable and air was entrapped during the preparation of the composites.
- Accordingly, there was no technical information available to the skilled person at the priority date derivable from D9 or D10, even taking general common knowledge into account, on the basis of

which any 'Ratio' could be inferred; thus these documents lacked a disclosure of the 'Ratios' specified in the requests.

XV. The arguments presented by the Respondent may be summarized as follows:

- The Respondent contested the admissibility of all the requests of the Appellant, the reasons being lack of clarity, lack of compliance with the requirements of Article 123 EPC and/or extension beyond the subject-matter to which the Appellant was entitled in these second appeal proceedings.
- The Respondent on the basis of document E11 was of the opinion that Examples 1, 6 and 26 of D10 as well as Examples 12, 13 and 14 of D9 disclosed products fulfilling all the features of Claim 1 of the main request as well as the first to sixth auxiliary requests.
- It pointed out that its calculations as summarized in E11 were based wholly on the information obtained from D9 and D10 and that they did not require any assumptions to be made.
- Concerning the presence of a "void volume" that might distort its calculations, it pointed out that voids were not mentioned at all in D10 and that in any case they would be removed when applying high pressure in combination with relatively high temperatures during the preparation of the composites. Additionally, it noted that the second method of calculation

provided in E11 was independent of the density of the composite and of any potential void content, and resulted in similar values for the 'Ratio'.

XVI. The Appellant (Patent Proprietor) requests that the decision under appeal be set aside and that the patent be maintained on the basis of the main request refused by the Opposition Division in its decision dated 28 June 2006 (main request) or alternatively that a patent be granted on the basis of amended claims as specified in auxiliary requests 1 to 13 filed on 24 October 2006 with the Statement of Grounds of Appeal and corrected with letter dated 3 November 2006.

The Respondent (Opponent) requests that the appeal be dismissed and the patent be revoked in its entirety.

Reasons for the Decision

1. The appeal is admissible.
2. *Procedural matters*

The Appellant stated in the Statement of Grounds of Appeal that the decision of the Opposition Division was given in contravention of Article 113 EPC because it did not have the opportunity to present comments or provide significant technical answers or consider amendments in reaction to the calculations put forward by the Opponent during the oral proceedings. However the Board notes that the Appellant did not draw any conclusions from this statement and did not file any request based on this alleged violation. The Board

itself sees nothing injurious to the Appellant arising out of it, all the more so since according to the minutes of the oral proceedings before the Opposition Division these new calculations filed "upon invitation of the chairman were commented by all parties and by the opposition division step by step". The Patent Proprietor did not at this stage object or submit that it had not had sufficient time.

MAIN REQUEST.

3. *Novelty (Article 54 EPC)*

3.1 Claim 1 is directed to the use for ballistic protection of an impact resistant composite. It includes the following features:

- a) use for ballistic protection of a composite, the composite comprised of:
- b) more than one layer which is a network of filaments in a matrix, the filaments having
 - b1) a tensile modulus of at least 1350 g/tex,
 - b2) an energy-to-break of at least 8 J/g, and
 - b3) a tenacity equal to or greater than 63 g/tex,
- c) in which composite the ratio of the thickness of the layer to the equivalent diameter of the filaments is equal to or less than 12.8, and
- d) wherein the network of filaments comprises a sheet-like filament array in which the filaments are aligned substantially parallel to one another along a common filament direction and the filament alignments in each adjacent layer are rotated with respect to each other.

3.2 The novelty of this claim has been denied by the Opposition Division in its decision, having regard to the disclosure of D9. Moreover the Respondent maintains that the disclosure of D10 also anticipates the subject-matter of this claim.

3.3 It is common ground (see Appellant's Statement of Grounds of Appeal, point 19 and Respondent's letter dated 20 June 2007, paragraph bridging pages 7 and 8; see also point 2.3 of the decision T 0853/97, the previous decision on this patent) that the ballistic resistant articles disclosed in D9 and D10 include all the features of Claim 1 of the main request with the exception of feature (c), namely that the ratio of the thickness of the layer to the equivalent diameter of the filaments is equal to or less than 12.8 (in this decision called the 'Ratio').

Concerning this feature the Respondent maintains that it is implicitly disclosed in said documents while according to the Appellant the information therein contains no clue as to this feature.

3.4 The only question to be answered in relation to novelty is therefore to establish whether the information in D9 and D10 allows calculation of this 'Ratio' and, if it can be calculated, whether the value obtained falls within the range covered by the claim.

3.5 In the Board's judgment this is indeed the case and the products of examples 1 and 6 of D10 and examples 12, 13 and 14 of D9 disclose products fulfilling all the

features of Claim 1 of the main request for the following reasons:

3.5.1 Turning first to D10, a ballistic target is prepared by consolidation of a plurality of sheets comprised of unidirectional, high strength, extended chain polyethylene yarn impregnated with a thermoplastic elastomer matrix (Example 1, sample 1). The polyethylene yarn used is an extended chain polyethylene with a tenacity of 29.5 g/denier, a modulus of 1250 g/denier and energy-to-break of 55 J/g, which is the same polyethylene as that used in example 1 of the patent in suit. It is not disputed that this polyethylene has a density of 0.97 g/cm³. The equivalent diameter of the filament can then be calculated by the formula:

weight = volume x density, or, more precisely:

$$\begin{aligned}
 \text{weight of filament} &= \text{volume of filament} \times \text{density} \\
 (10.2 \text{ g/denier}) &= (\pi \times \text{radius}^2 \times \text{length} (9000 \text{ m})) \times (0.97 \text{ g/cm}^3)
 \end{aligned}$$

It follows from this that the diameter of the filament is 0.0039 cm.

3.5.2 In a similar manner the thickness of a single layer can be calculated applying the formula:

weight of composite = volume of composite x density of composite,

wherein the density of composite is 0.96 g/cm³ [it contains 72.7% of polyethylene with a density of 0.97 g/cm³, the rest being Kraton D 1107 (see column 8, lines 57 - 62) having a density of 0.92 g/cm³ so that it

can be calculated using the equation $(0.727 \times 0.97) + (0.273 \times 0.92) = 0.96]$, and the composite area density is 8.49 kg/m^2 (see column 14, line 13, Table 2, Sample 1).

By introducing these values into the above formula it follows that the thickness of the overall composite is 0.8844 cm . Taking into account that this composite contains 42 layers [obtained by dividing the fibre areal density of the sample 1 composite, 6.20 kg/m^2 as given in column 13, line 57 by the fibre areal density of a single layer, 0.148 kg/m^2 as given in column 8, line 57], it follows that the thickness of a single layer is $= 0.0021 \text{ cm}$.

3.5.3 Thus, the ratio of the thickness of one layer to the equivalent diameter of a filament in Example 1 of D10 equals 5.4 ($0.0021 \text{ cm}/0.0039 \text{ cm}$) and is therefore within the range covered by Claim 1 of the main request.

3.5.4 A similar calculation for Example 6 of D10 results in a 'Ratio' of 5.0 for the product therein made.

3.5.5 An analogous lack of novelty conclusion can be drawn on the basis of Examples 12 to 14 of D9. Although in this document neither the precise density of the high density polyethylene used is stated nor is it said whether the composite is made from a yarn with 16 filaments or a yarn with 48 filaments, the Respondent has made calculations for every possible variant covered by the disclosures of Examples 12 to 14 and in every possible variant covered by these examples the value of the 'Ratio' is always below 12.8 (see E11, Table II to IV, the calculated ratio varying from 2.6

to 3.1 for Example 12; from 3.5 to 4.1 for Example 13 and from 4.1 to 4.8 for Example 14).

3.6 The Appellant has objected to the above calculations and argued essentially that

- there is inadequate information in the disclosures of D9 and D10 to derive any particular 'Ratio'. The calculations of the Respondent, which in fact have been modified several times during the proceedings, were based on data which are clearly factually wrong and do not properly address the issue of void space or air entrapment.
- the skilled person would realise from the study of D9 and D10 that he runs into insurmountable obstacles concerning the void volume and would further assume considerable stacking of the filaments resulting in a high ratio.

As a consequence, the skilled person would conclude that the information given in D9 and D10 does not allow the calculation of any ratio.

3.7 These arguments cannot be accepted by the Board:

3.7.1 The alleged presence of voids contradicts the clear disclosure of D10. According to column 7, lines 33 to 61 the laminate prepared using pressure in combination with relatively high temperatures is made of only two components, namely the fibre and the matrix, the matrix material being said to flow and occupy the remaining void spaces (see lines 36 - 37).

3.7.2 As to the presence of crossovers of yarns it is noted that the argument of the Appellant is again in contradiction to the disclosures of D9 and D10. Thus D10 indicates that the yarns are wrapped in a "side-by-side arrangement" around a drum resulting in a "plurality of substantially parallel strands of coated yarn aligned along a common direction" (Example 1, under Precursor Preparation Method 1) and the disclosure of D9 describes "layers of parallel multistrand yarn of high tenacity polyethylene" and "parallel fibers" (column 5, Examples 1 - 6).

3.7.3 It is also noted that the Respondent has presented a further calculation method (see E11, second parts of Tables II - IV) based only on the fibre areal density and thus independent of a potential void content. The results of this alternative calculation method are very close to those discussed above (see 3.5.5) and clearly indicate that, with the possible exception of some minor amounts of voids which may be entrapped somewhere in the composite, no voids are present in the composites of D9 and D10.

3.7.4 Finally, the fact that the Respondent had amended its calculations during the proceedings due to objections of the Appellant which were accepted by the Respondent cannot for that reason question the validity of the calculations as presented above under point 3.5 or in document E11.

3.8 In view of the above, the Board concludes that the ballistic material disclosed in documents D9 and D10 includes all the features of Claim 1 of the main

request. The subject-matter of this claim therefore lacks novelty.

FIRST, THIRD, FIFTH AND SIXTH AUXILIARY REQUESTS

4. *Amendments*

4.1 The subject-matter of Claim 1 of these requests corresponds essentially to the subject-matter of claim 1 of the main request with the only difference that the 'Ratio' (feature c)) is defined respectively as being:

"equal or less than 8" (first auxiliary request),
"equal to or less than 6" (third auxiliary request),
"from 1 to 5" (fifth auxiliary request), and
"from 1 to 3" (sixth auxiliary request).

5. *Novelty (Article 54 EPC).*

5.1 As discussed above in relation to the main request the disclosure of documents D9 and D10 includes ballistic protection material having a 'Ratio' in a range varying from 2.6 to 5.4 (see also E11).

5.2 It is evident that this ratio also falls within the range covered by Claim 1 of the above auxiliary requests.

5.3 The subject-matter of Claim 1 of auxiliary requests 1, 3, 5 and 6 is therefore also not novel.

6. Insofar as it might be argued that the calculated 'Ratio' according to example 12 of D9 could be 3.1 and therefore slightly above the range of Claim 1 of the

sixth auxiliary request, the Board notes (i) that the majority of the calculated ratio values is below 3.0 indicating that in all probability the "true" 'Ratio' is less than 3, and (ii) that in the absence of any information in the patent in suit as to the criticality for the desired ballistic protection of an upper ratio limit of 3 this value must be considered to be arbitrary and therefore unable to contribute an inventive step (Article 56 EPC).

SECOND AND FOURTH AUXILIARY REQUESTS

7. *Amendments (Article 123(2) EPC)*

7.1 The subject-matter of Claim 1 of the second auxiliary request corresponds to the subject-matter of Claim 1 of the first auxiliary request but including the restriction that "the filaments do not consist of polyethylene". The subject-matter of Claim 1 of the fourth auxiliary request includes the same restriction of the subject-matter of Claim 1 of the third auxiliary request.

7.2 There is no support for such exclusion in the application as originally filed. On the contrary, polyethylene filaments were one of the preferred embodiments of the application as originally filed (see Claim 15 and working examples). Moreover the amendment made does not fulfil the criteria for allowability of disclaimers as defined in the Headnote of the Decision G 1/03 (OJ EPO 2004, pages 413 - 447) as the disclosures of D9 and D10 are neither accidental nor state of the art under Article 54(3)(4) EPC 1973.

- 7.3 The Appellant justifies the amendment by reference to the fact that polyethylene is specifically disclosed in the application as originally filed.
- 7.4 The Board cannot accept this argument of the Appellant. The application as filed relates to the use of polyethylene, but it does not make any reference at all to its exclusion, as now claimed.
- 7.5 The amendments made to Claim 1 of the second and fourth auxiliary requests do not fulfil the requirements of Article 123(2) EPC and consequently these requests are also not allowable.

SEVENTH TO THIRTEENTH AUXILIARY REQUESTS

8. *Amendments*

- 8.1 Claim 1 of the seventh auxiliary request is directed to a method of making an impact resistant composite and Claim 1 of the eighth to thirteenth auxiliary requests modify this method claim in a manner corresponding to the way the first to sixth auxiliary requests modify the 'Ratio', or exclude the use of polyethylene.

9. *Framework of the appeal proceedings.*

- 9.1 The present appeal originates from the second decision of the Opposition Division revoking European patent No. 0 397 696. This second decision of the Opposition Division was caused by the admission at a late stage of the proceedings of documents D9 and D10 by the Board of Appeal in decision T 0853/97.

In its first interlocutory decision the Opposition Division had maintained the patent in amended form on the basis of a first auxiliary request filed during the oral proceedings dated 17 March 1997 (see above point V).

9.2 In this first decision the Opposition Division rejected the then main request of the Patent Proprietor because of lack of inventive step of the subject-matter of Claim 1.

9.3 The Patent Proprietor appealed that decision and requested the maintenance of the patent in the form of the main request before the Opposition Division (see second paragraph of page 1 of the Statement setting out the Grounds of Appeal dated 19 August 1997).

9.4 This statement of the Appellant sets out the scope of appeal (Article 108 and Rule 99(c) EPC) and therefore defines the broadest scope of the claims which can be defended by the Patent Proprietor during the appeal proceedings (see G 1/99, OJ EPO 2001, pages 381 - 400, point 6.4).

9.5 The set of claims of this main request defended before the Opposition Division included a product claim directed to an impact resistant composite wherein the filaments were defined as comprising polyethylene or polypropylene (cf. Claim 1) and a further independent claim to the use for ballistic protection of an impact resistant composite wherein the nature of the filaments was not specified (cf. Claim 11).

No method claim was included in this set of claims.

- 9.6 According to EPO practice an amendment of a granted claim directed to a product to a claim directed to a method of preparation of the product is usually allowed if the method of preparation is limited to the preparation of the products covered by the previous product claim.
- 9.7 In the present case, the methods according to Claim 1 of the seventh to the thirteenth auxiliary requests are not restricted to the preparation of products containing polyethylene or polypropylene as required by Claim 1 of the main request before the Opposition Division. It also includes embodiments directed to the preparation of impact resistant composites made of other materials, for instance aramid (see Claim 7) and therefore their scope goes beyond that to which the present appeal is limited.
- 9.8 Consequently, the subject-matter of Claim 1 of all the auxiliary requests seven to thirteen cannot be defended by the Appellant during the appeal proceedings and these requests are not admissible.
10. In summary, none of the Appellant's requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel