

**Internal distribution code:**

- (A)  Publication in OJ  
(B)  To Chairmen and Members  
(C)  To Chairmen  
(D)  No distribution

**D E C I S I O N**  
**of 6 October 2005**

**Case Number:** T 0692/04 - 3.3.03

**Application Number:** 98917800.9

**Publication Number:** 0977806

**IPC:** C08L 23/00

**Language of the proceedings:** EN

**Title of invention:**

Thermoplastic elastomer composition adapted for adhesion to polar materials

**Respondent:**

DSM IP Assets B.V.

**Appellant:**

Advanced Elastomer Systems, L.P.

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56, 114(2)

**Keyword:**

"Late-filed experimental report (not admitted)"  
"Inventive step (yes)"

**Decisions cited:**

T 0002/83, T 0495/91, T 0741/91, T 0951/91

**Catchword:**

-



Case Number: T 0692/04 - 3.3.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.03  
of 6 October 2005

**Appellant:** Advanced Elastomer Systems, L.P.  
(Opponent) 388 South Main Street  
Akron, Ohio 44311-1059 (US)

**Representative:** Weber, Thomas  
Patentanwälte von Kreisler-Selting-Werner  
Postfach 10 22 41  
D-50462 Köln (DE)

**Respondent:** DSM IP Assets B.V.  
(Proprietor of the patent) Het Overloon 1  
6411 TE Heerlen  
NL-8587 EPWO (NL)

**Representative:** -

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office dated 3 March 2004 and  
posted 17 March 2004 rejecting the opposition  
filed against European patent No. 0977806  
pursuant to Article 102(2) EPC.

**Composition of the Board:**

**Chairman:** R. Young  
**Members:** C. Idez  
H. Preglau

## Summary of Facts and Submissions

I. The grant of European patent No. 0 977 806 in the name of DSM N.V (later DSM IP Assets B.V) in respect of European patent application No. 98 917 800.9, filed on 27 April 1998 as the International Patent Application No. PCT/NL98/00232, claiming priority from the US patent application No. 45504 filed on 2 May 1997 and from the EP patent application 97 201 432.8 filed on 22 May 1997 was announced on 9 January 2002 (Bulletin 2002/02) on the basis of 19 claims.

Independent Claims 1, 14, 15 and 17 read as follows:

"1. Adhesive thermoplastic elastomer composition comprising either a blend of a thermoplastic polyolefin resin and a rubber (TPOE) or a thermoplastic elastomeric styrene based blockcopolymer (STPE), characterised in that the composition also comprises 2-60 wt.% of an adhesion promotor in the form of a reaction product of a functionalized rubber and a polyamide.

14. Process for the preparation of a composition according to anyone of claims 1-13, characterized in that a functionalized rubber and a polyamide are reacted with each other at a temperature above the melting point of the polyamide, after which the resulting product is melt-mixed or dry-blended with a thermoplastic elastomer selected from the group comprising a TPOE and a STPE.

15. Process for the preparation of an article comprising a substrate in combination with an adhesive

composition, characterised in that a composition according to anyone of claims 1-13 is heated to a temperature above the melting point whereafter the composition is combined with said substrate.

17. Article, comprising a substrate, in combination with a composition according to anyone of claims 1-13, or said composition being prepared according to anyone of claims 15-16."

Claims 2 to 13, 16, and 18 to 19 were dependent claims.

II. A Notice of Opposition was filed against the patent by Advanced Elastomer Systems, L.P, on 8 October 2002 on the grounds of Article 100(a) EPC. The Opponent requested the revocation of the patent as a whole.

The opposition was supported by the following documents:

D1: WO-A-95/26380;

D2: International Standard ISO 1629: 1995(E) Rubbers and lattices Nomenclature, pages 1-2; and

D3: Kirk-Othmer, Encyclopedia of Chemical Technology; Fourth Edition, Vol.7, 1993; page 366.

III. By a decision announced orally on 3 March 2004 and issued in writing on 17 March 2004 the Opposition Division rejected the opposition.

According to the decision the subject-matter of Claim 1 of the patent in suit was novel over document D1 since there was no reason to consider the functionalized propylene ethylene random copolymer mentioned at page 11, line 22 of D1 as a rubber.

As stated in the decision, document D1 had only considered the possibility to employ a thermoplastic polyolefin in order to provide a functionalized polyolefin. According to the decision, a polyolefin rubber was not suggested by a thermoplastic polyolefin. Consequently, the Opposition Division came to the conclusion that the subject-matter of Claim 1 was based on inventive step.

IV. A Notice of Appeal was filed on 24 May 2004 by the Appellant (Opponent) with simultaneous payment of the prescribed fee.

In the Statement of Grounds of Appeal filed on 17 July 2004, the Appellant requested that document

D4: US-A-4 728 692 be introduced into the proceedings.

It also argued essentially as follows:

(i) The technical problem underlying the patent in suit was to provide thermoplastic elastomer compositions being adhesive to polar materials without the need of pre-treatment of said polar material or the use of additional adhesives.

(ii) The subject-matter of Claim 1 of the patent in suit was only distinguished from D1 in that the composition comprised a reaction product of a functionalized rubber and a polyamide instead of a reaction product of a functionalized polyolefin and a polyamide.

(iii) The compositions of D1 solved the same problem as those of the patent in suit.

(iv) Thus, the technical problem starting from D1 was seen in the provision of an alternative composition with good adhesive properties to polar polymers and inorganic materials.

(v) D1 disclosed the general principle of improving the adhesion of thermoplastic elastomer compositions to polar substances by incorporating therein a reaction product of a functionalized polyolefin with a polyamide into the thermoplastic elastomer composition (page 10, line 35 to page 11, line 30; Claim 1; Examples).

(vi) According to D1 the functionalized polyolefin could be selected from copolymers of ethylene with one or more alpha-olefins. This definition would encompass ethylene propylene copolymers.

(vii) In view of documents D2 and D3 ethylene propylene copolymers would encompass elastomers.

(viii) The Opposition Division had disregarded the meaning of the term "copolymers of ethylene with one or more alpha olefins".

(ix) Document D4 referred in D1 contained a passage (page 3, lines 11 to 14) which was identical to the definition of the functionalized polyolefin in D1 at page 11, lines 16 to 19.

(x) There was a clear indication that D1 defined the polyolefins of the modifier in the same way as D4.

(xi) According to D4, this component was defined as containing an olefin copolymer rubber having an ethylene content of 35 to 85% by weight.

(xii) The passage on page 11, lines 16 to 19 of D1 must hence be interpreted as encompassing elastomers.

(xiii) Thus, the adhesive compositions comprising an adhesion promoter in form of a reaction product of a functionalized elastomer and a polyamide according to the patent in suit would have been obvious, if not implicit from D1.

V. In its letter dated 14 February 2005, the Respondent (Patentee) argued essentially as follows:

(i) It had been argued by the Appellant that Claim 1 of the patent in suit lacked novelty in view of D1 because this document incorporated the teaching of D4.

(ii) There was, however, no indication in D1 that document D4 and in particular the specific disclosure therein concerning the compositions of the functionalized polyolefins was incorporated in D1.

(iii) D4 was not cited in relation to the materials forming part of the composition describing the invention of D1, which had to be considered in isolation.

VI. With its letter dated 22 August 2005, the Appellant submitted an experimental report.

It also argued essentially as follows:

(i) The experimental report showed that the use of a functionalized rubber instead of a functionalized olefin did not change the adhesive properties of the compositions.

(ii) The adhesion was even better when using functionalized polyolefins.

(iii) Consequently, there no purposive selection by selecting functionalized rubber among functionalized polyolefins.

(iv) Thus, the subject-matter of Claim 1 was not based on an inventive step.

VII. In its letter dated 16 September 2005, the Respondent requested that the new experiments submitted by the Appellant with its letter dated 22 August 2005 be disregarded.

VIII. Oral proceedings were held before the Board on 6 October 2005.

At the oral proceedings the Appellant indicated that it no longer challenged the novelty of the subject-matter of the patent in suit and it did not further rely on document D4. The discussion focussed, hence, on (i) the admission of the experimental report submitted by the Appellant with its letter dated 22 August 2005 and (ii) the assessment of inventive step.



(i) The arguments presented by the Parties concerning the admission of the experimental report may be summarized as follows:

(i.a) By the Appellant:

(i.a.1) It had been the intention of the Appellant to submit these comparative data with its Statement of Grounds of Appeal.

(i.a.2) The Appellant was a subsidiary of the company Exxon Mobil and it was necessary to get the agreement of its parent company for carrying out comparative tests.

(i.a.3) Thus, the comparative data had been available to the Appellant only at a later stage. Furthermore, the Appellant would have expected that a longer period would elapse between the filing of the Statement of Grounds of Appeal and the setting of an oral proceedings before the Board.

(i.a.4) The comparative data were particularly relevant since they illustrated the use of an adhesion promoter on the basis of an ethylene copolymer falling under the definition of the modifier (i.e. adhesion promotor) given at page 11, lines 16 to 23 of D1.

(i.b) By the Respondent:

(i.b.1) The experimental data had been filed very late. There was hence no sufficient time left to Respondent for carrying out counter-experiments.

(i.b.2) The experimental data were not relevant since the ethylene copolymer (Exxelor VA 1840) used as comparative component in the experimental report had been available only since 2003, while document D1 was filed in 1994, and since a comparison had been made between two adhesion promoters both comprising an elastomeric component.

(ii) The Board, after deliberation, having informed the Parties that the experimental report and the technical information (leaflets concerning Exxelor VA 1820 and Exxelor VA 1840) annexed thereto would not be introduced into the proceedings, the discussion then moved to the question of inventive step in view of documents D1, D2 and D3. The arguments presented by the Parties in that respect may be summarized as follows:

(ii.a) By the Appellant:

(ii.a.1) Document D1 represented the closest state of the art.

(ii.a.2) Starting from D1 the technical problem had to be seen in the provision of alternative elastomer compositions having good adhesion to polar materials.

(ii.a.3) In that respect, the technical problem could not be defined as providing compositions having improved adhesives properties, since the comparison between Run 4 of D1 and Formulation 9 of Table 7 of the patent in suit clearly showed that the adhesive properties were indeed lower for the compositions according to the patent in suit.

(ii.a.4) The main factor for the adhesion was the presence of polar groups in the adhesion modifier. The fact that the polymeric compound might be elastomeric was not relevant.

(ii.a.5) The teaching of D1 was not limited to the use of thermoplastic olefin modifier but generally referred to olefin copolymers, such as ethylene copolymers (page 11, lines 16 to 23).

(ii.a.6) In view of D2 and D3 which referred to olefin copolymers such as the ethylene-propylene polymers (EPM) elastomers and the ethylene propylene diene monomer (EPDM) elastomers, it would have been obvious to use these elastomeric component in the adhesion promotor in order to provide alternative compositions.

(ii.a.7) Concerning Formulation 9 of table 7 of the patent in suit which used an EPDM elastomer, there was no indication of the final hardness of the compositions.

(ii.a.8) Thus, there was no evidence that the problem mentioned in the patent in suit (cf. paragraph [0009]) concerning the substantial maintenance of the hardness of the starting thermoplastic elastomer had been solved over the whole area claimed.

(ii.b) By the Respondent:

(ii.b.1) Document D1 represented the closest state of the art.

(ii.b.2) Starting from D1 the technical problem was to provide elastomer compositions having good adhesion to

polar materials without substantially increasing the hardness of the starting thermoplastic elastomer.

(ii.b.3) There were a sufficient number of examples in the patent in suit which showed that that technical problem was solved.

In that respect, the Patentee was not obliged to demonstrate that all the compositions falling under the scope of Claim 1 possessed the claimed properties in terms of adhesion and hardness.

(ii.b.4) The onus of the proof was on the Appellant to show that the claimed properties were not achieved. In that respect Formulation 9 of Example VII of the patent in suit also showed good adhesion properties as illustrated by its peel strength.

(ii.b.4) There was no suggestion in D1 to use an elastomer as basis for the adhesion promoter. Thus the subject-matter of Claim 1 was based on an inventive step.

IX. The Appellant requested that the decision under appeal be set aside and that the European patent No. 0 977 806 be revoked.

The Respondent requested that the appeal be dismissed.

## Reasons for the Decision

1. The appeal is admissible.
2. *Procedural matters*
  - 2.1 According to Article 114(2), EPC facts and evidence which are not submitted in due time by the Party concerned may be disregarded.
  - 2.2 As indicated in decision T 951/91 (OJ EPO 1995, 202, Headnote), the discretionary power given to the departments of the EPO pursuant to Article 114(2) EPC serves to ensure that proceedings can be concluded swiftly in the interests of the parties, the general public and the EPO, and to forestall tactical abuse. If a party fails to submit the facts, evidence and arguments relevant to their case as early and completely as possible, without adequate excuse, and admitting the same would lead to an excessive delay in the proceedings, the boards of appeal are fully justified in refusing to admit them in exercise of the discretion provided by Article 114(2) EPC.
  - 2.3 In the present case, an experimental report has been submitted by the Appellant with its letter dated 22 August 2005, i.e. six weeks prior to the oral proceedings before the Board.
  - 2.4 When trying to justify the late filing of this experimental report, the Appellant submitted that it had indeed been its intention from the very beginning of the appeal procedure to submit comparative data in support of its argumentation of lack of inventive step.

It further submitted that, its company being a subsidiary of the company Exxon Mobil, it had had to obtain the consent of its parent company in order to carry out the comparative experiments. Thus, it was the conjunction between the long delay for obtaining the consent of its parent company and what it regarded as the surprisingly short delay between the filing of its Statement of Grounds of Appeal and the date for the oral proceedings before the Board which explained the submission of the experimental report only six weeks before the oral proceedings.

2.5 These arguments are in the Board's view not convincing. This is, firstly, because the Board is unable to find in the Statement of Grounds of Appeal filed by the Appellant on 17 July 2004, any explicit or implicit indication which could have suggested that the Appellant intended to file experimental data in the course of the appeal proceedings. Furthermore, and independently of the fact that it is in the Board's view rather unusual that a Party should complain about the shortness of a proceeding before the EPO, it would have been in any case up to the Appellant to ask for a postponement of the oral proceedings before the Board in order to enable it to carry out its comparative experiments. The Board can only state, however, that such a request was never presented.

2.6 While the presentation of these tests only six weeks before the oral proceedings jeopardizes the purpose of the oral proceedings, namely to make a case ready for decision at the conclusion of the oral proceedings, and the right of the Respondent to file a detailed counterstatement, the Board further notes that the

evidential weight of these tests is in any case *prima facie* highly questionable. This is because the elastomeric compositions of Example A (said to illustrate compositions according to the patent in suit) and of Comparative A (said to illustrate compositions according to D1) referred to in that experimental report appear, in view of the technical leaflets annexed thereto concerning the ethylene copolymers Exxelor VA 1820 and Exxelor VA 1840, both to contain an elastomeric polymer based adhesion promotor, although in the passage of D1 relied on by the Appellant (cf. Section VIII (ii.a.5) above), the wording "elastomeric" is in no case associated with the definition of the adhesion promotor.

2.7 Consequently, the experimental report submitted with letter dated 22 August 2005 of the Appellant is excluded from the proceedings under Article 114(2) EPC for lateness and lack of relevance.

### 3. *Novelty*

3.1 Whilst lack of novelty was alleged by the Appellant in view of document D1 in the course of the opposition proceedings, it indicated at the oral proceedings before the Board, that it did not further challenge the novelty of the subject-matter of the patent in suit.

3.2 Novelty of the claimed subject-matter has also been acknowledged by the Opposition Division, and the Board sees no reason to depart from that view.

4. *The patent in suit, the technical problem*

4.1 The patent in suit is concerned with thermoplastic elastomer compositions having adhesion to polar materials without requiring the pre-treatment of such polar materials or the use of additional adhesives.

4.2 Such compositions are known from document D1, referred to in the patent in suit (cf. paragraphs [0008] and [0009]), which the Board, in common with the views of the Parties and the Opposition Division, considers as the closest state of the art.

4.3 Document D1 is concerned with thermoplastic elastomer compositions having improved surface properties particularly adhesion to resins. More precisely, D1 relates to a thermoplastic elastomer composition comprising:

- 100 parts by weight of a thermoplastic elastomer selected from

(A) (a) a thermoplastic polyolefin homopolymer or copolymer, and  
(b) an olefinic rubber which is fully crosslinked, partially crosslinked or not crosslinked, and optionally  
(c) common additives;

(B) (a) a block-copolymer of styrene/conjugated diene/styrene and/or its hydrogenated derivative, optionally compounded with  
(b) a thermoplastic polyolefin homopolymer or copolymer and/or  
(c) common additives



and

(C) any blend of (A) and (B)

- 3 to 60 phr (parts per hundred weight parts of resin), based on the total weight of (A), (B), or (C), of

- (i) a copolymer obtainable by condensation reaction of 10 to 90 weight % of a functionalized polyolefin with 90 to 10 weight % of a polyamide, based on the total weight of functionalized polyolefin and polyamide, or
- (ii) a functionalized polyolefin and a polyamide in the amounts defined under (i) or
- (iii) a mixture of (i) and (ii), under the proviso that the functionalized polyolefin contains no less than 0.3 weight %, based on the total weight of the functionalized polyolefin, of functional group-forming monomers (page 4, line 18 to page 5, line 25).

4.4 As indicated in D1, the polyolefins suitable for use in the components (A), (B) or (C) include thermoplastic, crystalline polyolefin homopolymers and copolymers. They are desirably prepared from monoolefin monomers having about 2 to about 7 carbon atoms, such as ethylene, propylene, 1-butene, isobutylene, 1-pentene, 1-hexene, 1-octene, 3-methyl-1-pentene, 4-methyl-1-pentene, 5-methyl-1-hexene, mixtures thereof and copolymers thereof with (meth)acrylates and/or vinyl acetates. The amount of polyolefin found to provide useful compositions (A) is generally from about 8 to about 90 weight percent, under the proviso that the total amount of polyolefin (a) and rubber (b) is at least about 35 weight percent, based on the total weight of the polyolefin (a), rubber (b) and optional additives (c). The thermoplastic polyolefins homopolymers or copolymers which can optionally be used

in the thermoplastic elastomer composition (B) are selected from the same polyolefins as mentioned above. The amount of the polyolefins used in composition (B) can be up to about 60 weight %, based on the total amount of composition (B) (page 5, line 32 to page 6, line 31).

4.5 Document D1 further mentions that the rubber (b) can be selected from the group consisting of ethylene-propylene-diene rubber, ethylene-propylene rubber, butyl rubber, halogenated butyl rubber, copolymers of isomonoolefin and para-alkylstyrene or their halogenated derivatives, natural or synthetic rubber, polyisoprene polybutadiene rubber, styrene-butadiene-copolymer rubbers, nitrile rubbers, polychloroprene rubbers and mixtures thereof (Claim 4). The amount of olefinic rubber in composition (A) generally ranges from about 70 to about 10 weight percent, under the proviso that the total amount of polyolefin (a) and rubber (b) is at least about 35 weight %, based on the weight of the polyolefin (a), the rubber (b) and the optional additives (c) (page 9, lines 3 to 10).

4.6 According to D1 the thermoplastic elastomer (B)) is a block-copolymer of styrene/conjugated diene/styrene, its hydrogenated derivative or mixtures thereof. Generally this block-copolymer may contain about 10 to about 50 weight %, more preferably about 25 to about 35 weight % of styrene and about 90 to about 50 weight %, more preferably about 75 to about 35 weight % of the conjugated diene, based on said block-copolymer. The thermoplastic elastomer (B) may thus optionally further comprise up to about 60 weight % of (b) the thermoplastic polyolefin

- homopolymer or copolymer or the additives or mixtures thereof, based on the total weight of the block-copolymer (a) and (b). The thermoplastic polyolefins are selected from those mentioned above in context with the thermoplastic elastomer (A) (page 9, lines 14 to 37).
- 4.7 As stated in D1 other thermoplastic elastomers which can be modified with modifier mentioned herein below are blends (C) of the thermoplastic elastomer (A) comprising the polyolefin, rubber and optionally additives with the thermoplastic elastomer (B) comprising the block-copolymer, optionally polyolefins and/or additives (page 10, lines 3 to 8).
- 4.8 According to D1, the presence of a copolymer of functionalized polyolefin and polyamide improves the surface properties and particularly the property of adhesion to engineering resins and such a copolymer can be used as adhesion promoter. The copolymers of functionalized polyolefins and polyamides can be prepared by condensation reaction of functionalized polyolefins and polyamides. The polyolefins of the functionalized polyolefins can be homopolymers of alpha-olefins such as ethylene, propylene, 1-butene, 1-hexene, and 4-methyl-1-pentene, and copolymers of ethylene with one or more alpha-olefins. Preferable among the polyolefins are low-density polyethylene, linear low-density polyethylene, medium- and high-density polyethylene, polypropylene, and propylene-ethylene random or block copolymers (page 10, line 35 to page 11, line 23).

The functionalized polyolefins contain one or more functional groups which have been incorporated during polymerization. Such functional group-forming monomers are preferably carboxylic acids, dicarboxylic acids or their derivatives such as their anhydrides. Examples of the unsaturated carboxylic acids, dicarboxylic acids which may be present in the functionalized polyolefin are those having about 3 to about 20 carbon atoms per molecule such as acrylic acid, methacrylic acid, maleic acid, fumaric acid and itaconic acid (page 11, lines 25 to 35). In the functionalized polyolefin thus obtained, the amount of the acid or anhydride is preferably about 0.3 to about 10%, more preferably about 0.3 to about 5%, and most preferably at least about 1 weight %, based on the weight of the functional polyolefin (page 12, lines 31 to 35).

Preferably the amount of the functionalized polyolefin is about 20 to about 70 weight % and the amount of the polyamide is about 80 to about 30 weight %. Most preferably, however, the amount of the functionalized polyolefin is about 30 to about 60 weight % and the amount of the polyamide is about 70 to about 40 weight %, all amounts based on the total weight of the functionalized polyolefin and polyamide (page 13, line 29 to page 14, line 1).

- 4.9 The Boards of Appeal have held on more than one occasion that an objective definition of the technical problem to be solved should normally start from the technical problem that is described in the patent in suit. Only if it turns out that an incorrect state of the art was used to define the technical problem or that the technical problem disclosed has in fact not

been solved, can an inquiry be made as to which other technical problem objectively existed (see e.g. decision T 0495/91 of 20 July 1993, not published in OJ EPO; Reasons for the decision, point 4.2).

- 4.10 Thus, in line with the paragraphs [0008] and [0009] of the description in the patent in suit, the technical problem underlying the patent in suit with respect to D1, may primarily be seen as the provision of thermoplastic elastomer compositions having good adhesion properties to polar materials while substantially maintaining the starting hardness of the thermoplastic elastomer.
- 4.11 According to Claim 1 of the patent in suit, this problem is solved by incorporating 3 to 60 by weight of an adhesion promotor in the form of a reaction product of a functionalized rubber and a polyamide in the thermoplastic elastomer composition.
- 4.12 Nevertheless, the Board notes that the Appellant had challenged this formulation of the technical problem. In that respect it had submitted that it had not been shown by the Respondent (Patentee) that, over the whole area claimed by Claim 1 of the contested patent, a substantial maintaining of the starting hardness had been indeed achieved, and it had also argued that the compositions of the patent in suit did not exhibit better adhesive properties than the compositions of D1. Consequently, in the Appellant's view, the technical problem starting from D1 should merely be seen in the provision of alternative thermoplastic elastomer compositions having adhesive properties to polar materials.

4.13 Consequently, the questions which need to be addressed by the Board are (a) whether the technical problem described in the patent in suit is effectively solved by the claimed measures and, if the question (a) is answered negatively, (b) how the technical problem should be reformulated.

4.13.1 Concerning question (a) the Board firstly observes that the Formulations 3, 4, and 5 in Table 4 of the patent in suit, which comprise an adhesion promotor in amounts of 15, 20 and 25% by weight, respectively, show an increase of the Shore A hardness of 4, 7 and 9 units, respectively, in comparison to the starting hardness of the thermoplastic elastomer (Sarlink<sup>®</sup> 3160B; Shore A hardness of 62; cf. patent in suit page 8, line 40), and good adhesion properties. The Board notes, in contrast, that the compositions of Runs 1 to 4 of Table 2 of D1 exhibit an increase of at least 16 units of the Shore A hardness in comparison to the starting hardness of the thermoplastic elastomer (Santoprene<sup>®</sup> S 111-45 with a Shore A hardness of 49) for an amount of adhesion promoter of only 15% by weight.

4.13.2 The Board further notes that the Appellant had challenged that the substantial maintaining of the starting hardness of the thermoplastic elastomer was achieved over the whole range claimed in Claim 1 of the patent in suit. This issue, raised by the Appellant, is an issue which would normally be decided in the light of relevant experimental evidence. The consequence of not submitting such relevant experimental evidence is that the Appellant has failed to discharge the evidential burden of proof to the degree required to

shift that burden to the Respondent's shoulders, requiring him to render plausible that the solution of the underlying problem is attainable throughout the entire claimed range (cf. decision T 741/91 of 22 September 1993, not published in OJ EPO; Reasons for the decision point 4.3).

4.13.3 Consequently, under these circumstances, the Board can only come to the conclusion that question (a) above must be answered positively.

4.13.4 In view of the positive answer to question (a) there is evidently no need for the Board to deal with a reformulation of the technical problem in the terms proposed by the Appellant.

5. *Inventive step*

5.1 It remains to be decided whether the solution of the technical problem was obvious to a person skilled in the art having regard the prior art relied by the Appellant, i.e. a combination of D1 with either D2 or D3.

5.2 In that context, the question to be answered is not whether the skilled person could have arrived at the invention by combining D1 with the teaching of D2 or D3, but whether he would have done so because the prior art incited him to do so in the hope of solving the objective technical problem (see T 2/83, OJ EPO 1984, 265).

5.3 According to D1, the polyolefins used in the modifier i.e. the adhesion promotor, can be homopolymers of

alpha-olefins such as ethylene, propylene, 1-butene, 1-hexene, and 4-methyl-1-pentene, and copolymers of ethylene with one or more alpha-olefins and among these polyolefins, low-density polyethylene, linear low-density polyethylene, medium- and high-density polyethylene, polypropylene, and propylene-ethylene random or block copolymers are preferred (page 11, lines 16 to 23).

- 5.4 It is further true, as submitted by the Appellant (cf. paragraph VIII. (ii.a.5) above), that the polyolefins used in the adhesion promotor of D1 are not restricted to thermoplastic polyolefins, and it is indisputable that that documents D2 and D3 mention that ethylene propylene copolymers (EPM) or ethylene propylene diene terpolymer (EPDM) could be elastomeric materials (cf. D2, page 2, lines 1 to 5; cf. D3, page 366, lines 3 to 23).
- 5.5 It is however equally undisputable that neither D2 nor D3 is concerned with adhesive thermoplastic elastomer compositions, so that the skilled person would not get any hint or clue from D2 and D3 about the influence of the use of an elastomeric polyolefin component in the adhesion promotor on the hardness of an adhesive thermoplastic elastomer composition containing it.
- 5.6 Consequently, although D1 mentions that copolymers of ethylene with alpha-olefins such ethylene-propylene copolymers may be used in the adhesion promotor, the skilled person would not have any reason to select more particularly this specific part of the teaching of D1 and to combine them with the specific passages of D2 and D3 mentioned in paragraph 5.4 above in order to



solve the technical problem underlying the patent in suit.

5.7 Thus, in view of the above, the Board comes to the conclusion that the subject-matter of Claim 1 and by the same token that of Claims 2 to 19 cannot be rendered obvious by the combination of D1 with combination either with D2 or D3.

5.8 It thus follows that the requirements of Article 56 EPC are met by all the Claims 1 to 19.

## **Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

E. Görgmaier

R. Young