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**Datasheet for the decision
of 12 October 2005**

Case Number: T 0829/02 - 3.2.07

Application Number: 91305089.4

Publication Number: 0478109

IPC: C09K 3/10

Language of the proceedings: EN

Title of invention:

Container closures and processes of making them

Patentee:

W.R. GRACE & Co.-CONN

Opponent:

DS-Chemie GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 54, 56, 83, 123(2)(3)

Keyword:

"Late filed requests - admitted"

"Scope of protection extended - yes for some requests"

"Added subject-matter - no"

"Insufficiency - no"

"Inventive step - no"

Decisions cited:

-

Catchword:

-



Case Number: T 0829/02 - 3.2.07

DECISION
of the Technical Board of Appeal 3.2.07
of 12 October 2005

Appellant I/Respondent II: W.R. GRACE & Co.-CONN
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
17 June 2002 concerning maintenance of European
patent No. 0478109 in amended form.

Composition of the Board:

Chairman: H. Meinders
Members: P. O'Reilly
C. Holtz
H.-P. Felgenhauer
E. Lachacinski

Summary of Facts and Submissions

- I. Opposition was filed against European Patent No. 0 478 109 as a whole based on Article 100(a) EPC (lack of novelty and lack of inventive step). The opposition was based on D1: GB-A-1 112 025 and an alleged prior use.
- II. The Opposition Division decided to maintain the patent in amended form based on the second auxiliary request filed at the oral proceedings before it. It considered the alleged prior use proven and its subject-matter as closest prior art for the subject-matter of the claims of the requests before it.
- III. Appellant I/respondent II (hereinafter appellant/proprietor) and appellant II/respondent I (hereinafter appellant/opponent) each filed an appeal against the decision of the Opposition Division.
- IV. The appellant/proprietor requested that the decision under appeal be set aside and that the patent be maintained in accordance with any one of the requests filed on 12 October 2005 during the oral proceedings before the Board. The appellant/proprietor further requested that the appeal of the appellant/opponent be dismissed.

The appellant/opponent requested that the decision under appeal be set aside and that the patent be revoked. The appellant/opponent further requested that the appeal of the appellant/proprietor be dismissed.

V. Claim 1 of the patent as granted (main request) reads as follows:

"1. A method of forming gaskets in bottle caps that uniformly form an effective seal below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa) and which comprises inserting molten heated thermoplastic material into the caps and moulding it in the caps and cooling it to form the gaskets, and in which method the thermoplastic material is a homogeneous blend of 20 to 60% by weight butyl rubber, which is a copolymer of isoprene and butylene, and 40 to 80% by weight other thermoplastic polymers."

Claim 1 of the first auxiliary request reads as follows (amendments when compared to claim 1 of the main request are depicted in bold):

"1. A method of forming gaskets in bottle caps that uniformly form an effective seal below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa) and which comprises inserting molten heated thermoplastic material into the caps and moulding it in the caps and cooling it to form the gaskets, and in which method the thermoplastic material is a homogeneous blend of 20 to 60% by weight butyl rubber, which is a copolymer of isoprene and butylene, and 40 to 80% by weight other thermoplastic polymers, **which comprise high density polyethylene.**"

Claim 1 of the auxiliary request 1A reads as follows (amendments when compared to claim 1 of the first

auxiliary request are depicted in bold or struck through):

"1. A method of forming in ~~a~~ bottle caps ~~a~~ gaskets that ~~uniformly forms~~ an effective seal at a moderate pressure of below 7 bar (7×10^5 Pa) but that vents at a higher pressure which is up to 12 bar (1.2×10^6 Pa) ~~below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa)~~ and which comprises inserting molten heated thermoplastic material into the caps and moulding it in the caps and cooling it to form the gaskets, and in which method the thermoplastic material is a homogeneous blend of 20 to 60% by weight butyl rubber, which is a copolymer of isoprene and butylene, and 40 to 80% by weight other thermoplastic polymers, which comprise high density polyethylene."

Claim 1 of the second auxiliary request reads as follows (amendments when compared to claim 1 of the first auxiliary request are depicted in bold or struck through):

"1. A method of forming gaskets in bottle caps that uniformly form an effective seal below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa) and which comprises inserting molten heated thermoplastic material into the caps and moulding it in the caps and cooling it to form the gaskets, and in which method the thermoplastic material is a homogeneous blend **consisting substantially only** of 20 to 60% by weight butyl rubber, which is a copolymer of isoprene and

butylene, and 40 to 80% by weight ~~other thermoplastic polymers, which comprise~~ high density polyethylene."

Request 1A differs from the patent as maintained by the Opposition Division in that the words "substantially only" have been added.

Claim 1 of the auxiliary request 2A reads as follows (amendments when compared to claim 1 of the second auxiliary request are depicted in bold or struck through):

"1. A method of forming in ~~a~~ **a** bottle caps ~~a~~ **a** gaskets that ~~uniformly forms~~ **uniformly forms** an effective seal at a moderate pressure of below 7 bar (7×10^5 Pa) but that vents at a higher pressure which is up to 12 bar (1.2×10^6 Pa) ~~below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa)~~ and which comprises inserting molten heated thermoplastic material into the caps and moulding it in the caps and cooling it to form the gaskets, and in which method the thermoplastic material is a homogeneous blend consisting substantially only of 20 to 60% by weight butyl rubber, which is a copolymer of isoprene and butylene, and 40 to 80% by weight high density polyethylene."

VI. The arguments of the appellant/proprietor may be summarised as follows:

- (i) The requests filed as late as the oral proceedings should be admitted. It was not realised until the course of the oral proceedings that they would be necessary.

- (ii) The main request and the first and second auxiliary requests do not contravene Article 123(3) EPC. Claim 1 as granted specified that the gaskets form an effective seal below 7 bar. This means that they also form an effective seal below 5 bar so that there has been no extension of the protection.

- (iii) With respect to auxiliary request 1A the amendments made to claim 1 compared to the patent as granted comply with Article 123(2) EPC. On page 4, lines 21 to 24 of the patent specification it is indicated that high density polyethylene may be preferred so that the skilled person knows that high density polyethylene may be used as the thermoplastic and when doing so throughout the whole claimed range.

- (iv) The objection under Article 83 EPC is late filed and was not admitted by the Opposition Division. The ground should not be admitted into the appeal proceedings since it is a new ground in the proceedings.

Moreover, the patent as amended according to this request complies with Article 83 EPC. There are several examples in the description of the patent which disclose compositions comprising butyl rubber and high density polyethylene (see for example table 1). These examples cover most of the claimed range. There is no experimental proof that the compositions specified in claim 1 are not homogeneous. The appellant/opponent has cited

a passage in US-A-5 731 053 (see column 7, line 37 to column 8, line 3) as proof that the compositions are heterogeneous over part of the range. However, there is nothing in that passage which indicates that a homogeneous mixture cannot be obtained. The passage merely mentions the existence of heterogeneous compositions.

- (v) The prior use considered by the Opposition Division in the decision under appeal is not proven "up to the hilt". The subject-matter of claim 1 of auxiliary request 1A is novel. The generic disclosure of polyethylene in D1 does not disclose the specific feature of claim 1.

- (vi) The subject-matter of claim 1 of auxiliary request 1A involves an inventive step. The selection of high density polyethylene provides advantages. This is stated in the patent on page 4, line 21 and page 5, line 23 where the superiority of high density polyethylene over low density polyethylene is mentioned. In conjunction with their European application No. 91 104 029.3, the appellant/opponent filed, with letter of 3 December 1996, an affidavit of a Mr. J. Skilton dated 12 October 1995. In that affidavit it is stated that high density polyethylene gives surprising results when used in place of low density polyethylene in the examples disclosed in D1. This is evidence of an inventive step in the subject-matter of claim 1.

- (vii) The subject-matter of claim 1 of auxiliary request 2A complies with Article 123(2) EPC.

Since the examples given in the description of the patent in suit which mention high density polyethylene in each case disclose a composition consisting only of butyl rubber and high density polyethylene the arguments brought forward with respect to claim 1 of auxiliary request 1A also apply to claim 1 of auxiliary request 2A.

(viii) The patent as amended according to auxiliary request 2A complies with Article 83 EPC. Since the examples given in the description of the patent in suit which mention high density polyethylene in each case disclose a composition consisting only of butyl rubber and high density polyethylene the arguments brought forward with respect to the patent as amended according to auxiliary request 1A also apply to the patent as amended according to auxiliary request 2A.

(ix) The subject-matter of claim 1 of auxiliary request 2A is novel and involves an inventive step for the same reasons as explained with respect to auxiliary request 1A.

VII. The arguments of the appellant/opponent may be summarised as follows:

(i) The belatedly filed requests should have been filed earlier, since the appellant/proprietor has been aware of the problems with the claims at least since the receipt of the communication of the Board preparing the oral proceedings.

- (ii) The amendments to claim 1 of the each of the main and first and second auxiliary requests contravene Article 123(3) EPC. The claim has been broadened to include venting at pressures below 7 bar, i.e. down to 5 bar, whereas in the patent as granted the venting had to be above 7 bar.

- (iii) The amendments made to claim 1 of auxiliary request 1A do not comply with Article 123(2) EPC. There is no general disclosure over the whole claimed range of a composition including butyl rubber and high density polyethylene. Even the specific examples in the description do not cover the entire claimed range.

- (iv) The patent as amended according to auxiliary request 1A does not comply with Article 83 EPC. There is experimental evidence as set out in US-A-5 731 053 (see column 7, line 37 to column 8, line 3) which shows that butyl rubber and high density polyethylene do not form a homogeneous mixture over the whole range specified in claim 1. In particular, when the high density polyethylene content is 50% or more a heterogeneous mixture is formed. The patent in suit, however, does not disclose how a homogeneous mixture can be formed in this case.

- (v) Claim 1 of auxiliary request 1A lacks novelty over D1. Claim 1 constitutes a numerical selection, i.e. the density of the polyethylene, over the generic disclosure of D1. The selection however is not purposive, as required to establish novelty, since table 1 of the patent in

suit shows that high density polyethylene does not produce better results, and that the selection mainly produces unacceptable results.

In any case, the opposition division was correct in its consideration of the prior use as brought forward by the appellant/opponent.

- (vi) Claim 1 of auxiliary request 1A lacks inventive step over D1 which explicitly discloses all the features of claim 1 except for the use of high density polyethylene with butyl rubber. D1 indicates that any polyethylene may be used with butyl rubber. High density polyethylene is just an alternative to the low density polyethylene specifically disclosed in D1. There is no indication that high density polyethylene is better than low density polyethylene. In table 1 the only result that is better is when the butyl rubber content is above 30% otherwise the venting is not acceptable. There are no good results throughout the entire claimed range.

- (vii) The amendments made to claim 1 of auxiliary request 2A do not comply with Article 123(2) EPC for the same reasons as explained with respect to auxiliary request 1A.

- (viii) The patent as amended according to auxiliary request 2A does not comply with Article 83 EPC for the same reasons as explained with respect to auxiliary request 1A.

- (ix) The subject-matter of claim 1 of auxiliary request 2A does not involve an inventive step for the same reasons as explained with respect to auxiliary request 1A.

Reasons for the Decision

1. *Late filed requests*

1.1 The main and first auxiliary requests correspond to the main and first auxiliary requests filed with letter of 21 February 2001 and considered by the Opposition Division during the oral proceedings before it. The second auxiliary request corresponds essentially to the second auxiliary request filed during the oral proceedings before the Opposition Division which was the basis for the patent as maintained in amended form by the Opposition Division in the decision under appeal. These requests therefore, although formally filed again during the oral proceedings before the Board do not, from their content, raise new issues and are therefore not considered late filed.

1.2 Auxiliary requests 1A and 2A are based on the wording of the first and second auxiliary requests, respectively. They are, however, amended to remove wording to which objection has been made by the appellant/opponent under Article 123(3) EPC. Since these requests return the relevant parts of the respective claim to their form as granted they essentially comply with the objections raised by the appellant/opponent and so can be admitted since they do

not raise new issues and solve at least some existing issues.

1.3 The Board therefore decided to admit all the requests into the proceedings.

2. *Article 123(3) EPC*

2.1 Claim 1 of the main request and the first and second auxiliary requests all contain the wording "that uniformly form an effective seal below a venting pressure and that vent at a venting pressure in the range 5 to 12 bar (5×10^5 to 1.2×10^6 Pa)". This wording replaces the wording "that forms an effective seal at a moderate pressure below 7 bar (7×10^5 Pa) but that vents at a higher pressure which is up to 12 bar (1.2×10^6 Pa)" which was present in claim 1 as granted. It must therefore be decided whether this change in wording has led to a broadening of the extent of protection.

2.2 The wording of claim 1 as granted sets out two criteria. The first criterion is the pressure below which the gasket forms an effective seal. The second criterion is the pressure at which the gasket vents. The appellant/proprietor has argued that if the gasket forms a seal at a pressure below 7 bar then this includes forming a seal at pressures between 5 and 7 bar so that the amended wording claims more restricted values than those which were protected by claim 1 of the patent as granted. Furthermore, the value of 7 bar in claim 1 as granted had no absolute meaning. The Board, however, does not agree with the appellant/proprietor for the following reasons.

2.2.1 In the context of a pressure below which an effective seal is formed, a particular value, e.g. 7 bar, does not in fact define a single value but rather the end value of a range. This results from the fact that if an effective seal is formed up to 7 bar (as claimed in the granted claim 1) then it is also formed at all values below this. Thus a range of from 0 up to 7 bar is defined by the first criterion of claim 1 and the seal must be effective throughout this range. This requirement does not exclude that the seal is still effective at higher pressures.

The second criterion defines a single pressure which is the venting pressure. Below this pressure an effective seal is formed whereas if this pressure is applied the seal vents. The venting pressure is thus the end point of the effective sealing.

It should be noted that the words which connect these criteria, i.e. "but that vents at a higher pressure" must also be considered as these words form a relationship between these two criteria. The venting is stated to be at a higher pressure, which is a pressure that is higher than the pressure up to which an effective seal is formed. This is to be expected since, as already stated, the venting takes place when the pressure is such that there is no longer an effective seal.

2.2.2 If the argument of the appellant/proprietor were to be accepted then first of all the effective seal could be formed just up to some small value, e.g. 2 bar, and the venting pressure, which is higher than the pressure at

which an effective seal is formed, could be below 7 bar. This shows that the result of such an interpretation is that the value of 7 bar in claim 1 as granted in fact would have no meaning in the claim, i.e. it would no longer be a limiting feature.

The Board cannot accept this, however, since the feature does have a meaning as discussed above. When the claim states that there is an effective seal below 7 bar then there is an effective seal at all pressures below 7 bar and not just somewhere below 7 bar. As a result, for example a seal that was effective up to 6 bar but then vents would not fall within the meaning of the wording of claim 1 as granted.

2.2.3 Turning to the wording of the claims 1 as amended the definition is set out in different words. In this case it is stated that the seal is effective below the venting pressure and the venting pressure is in the range of 5 to 12 bars. It is here set out that there is a range in which the seal is effective starting at 0 and ending at an upper value defined by the venting pressure. This is consistent with the interpretation of the Board of the meaning of this feature in claim 1 as granted.

2.2.4 The claims 1 as amended have an extent of protection which is greater than that of the patent as granted. This is particularly illustrated by considering the claimed method applied to forming bottle caps which vent at 6 bar as discussed in point 2.2.2 above. As shown, claim 1 as granted would not have included such methods within its scope whereas it is clear from the

wording of the claims 1 as amended that such a method is now included.

2.2.5 The patent as granted also includes an independent use claim 2 which contained the same definition of the venting pressure as claim 1 as granted. Therefore in this respect the scope of the use claim 2 was the same as claim 1 as granted. The patent as granted further contained an independent claim 11 to a bottle cap containing a gasket made by the method of claim 1. This bottle cap therefore was subject to the same limitation as set out for claim 1.

2.2.6 The Board therefore concludes that the amendment to claim 1 as carried out in the main, first and second auxiliary requests is such that the protection conferred has been extended in contravention of Article 123(3) EPC.

Auxiliary request 1A

3. *Article 123(2) EPC*

3.1 The matter at issue is whether the amendment to claim 1 as granted which adds the words "which comprises high density polyethylene" has resulted in a claim which does not comply with Article 123(2) EPC.

3.2 Since the relevant parts of the patent specification have their counterparts in the application as filed the patent specification is referred to below for convenience.

3.3 On page 4, lines 15 to 20 of the patent specification it is explained that the thermoplastic material can be chosen from a number of preferred possibilities. In lines 21 to 24 of page 4 it is explained that polyethylene is particularly preferred. It is stated there that in some instances low density polyethylene (hereinafter LDPE) is preferred but in general high density polyethylene (hereinafter HDPE) is more suitable. In table 1 the results of testing venting pressures on eight compositions are given. Three of these compositions contain HDPE in the amounts of 80%, 70% and 50% respectively, combined with respectively 20%, 30% and 50% butyl rubber. In the case of table 1 the examples of compositions containing HDPE cover most of the range for HDPE specified in claim 1, i.e. 50 to 80% compared with the claimed range of 40 to 80%. Given the examples of table 1 and the general statement on page 4, lines 21 to 24 that HDPE is generally more suitable the Board is satisfied that the skilled person would understand that the range of 40 to 80%, specified in the patent as granted for thermoplastic polymers in general, also applies to the particular case of HDPE.

3.4 The Board therefore concludes that claim 1 of this request complies with Article 123(2) EPC.

4. *Article 83 EPC*

4.1 It is not clear if the Opposition Division considered that the objection pursuant to Article 83 EPC constituted a late filed ground of opposition and hence disregarded it. The minutes of the oral proceedings before the Opposition Division are not conclusive on this point. The minutes concern four parallel

opposition cases discussed sequentially. For the first patent (EP-B-488491) that was discussed in the oral proceedings the Opposition Division refused to admit this objection, considering it a late filed ground. It is not clear whether that refusal concerning a preceding case also applied to the patent in suit. The appellant/proprietor disputed the admissibility of this objection in his submission dated 9 May 2003.

4.2 Irrespective of the actions of the Opposition Division in the opinion of the Board the objection cannot be considered a late filed ground of opposition. Since the patent had been amended it was indeed the duty of the Opposition Division to examine the patent, in so far as it has been amended, for compliance with Article 83 EPC in view of Article 102(3) EPC which states that a patent as amended must meet the requirements of the Convention. Under the established Case Law of the Boards of Appeal, amendments must be examined against the whole of the EPC, see Case Law of the Boards of Appeal of the EPO, 4th edition, 2001, VII.C.10.2. The amendments made must therefore be examined for compliance with Article 83 EPC.

4.3 As explained above with respect to Article 123(2) EPC, the description contains general statements together with the specific examples, e.g. as set out in table 1, which cover most of the breadth of claim 1. There is no reason to believe that the invention cannot be carried out throughout the whole breadth of claim 1.

4.3.1 The appellant/opponent argued that there was experimental evidence that a homogenous mixture of HDPE and butyl rubber could not be formed throughout the

claimed range. The experimental evidence is disclosed in US-A-5 731 053 in column 7, line 37 to column 8, line 3. US-A-5 731 053 is a US continuation-in-part application, filed by the appellant/opponent and published after the publication date of the application underlying the patent in suit. The fact that the publication date is after both the priority and the publication dates of the patent in suit is not relevant since a potential opponent can self-evidently only carry out tests based on the teaching of a patent application after the application has been published. This means that tests carried out to check the sufficiency of disclosure of a patent or patent application are by necessity carried out after the respective publication. The Board therefore considers the quoted passage in US-A-5 731 053 may be considered as evidence with respect to Article 83 EPC.

- 4.3.2 In column 7, line 37 to column 8, line 3 of US-A-5 731 053 it is explained that a heterogeneous mixture of butyl rubber and thermoplastic polymer is unexpectedly advantageous compared to the previously known homogeneous mixtures. The passage explains that a pseudolaminate structure is formed. It is suggested that the basis for this heterogeneous structure appears to be a mixing incompatibility of butyl rubber and thermoplastic polymer. It is considered that the desired, i.e. heterogeneous, structure can be obtained by selecting suitable types of polymer and weight ratios. From this passage the Board understands that homogenous mixtures were known and considered desirable but the inventor of US-A-5 731 053 had found that if the conditions are changed such as to produce a heterogeneous structure then an unexpected advantage

occurs. There is thus nothing in this passage to suggest that it was not possible to obtain homogeneous compositions throughout the entire claimed range. The passage indeed gives the contrary information that homogeneous compositions are normal and a special effort is required to obtain a heterogeneous structure.

4.4 The patent according to this request satisfies the requirements of Article 83 EPC.

5. *Novelty and inventive step*

5.1 The appellant/opponent has argued lack of inventive step based either on the prior use considered in the decision under appeal or on D1. The prior use is contested by the appellant/proprietor. The Board therefore considers it expedient to first consider D1 since there is no dispute between the parties that this document belongs to the state of the art in the sense of Article 54(1) EPC.

5.2 The argument of the appellant/opponent regarding lack of novelty is not based on an explicit disclosure of the subject-matter of claim 1 in D1, but rather on the basis that the selection of HDPE constitutes a selected sub-range such that the criteria for novelty of the selection are not fulfilled (cf. Case Law of the Boards of Appeal of the EPO 4th edition 2001, I.C.4.2.1). Since the Board considers, as explained below, that the selection of HDPE is obvious for the skilled person it is not necessary to consider whether or not the selection in this instance forms a sub-range and, if so, whether the sub-range fulfils the criteria for novelty.

- 5.3 The closest undisputed prior art is represented by D1 which discloses (in example 7) a bottle cap lined with a gasket formed of a thermoplastic polymer composition characterised by comprising a homogeneous blend of 50 parts by weight butyl rubber and 50 parts by weight LDPE. The bottle cap is stated in this example to be suitable for use with a bottle containing carbonated water. In the opinion of the Board such a bottle cap would also be suitable as a beer bottle cap since a cap for bottled water must fulfil the same requirements as a cap for bottled beer as regards liquid and gas impermeability as well as venting pressure. Also, the specification of the patent in suit gives no indication of any special requirements which would apply to beer bottle caps but not to carbonated water caps.
- 5.4 The subject-matter of claim 1 may be considered to be distinguished over the disclosure of D1 by the thermoplastic polymer of the gasket being HDPE.
- 5.5 D1 discloses on page 2, lines 86 to 112, a number of preferred mixtures of which some include poly α - monoolefine. The description then states on page 3, lines 1 to 2, that a mixture of polyethylene and butyl rubber is a specific example. Further, on page 3, lines 16 to 21, it is explained that the α - monoolefine is preferably polyethylene, especially LDPE. In claim 1 of D1 there are set out three alternative mixtures of thermoplastic material defined by the general chemical designations of the components. The dependent claims then contain narrowing definitions of these components. In claim 3 it is specified that the poly α - monoolefine is polyethylene and in claim 4, which depends from claim 3, the polyethylene is specified to be LDPE.

In claim 12 it is specified that the thermoplastic material is a mixture of poly α - mono-olefine and a copolymer of butylene with isoprene. This mixture is further specified in claim 17, which is dependent on claim 12, to be a mixture of polyethylene and butyl rubber.

- 5.6 It may be summarised that both the description and claims of D1 specify polyethylene in general and then give LDPE either as a preference or as a dependent claim respectively. From this the Board concludes that the skilled person would understand the teaching of D1 to be that polyethylene in general may be used with, amongst other materials, butyl rubber and that there is a non-exclusive preference for LDPE.

Since the use of polyethylene is clearly not limited to LDPE the Board considers that the skilled person would inevitably consider using HDPE, as an alternative to LDPE, in example 7 of D1. There is no disclosure in D1 which would speak against this for the skilled person. In particular, there is no indication of the need to use any particular properties of LDPE which would not be present in HDPE. The fact that D1 makes it clear that the use of polyethylene is not limited to LDPE would incite the skilled person to consider HDPE.

- 5.7 Furthermore, there is no evidence for a surprising effect resulting from the use of HDPE. In table 1, which gives the results of venting tests on a number of compositions, three of the compositions contain HDPE in the amounts of 80%, 70% and 50% with other compositions containing the same amounts of LDPE. Only in the case

of 50% HDPE is the result better than for mixtures containing LDPE.

- 5.8 It therefore appears that HDPE for one property may be better than LDPE for part of the claimed range. There is, however, no indication of a surprising effect and no indication of an effect which is present over the whole of the claimed range.

The appellant/proprietor has referred in this respect to an affidavit of Mr. J. Skilton dated 12 October 1995 which was filed by the appellant/opponent in the grant proceedings for a European application of the appellant/opponent. In that affidavit he reports the results of tests carried out on mixtures disclosed in D1. For these mixtures the tests involved both LDPE and HDPE. The tests were carried out on examples 2, 4, 7 and 9 of D1, whereby it may be noted that example 2 is a mixture of ethylene/vinyl acetate copolymer with LDPE and hence is not a relevant example. The other examples all contain 50% of LDPE. The results show improvements by the use of HDPE for some tests, i.e. oxygen and TCA transmission resistance. The Board notes, however, that the tests only involved HDPE at the value of 50%. If it is desired to prove that a surprising effect has been achieved then this should be proven as occurring throughout the complete claimed range. Therefore, the Board does not consider that the affidavit of Mr. Skilton provides adequate proof of a surprising effect.

- 5.9 Therefore, the subject-matter of claim 1 of auxiliary request 1A does not involve an inventive step in the sense of Article 56 EPC.

In view of the above, the prior use as considered by the opposition division in the decision under appeal need not be considered by the Board.

Auxiliary request 2A

6. *Article 123(2) EPC*

6.1 Compared to claim 1 of auxiliary request 1A, the composition of the gasket of claim 1 of this request is limited to consisting substantially only of butyl rubber and HDPE. In the parts of the description of the patent in suit already quoted above in this respect for the main request the HDPE compositions were in each case compositions consisting only of butyl rubber and HDPE. Also on page 4, lines 31 to 33 of the patent specification it is indicated that the preferred composition is formed "substantially only of polyethylene and butyl rubber". The combination of this disclosure and that fact that each HDPE example only contains HDPE and butyl rubber would lead the skilled person to conclude that the preference is for the composition containing HDPE to contain only HDPE and butyl rubber. Hence, since the relevant parts of the patent specification have their counterparts in the application as originally filed this feature is considered disclosed in the latter.

6.2 The Board therefore concludes that claim 1 of this request complies with Article 123(2) EPC.

7. *Article 83 EPC*

7.1 The conclusion reached by the Board with respect to auxiliary request 1A also applies to this request since the parts of the description to which reference was made with respect to the main request disclose compositions consisting of only butyl rubber and HDPE.

Also, the Board's reasons for not following the arguments of the appellant/opponent with respect to the experimental results disclosed in US-A-5 731 053 still apply to this request.

7.2 The Board therefore concludes that the patent as amended according to this request complies with Article 83 EPC.

8. *Inventive step*

8.1 As already indicated above, compared to auxiliary request 1A claim 1 of this request is limited to the composition consisting substantially only of butyl rubber and HDPE. For auxiliary request 1A the starting point for the discussion of inventive step is example 7 of D1. The composition given in example 7 consists only of 50% butyl rubber and 50% LDPE so that the feature added to claim 1 does not distinguish the subject-matter of this claim further from D1. As a result, the same conclusions regarding inventive step apply to claim 1 of the present request.

8.2 Therefore, the subject-matter of claim 1 of auxiliary request 2A does not involve an inventive step in the sense of Article 56 EPC.

Order

For these reasons it is decided that:

I. Regarding the appeal of the appellant (patentee):

The appeal is dismissed.

II. Regarding the appeal of the appellant (opponent):

1. The decision under appeal is set aside.

2. European patent No 0 478 109 is revoked.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders