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**Datasheet for the decision  
of 19 March 2019**

**Case Number:** T 0825/18 - 3.3.03

**Application Number:** 02802650.8

**Publication Number:** 1441959

**IPC:** B65D41/00, C08L23/04,  
C08L23/06, C08L23/16

**Language of the proceedings:** EN

**Title of invention:**

SCREW CAP

**Patent Proprietor:**

INEOS Manufacturing Belgium NV

**Opponents:**

Total Research & Technology Feluy  
THE DOW CHEMICAL COMPANY  
Borealis Technology OY

**Relevant legal provisions:**

RPBA Art. 12(4)  
EPC Art. 56

**Keyword:**

First auxiliary request - admitted (yes)  
Inventive step - All requests (no)



**Beschwerdekammern**

**Boards of Appeal**

**Chambres de recours**

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Case Number: T 0825/18 - 3.3.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.03**  
**of 19 March 2019**

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**Decision under appeal:** Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
8 February 2018 concerning maintenance of the  
European Patent No. 1441959 in amended form.

**Composition of the Board:**

**Chairman** D. Semino  
**Members:** D. Marquis  
C. Brandt

## **Summary of Facts and Submissions**

- I. The appeal lies with the decision of the opposition division posted on 8 February 2018 concerning maintenance of European patent 1 441 959 in amended form.
  
- II. European patent EP 1 441 959 was opposed on the grounds that its subject matter lacked novelty and inventive step, was not sufficiently disclosed and extended beyond the content of the application as originally filed. By a first decision announced orally on 9 September 2009, the opposition division revoked the patent on the ground of Article 100 b) EPC. The decision was based on a main request and two auxiliary requests all filed by letter dated 2 September 2009. The patent proprietor filed an appeal. In decision T 2222/09 of 20 March 2014, the board of appeal found that the main request fulfilled the requirements of Articles 123(2) EPC and of sufficiency of disclosure. The Board set aside the decision under appeal and remitted the case to the opposition division for further prosecution on the basis of the main request as filed with letter of 2 September 2009. Continuing the opposition proceedings, the opposition division summoned the parties to attend oral proceedings on 16 January 2018.
  
- III. The decision of the opposition that the patent in the form of the first auxiliary request met the requirements of the EPC was based on the main request filed with letter of 2 September 2009 and on a first auxiliary request filed with the letter of 16 November 2017.

Claim 1 of the first auxiliary request read as follows:

"1. Screw cap comprising a composition based on a multimodal ethylene polymer having a standard density (SD) greater than  $950 \text{ kg/m}^3$  and a melt flow index  $\text{MI}_2$  of from 1.2 to less than 2 g/10min, said multimodal ethylene polymer comprising-  
from 45 to 55wt%, based on the total weight of the multimodal ethylene polymer, of a fraction of ethylene polymer (A) having an SD(A) of more than  $965 \text{ kg/m}^3$  and a melt flow index  $\text{MI}_2$ (A) of 80 to 200 g/10 min, and  
from 55 to 45wt%, based on the total weight of the multimodal ethylene polymer, of a fraction of a copolymer (B) of ethylene and at least one alpha-olefin containing from 3 to 12 carbon atoms, and having a melt flow index  $\text{MI}_2$ (B) of less than 10 g/10min and a content of said alpha-olefin(s) of from 0.1 to 5 mol%."

This claim differed from claim 1 of the main request in that the lower limit of the melt flow index  $\text{MI}_2$  of the composition was 1.2 g/10 min while it was 0.8 g/10 min in claim 1 of the main request.

IV. The following documents were *inter alia* cited in the opposition proceedings:

D1: English translation of JP-A-98 103542

D9: US 5 981 664

D13: WO-A 97/04028

D23: Declaration of Dominique Jan of 24 September 2007

D29: Norm ASTM D1238-98

V. The decision of the opposition division, as far as relevant to this appeal, can be summarized as follows:

- (a) Example 10 of D1 disclosed an ethylene copolymer composition used to prepare screw caps. It was not disputed that the rounded melt flow index  $MI_2$  of the ethylene polymer composition of example 10 and its comonomer content were as claimed in claim 1 of the main request. The melt flow index of the ethylene polymer corresponding to the ethylene polymer (A) in claim 1 was 210 g/10 min in example 10 of D1, formally outside the range of 80-200 g/10 min as in claim 1. However, D29 established that the determination of the melt flow index  $MI_2$  was subject to a margin of error of between 8 and 25%. Assuming a plausible error of  $\pm 8\%$ , the melt flow index of component A of example 10 then corresponded to  $210 \pm 17$  g/10 min and the maximum value defining the range according to claim 1 of the main request was  $200 \pm 16$  g/10 min. Since the error margin defined for these two values overlapped, the subject matter according to claim 1 of the main request did not differ from example 10 of D1 with respect to the melt flow index  $MI_2(A)$  and was therefore not novel. However, the melt flow index  $MI_2$  of the ethylene copolymer composition according to example 10 (0.78 g/10 min) did not fall in the range of 1.2 to less than 2 g/10 min as defined in claim 1 of the first auxiliary request for which novelty was acknowledged.
- (b) D1, in particular its example 10, represented the closest prior art for claim 1 of the first auxiliary request. Examples 1 and 8 of the patent in suit showed that polymers having a melt flow index  $MI_2$  within the range according to claim 1 had improved taste and odour as compared to polymers having a lower melt flow index such as in example 10. The problem solved was thus the provision of a

screw cap comprising a composition based on a multimodal ethylene polymer with improved properties. Although D1 concerned the mechanical properties of screw caps, it did not mention that taste and odour should be taken into account as desirable properties of screw caps for carbonated-beverage containers. In particular, D1 did not teach that increasing the overall melt flow index for the multimodal ethylene polymer from a value of 0.78 g/10 min as in example 10 of D1, to a value in the range defined in claim 1 of the first auxiliary request would improve the taste and odour properties of the produced screw caps. The solution provided in claim 1 was thus inventive. As the same conclusion was reached starting from example 6 of D1 or from the documents D9 and D13 belonging to the same document family as closest prior art, the first auxiliary request met the requirements of Article 56 EPC.

- VI. All three opponents I, II and III (appellants I, II and III) lodged an appeal against that decision.
  
- VII. With the reply to the statement setting out the grounds of appeal, the respondent requested that the decision of the opposition division be set aside and that the patent be maintained on the basis of the first to fifth auxiliary requests, whereby the first, third and fourth auxiliary requests were filed therewith and the second and fifth auxiliary requests were the corresponding ones in opposition proceedings.

The claims of the first auxiliary request corresponded to the claims of the first auxiliary request as decided upon by the opposition division with the amendment in claim 2 of the lower limit of the range defining the

melt flow index  $MI_2$  of the composition from 1.2 to 1.4 g/10 min.

The claims of the second auxiliary request were the claims of the second auxiliary request filed with letter of 16 November 2017 in which with respect to the first auxiliary request the range defining the melt flow index  $MI_2$  of the composition in claim 1 was 1.4 to 1.8 g/10 min.

The claims of the third auxiliary request corresponded to the claims of the first auxiliary request in which the range defining the melt flow index  $MI_2$  of the composition in claim 1 was amended from 0.8 to less than 2 g/10 min and in which the multimodal ethylene polymer was defined as being "obtained by a process in which polymer (A) and the copolymer (B) are mixed, or the polymer (A) and the copolymer (B) are prepared in at least two successive polymerisation stages, the preparation of the polymer (A) being performed first and then the preparation of the copolymer (B) in the presence of the polymer (A) obtained from the first polymerisation stage".

The fourth auxiliary request filed corresponded to the third auxiliary request for which the melt flow index  $MI_2$  of the composition was from 1.2 to less than 2 g/10 min.

The fifth auxiliary request filed with letter of 10 January 2018 corresponded to the third auxiliary request in which the melt flow index  $MI_2$  of the composition in claim 1 was from 1.4 to 1.8 g/10 min.

VIII. In a communication sent in preparation of oral proceedings, the Board summarised the points to be



dealt with and provided a preliminary view on the disputed issues.

- IX. With letter of 19 February 2019, the respondent withdrew the third auxiliary request.
- X. Oral proceedings were held on 19 March 2019 in the absence of appellant III as announced by letter of 12 February 2019.
- XI. The arguments provided by the appellants, as far as relevant to the present decision, can be summarised as follows:

First auxiliary request

Admittance

- (a) There had been ample opportunity in the first instance proceedings to file a request wherein claim 2 was amended such that it met the requirements of Article 123(2) EPC. The first auxiliary request was thus late filed and should not be admitted into the proceedings.

Inventive step

- (b) Example 10 of D1 represented the closest prior art. Claim 1 of the first auxiliary request differed from the closest prior art in the melt flow index of the composition.
- (c) The examples contained in the patent in suit and those provided in the declaration D23 did not establish the presence of any advantage for the claimed screw caps. Neither the injectability of

the compositions nor the odour and taste of the screw caps were shown to be unambiguously attributed to the melt flow index of the compositions as claimed.

- (d) The problem that could be derived from the patent in suit was the provision of further screw caps.
- (e) D1 already taught that the melt flow index of the composition could be varied within the range of 0.3 to 3 g/10 min which contained the claimed range of from 1.2 to less than 2 g/10 min. It was thus obvious that the claimed composition were expected to solve the problem posed. Claim 1 of the first auxiliary request lacked an inventive step.

Second, fourth and fifth auxiliary requests

- (f) The arguments regarding lack of inventive step submitted for the first auxiliary request applied equally to the second, fourth and fifth auxiliary requests.

XII. The arguments of the respondent, as far as relevant to the present decision, can be summarised as follows:

First auxiliary request

Admittance

- (a) Claim 2 of the first auxiliary request had been amended in reply to an objection raised in appeal under Article 123(2) EPC. The first auxiliary request had thus been filed as early as possible in appeal and should be admitted into the proceedings.

Inventive step

- (b) Example 10 of D1 could be seen as the closest prior art. Claim 1 of the first auxiliary request differed from the closest prior art in that the screw cap composition displayed a higher melt flow index  $MI_2$  of from 1.2 to less than 2 g/10 min.
- (c) The examples of the patent in suit and in particular its examples 1 and 8 as compared to examples 9 and 10 as well as the examples of D23 established that the compositions as claimed displayed improved injectability without compromising odour and taste.
- (d) Starting from example 10 of D1, the problem solved was the provision of screw caps from compositions having improved injectability while maintaining an acceptable level of taste and odour and without raising the melt flow index of component A  $MI_2(A)$  too much.
- (e) D1 did not provide a solution to that problem. In particular, D1 did not teach an increase of melt flow index of the composition within the range according to claim 1. Also, none of the examples of D1 showed compositions with a melt flow index  $MI_2$  above 0.9 g/10 min. Considering the overall teaching of D1, the skilled person would not have recognized the link between the favourable balance of properties of the compositions as claimed and the melt flow index of these compositions.
- (f) The first auxiliary request met therefore the requirements of Article 56 EPC.

Second, fourth and fifth auxiliary requests

(g) The arguments regarding inventive step starting from example 10 of D1 and submitted for the first auxiliary request applied equally to the second, fourth and fifth auxiliary requests.

XIII. The appellants I, II and III (appellant III in writing) requested that the decision under appeal be set aside and that the European patent No. 1 441 959 be revoked.

Appellant I also requested that the first and fourth auxiliary requests not be admitted into the proceedings.

XIV. The respondent requested that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of the first auxiliary request filed with the reply to the statements of grounds of appeal or, alternatively, on the basis of the second auxiliary request filed with letter of 16 November 2017, or the fourth auxiliary request filed with the statement of grounds of appeal, or the fifth auxiliary request filed with letter of 10 January 2018.

## **Reasons for the Decision**

First auxiliary request

1. Admittance

1.1 The first auxiliary request submitted with the reply to the statements setting out the grounds of appeal corresponds to the first auxiliary request as maintained by the opposition division with an additional amendment in claim 2 of the definition of

the range of the melt flow index  $MI_2$  of the composition to 1.4 to 1.8 g/10 min. In the absence of a main request from the respondent, the first auxiliary request is the first request to be considered in appeal.

- 1.2 The respondent justified the filing of that request as an attempt to address an objection raised at the start of the appeal proceedings under Article 123(2) EPC against claim 2 of the first auxiliary request as maintained by the opposition division. Such an objection was indeed raised in point 5.6 on page 6 of the statement setting out the grounds of appeal filed by appellant I. The objection concerned the lack of basis in the application as originally filed for the range of melt flow index  $MI_2$  of from 1.2 to 1.8 g/10 min in claim 2 on the grounds that that range could not be unambiguously derived from the open range "at least 1.2 g/10 min" and the preferred range "1.4-1.8 g/10 min" disclosed in the description.
  
- 1.3 That objection under Article 123(2) EPC against claim 2 of the first auxiliary request had not been raised by the opponents at the oral proceedings before the opposition division against that request (see page 4 of the minutes). That objection is consequently not part of the contested decision. It is only at the start of the second appeal proceedings in the present case that the definition of the specific range of 1.2 to 1.8 g/10 min in claim 2 was objected to under Article 123(2) EPC by appellant I. Under these circumstances, the amendment of the range limiting the melt flow index  $MI_2$  to 1.4 to 1.8 g/10 min in claim 2 of the first auxiliary request submitted with the reply to the statement setting out the grounds of appeal was filed as early as possible into the proceedings by the

respondent. There is therefore no reason not to allow the first auxiliary request into the proceedings (Article 12(4) RPBA).

2. Inventive step

2.1 The opposition division based its decision on inventive step on D1 as the document representing the closest prior art. In particular, D1 was selected as the closest prior art on the grounds that it related to the same technical field of multimodal ethylene compositions for screw caps for drinks bottles (claim 1).

2.2 Within D1, the screw cap composition according to example 6 and that according to example 10 were seen as equally reasonable starting points for the assessment of inventive step. With respect to the composition of example 10 of D1 more specifically, the opposition division established that the melt flow index  $MI_2$  was 0.78 g/10 min as disclosed in Table 2 on page 15 of D1, whereas the melt flow index of the composition according to claim 1 of the first auxiliary request was defined as being in the range of from 1.2 to less than 2 g/10 min. The opposition division also established that the melt flow index  $MI_2$  of the composition was the sole distinguishing feature of the claimed subject matter over example 10 of D1 as the value of the melt flow index of component A  $MI_2(A)$  and the amount of comonomer in example 10 were according to claim 1. That conclusion was not in dispute between the parties in appeal. The Board does not see a reason to diverge from that conclusion.

2.3 Starting from D1 and especially from its example 10 as closest prior art and having regard to examples 1 and 8

in table 2 of the patent in suit, the opposition division concluded that the claimed compositions displayed an improved taste and odour. That conclusion was however contested by the appellants and was also not supported by the respondent at the oral proceedings before the Board. The respondent rather considered on the basis of the examples of the patent in suit and on the basis of the supplementary examples provided in the declaration D23 that the screw cap compositions as claimed showed improved injectability while at the same time did not compromise taste and odour.

2.4 According to the case law of the boards of appeal, alleged advantages to which the patent proprietor merely refers, without offering sufficient evidence to support the comparison with the closest prior art, cannot be taken into consideration in determining the problem underlying the invention and therefore in assessing inventive step (Case Law of the Boards of Appeal, 8th Edition, July 2016, I.D.4.2). In that regard, the first question that has to be answered is whether the alleged advantage was credibly shown to result from the feature characterizing the claimed subject matter over the closest prior art. In the present case, it must be established whether the alleged improved injectability of the compositions forming the claimed screw caps can be attributed to the selection of the melt flow index  $MI_2$  of the multimodal ethylene polymer composition in the range of from 1.2 to less than 2 g/10 min.

2.5 The compositions prepared in the patent in suit are reported in Table 2 alongside their most relevant properties such as their melt flow index  $MI_2$ , their Notched Charpy at 23°C, their resistance to slow cracking ESCR-B, their injectability and their

organoleptic properties in the form of their organolepticity index (OI), their taste and their odour. Table 2 more specifically contains two examples (examples 1 and 8) that are representative of claim 1 of the first auxiliary request wherein the melt flow index  $MI_2$  is within the claimed range of from 1.2 to less than 2 g/10 min (1.60 g/10 min and 1.68 g/10 min respectively).

- 2.6 Among the other compositions disclosed in Table 2, the compositions of examples 9 and 10 are particularly relevant since they only differ from the claimed subject matter in that their melt flow index  $MI_2$  is below the claimed range (Example 9: 0.60 g/10 min and Example 10: 0.86 g/10 min). Examples 9 and 10 can therefore be seen as representing the composition according to example 10 of D1 (which has a  $MI_2$  of the composition of 0.78 g/10 min).
- 2.7 The injectability of the compositions is reported in Table 2 defined as the inverse of the viscosity at  $1000s^{-1}$  and  $190^{\circ}C$  with a 15/1 die (page 4, lines 56 and 57). The values reported for the compositions of examples 1 and 8 which are according to present claim 1 are 3.85s and 3.45s respectively. The values of injectability of the compositions of examples 9 and 10 representing D1 are 2.86s and 3.57s respectively.
- 2.8 A comparison of the injectability values of the compositions of examples 1 and 8 with that of example 9 seem to show at first sight an improved injectability of the compositions according to claim 1. It is however doubtful whether that improvement can actually be attributed to the increase of melt flow index  $MI_2$  from 0.60 (Example 9) to 1.60 (Example 1) or 1.68 (Example 8), since the composition of example 9 differs



significantly from the compositions of examples 1 and 8 in relevant features that all have an influence on the viscosity of the composition and hence its injectability. These features are the melt flow index of component A  $MI_2(A)$  (151 g/10 min in example 9 as compared to 117 g/10 min in example 1 and 110 g/10 min in example 8), the melt flow index of component B  $MI_2(B)$  (0.12 g/10 min as compared to 0.29 g/10 min and 0.23 g/10 min), the amount in comonomer  $C_4$  in component B (0.81% as compared to 1.44% and 1.17%) and the ratio in components A and B in the composition (45.0/55.0 as compared to 49.3/50.7 and 50.0/50.0). Besides, the composition of example 10, which also has a melt flow index  $MI_2$  below the claimed range (0.86 g/10 min) shows an injectability that is comparable to that of examples 1 and 8 according to claim 1, suggesting that the melt flow index  $MI_2$  is not the sole feature that is paramount to an improvement of the injectability of the compositions. As a result of these many differences between example 9 representing D1 and examples 1 and 8 according to present claim 1, it cannot be concluded that the improved injectability can be attributed to an increase of the melt flow index  $MI_2$  of the composition.

2.9 With regard to taste and odour, a comparison of the values reported in table 2 of the patent in suit for the compositions of examples 9 and 10 (Taste 0.2/ Odour 0.2 and Taste 0.8/ Odour 0.7 respectively), which are both compositions for which the melt flow index  $MI_2$  is below the claimed range, shows that the melt flow index is not a determining factor.

2.10 The respondent also referred to the examples provided in declaration D23. D23 contains examples of compositions of multimodal ethylene polymers prepared under conditions that are said to be comparable to

those used in the patent in suit. In fact, the compositions of examples 1-12 of D23 correspond in essence to the compositions 1-12 of the patent in suit with the only difference that the organoleptic properties related to taste and odour are illustrated by the hexane extractables and the oligomer content of the compositions in D23 and the stress crack resistance is illustrated by the full notch creep test (FNCT) instead of the environmental stress crack resistance (ESCR-B) as in the patent in suit. These examples do not provide further information as that already shown in the patent in suit. Also, in view of the significant differences between the compositions representing D1 (examples 9 and 10) and those according to present claim 1 (examples 1 and 8), as for the examples of the patent in suit, it cannot be concluded that any improvement in the values of full notched creep test (FNCT), hexane extractables and oligomer content is caused by an increase of the melt flow index  $MI_2$  of these compositions.

- 2.11 Among the remaining examples I-VIII contained in D23, examples I and II disclose compositions according to present claim 1 with melt flow index values of 1.37 g/10 min and 1.69 g/10 min respectively. The values of injectability disclosed for examples I and II (3.42s and 3.61s respectively) are comparable to the values reported for the compositions of examples 1, 8 and 10 in the patent in suit as discussed above. In that regard, the compositions of examples I and II do not provide further information not already present in the examples of the patent in suit.
- 2.12 D23 also describes compositions (examples III-VIII) that are not according to present claim 1. However, none of these compositions are representative of the

closest prior art since their melt flow index  $MI_2$  or the melt index of their component A  $MI_2(A)$  as reported in Table 1 of D23 are all well above that of the composition according to example 10 of D1. These remaining examples of D23 are thus not found to be relevant to the formulation of the problem solved over D1.

2.13 Figure 2 on page 5 of D23 was also cited as showing a trend regarding the effect of the melt flow index  $MI_2$  of the composition on its injectability. The data presented in that figure however is, with the exception of examples 1, 8, 9, 10, I and II, not representative of the patent in suit or of example 10 of D1 and thus not relevant when establishing the presence or absence of an effect for the compositions according to claim 1 over that of example 10 of D1. As to the data corresponding to the melt flow index  $MI_2$  according to the patent in suit and D1, the values of injectability are so scattered on the figure that one cannot recognize a clear trend as to the influence of the melt flow index  $MI_2$  on the injectability of the composition. The Board thus finds that Figure 2 of D23 does not establish the presence of an effect on the injectability of the composition that could be attributed to the selection of the melt flow index  $MI_2$  in the range according to claim 1.

2.14 It follows from the above that the problem that can be formulated with regard to the first auxiliary request starting from example 10 of D1 is the provision of further screw caps.

2.15 The skilled person would consider any screw cap according to the teaching of D1 as a plausible solution to the problem posed of providing further screw caps.

With regard to the compositions of these screw caps, D1 teaches that the melt flow index of the compositions, disclosed as MFR<sub>2</sub> in the passage on page 6, lines 29-37, can be chosen in the range of from 0.3 to 3.0 g/10 min preferably from 0.5 to 2.0 g/10 min. That teaching of D1 regarding the melt flow index of the composition is not an isolated teaching as it is made in the general context of compositions based on from 20 to 70 parts by weight of a polyethylene component (A) and from 80 to 30 parts by weight of an ethylene/ $\alpha$ -olefin copolymer component (B), the composition having a density of 0.945 to 0.965 g/cm<sup>3</sup> and a high shear flow rate of at least 600s<sup>-1</sup>. That teaching would therefore be relevant to all compositions that are within the ambit of D1, including that of example 10.

2.16 There is also no further limitation in D1 as to the choice of the melt flow index of the compositions. Therefore, the fact that none of the compositions described in the examples of D1 have a melt flow index above 0.9 g/10 min is irrelevant to the question of whether a skilled person would have considered composition with a melt flow index within the claimed range of 1.2 to 2.0 g/10 min when looking for further screw caps. Under these circumstances, the Board finds that the skilled person would consider multimodal ethylene polymer compositions according to D1 having a melt flow index in the range of 0.3 to 3.0 g/10 min preferably in the range of 0.5 to 2.0 g/10 min, and therefore in the range of 1.2 to less than 2 g/10 min as in present claim 1, to provide further screw caps to those of example 10 of D1. The subject matter of claim 1 of the first auxiliary request does therefore not involve an inventive step.

2.17 In view of the negative conclusion reached on inventive step, there is no need for the Board to address the remaining objections, including the novelty objection over example 6 of D1, raised by the appellants against that request.

#### Second auxiliary request

### 3. Inventive step

3.1 Claim 1 of the second auxiliary request differs from claim 1 of the first auxiliary request only in that the melt flow index  $MI_2$  of the composition is limited to the range of 1.4 g/10 min to 1.8 g/10 min.

3.2 That limitation of the claims of the second auxiliary request was not showed to be linked to any new advantage with respect to the first auxiliary request. Also, the parties had no further arguments regarding inventive step of the second auxiliary request than those submitted for the first auxiliary request.

3.3 It follows from the above that example 10 of D1 remains the closest prior art for claim 1 of the second auxiliary request and that the problem solved remains the provision of further screw caps.

3.4 The teaching of D1 regarding the melt flow index of the composition between 0.3 and 3.0 g/10 min preferably between 0.5 and 2.0 g/10 min is equally relevant to the question of whether a skilled person would have considered compositions having a melt flow index of from 1.4 to less than 1.8 g/10 min as an obvious solution to the problem posed. Since it was not shown that the range defined in claim 1 of the second auxiliary request was not an arbitrary selection within

the range already known from D1, the Board finds that claim 1 of the second auxiliary request also lacks an inventive step.

#### Fourth and fifth auxiliary requests

#### 4. Inventive step

4.1 Claims 1 of the fourth and fifth auxiliary requests correspond to claims 1 of the first and second auxiliary requests to which the multimodal ethylene polymer is further defined by features relating to its process of preparation, in particular in that "polymer (A) and the copolymer (B) are mixed, or the polymer (A) and the copolymer (B) are prepared in at least two successive polymerisation stages, the preparation of the polymer (A) being performed first and then the preparation of the copolymer (B) in the presence of the polymer (A) obtained from the first polymerisation stage".

4.2 It was not established that this definition of the claimed screw caps by way of product-by-process features concerning the multimodal ethylene polymer compositions confers any further characteristics nor any further properties to the screw caps of these requests as compared to the first and second auxiliary requests over the composition and screw cap according to example 10 of D1. In fact, the parties did not submit any further arguments regarding the fourth and fifth auxiliary requests as the arguments already provided for the first auxiliary request. In addition, since the composition of example 10 of D1 was obtained by the method of example 2 of that document (page 11, lines 24-30), which is disclosed to be a serial two-stage continuous polymerization (page 9) during which

the copolymer component is formed in the second stage of the polymerization in the presence of the homopolymer formed in a first stage, it can be concluded that the composition of example 10 of D1 is obtained by a process that corresponds to the second alternative as defined in claim 1 of the fourth and fifth auxiliary requests.

4.3 It follows from the above that it was not established that the definition of the subject matter claimed in the fourth and fifth auxiliary requests resulted in any amendment that would justify a change in the choice of closest prior art, its distinguishing feature or the problem formulated in view of it. As a result, the reasoning and conclusion concerning the first and second auxiliary requests apply equally to claim 1 of the fourth and fifth auxiliary requests.

4.4 It follows from the above that the fourth and fifth auxiliary requests lack an inventive step.

**Order**

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

1. The decision under appeal is set aside.
2. European patent No. 1 441 959 is revoked.

The Registrar:

The Chairman:



B. ter Heijden

D. Semino

Decision electronically authenticated