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# Datasheet for the decision of 20 March 2014

**Case Number:** T 2222/09 - 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

**Headword:**

**Relevant legal provisions:**
EPC Art. 123(2), 83
RPBA Art. 12(2), 13(1)

**Keyword:**

**Decisions cited:**

**Catchword:**

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**Case Number: T 2222/09 - 3.3.03**

# D E C I S I O N
# of Technical Board of Appeal 3.3.03
# of 20 March 2014

| | |
|---|---|
| **Appellant:**<br>(Patent Proprietor) | INEOS Manufacturing Belgium NV<br>Scheldelaan 482<br>2040 Antwerpen (BE) |
| **Representative:** | Smith, Julian Philip Howard<br>Mathisen & Macara LLP<br>Communications House<br>South Street<br>Staines-upon-Thames<br>Middlesex, TW18 4PR (GB) |
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| **Representative:** | Leyder, Francis<br>Total Research & Technology Feluy<br>Zone Industrielle C<br>7181 Seneffe (BE) |
| **Respondent II:**<br>(Opponent 2) | THE DOW CHEMICAL COMPANY<br>2030 Dow Center, Abbott Road<br>Midland, Michigan 48640 (US) |
| **Representative:** | Boult Wade Tennant<br>Verulam Gardens<br>70 Gray's Inn Road<br>London WC1X 8BT (GB) |
| **Respondent III:**<br>(Opponent 3) | Borealis Technology OY<br>P.O.Box 330<br>06101 Porvoo (FI) |
| **Representative:** | Kador & Partner<br>Corneliusstrasse 15<br>80469 München (DE) |

**Decision under appeal:** **Decision of the Opposition Division of the**

**Composition of the Board:**

**Chairman:** B. ter Laan
**Members:** D. Marquis
C. Brandt

## Summary of Facts and Submissions

I. The appeal by the patent proprietor lies from the decision of the opposition division posted on 30 September 2009 revoking European patent N° 1 441 959 B1 based on application number 02 802 650.8.

II. The application as filed contained 15 claims, of which claims 1, 2, 6 and 8 read:

"1. Screw cap comprising a composition based on a multimodal ethylene polymer having a standard density (SD) greater than 950 kg/$m^3$ and a melt flow index $MI_2$ of less than 10 g/10min, said multimodal ethylene polymer comprising from 35 to 65wt%, 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 kg/$m^3$ and a melt flow index $MI_2$(A) of at least 10 g/10min, and
from 65 to 35wt%, 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 $MI_2$(B) of less than 10 g/10min and a content of said alpha-olefin(s) of from 0.1 to 5 mol%."

"2. Screw cap according to claim 1, wherein the multimodal ethylene polymer has a melt flow index $MI_2$ of less than 2 g/10min."

"6. Screw cap according to any preceding claim, wherein $MI_2$(A) is at least 80 g/10min."

"8. Screw cap according to any preceding claim, comprising from 45 to 55wt% of ethylene polymer (A) and 45 to 55wt% of copolymer (B)."

III. The patent was granted with a set of thirteen claims of which independent claims 1 and 13 read as follows:

"1. Screw cap comprising a composition based on a multimodal ethylene polymer having a standard density (SD) greater than 950 kg/$m^3$ and a melt flow index $MI_2$ of 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 kg/$m^3$ and a melt flow index $MI_2$(A) of at least 10 g/10min, 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 $MI_2$(B) of less than 10 g/10min and a content of said alpha-olefin(s) of from 0.1 to 5 mol%."

"13. Use of a screw cap according to any preceding claim for the closure of bottles containing foodstuffs or fizzy drinks."

Claims 2 to 12 were directed to preferred embodiments of claim 1.

IV. Three notices of opposition against the patent were filed requesting the revocation of the patent on the grounds according to Article 100(c) EPC (opponents 1 and 2), Article 100(b) EPC (all opponents) and Article 100(a) EPC (lack of novelty and lack of inventive step; all opponents).

V. By a decision announced orally on 9 September 2009 and posted on 30 September 2009, the opposition division revoked the patent on the ground of Article 100(b) EPC.

VI. The decision of the opposition division relied *inter alia* on the following documents:

D1: JP-A-98 103542
D1a: English translation of D1, provided by Opponent 1 with the notice of opposition.
D4: EP-A-603 935
D24: B. Hagström, "Prediction of melt flow rate (MFR) of bimodal polyethylene's based on MFR of their components" (undated)
D26: Calculations done by opponent 2
D27: R.N. Haward et al., J. Pol. Sci., part A, Vol.2, pp.2977-3077 (1964)

VII. The decision was based on a main request and two auxiliary requests all filed on 5 September 2009 by letter dated 2 September 2009. Claim 1 of the main request read:

"1. Screw cap comprising a composition based on a multimodal ethylene polymer having a standard density (SD) greater than 950 kg/$m^3$ and a melt flow index $MI_2$ of from 0.8 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 kg/$m^3$ and a melt flow index $MI_2$(A) of 80 to 200 g/10min, 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 $MI_2$(B) of less than 10 g/10min and a content of said alpha-olefin(s) of from 0.1 to 5 mol%."

According to the decision none of the requests fulfilled the requirements of Article 83 EPC because the patent in suit did not contain enough information to select a suitable calculation method for the melt flow index $MI_2$(B) of copolymer (B).

VIII. On 13 November 2009, the patent proprietor lodged an appeal against the decision and paid the prescribed fee on the same day. The statement setting out the grounds of the appeal was filed on 8 February 2010. The patent proprietor requested that the patent be maintained on the basis of the main request or the two auxiliary requests all filed with the letter of 2 September 2009. By letter of 12 September 2011, the appellant provided a further set of claims as a third auxiliary request.

On 27 February 2013, the appellant filed six auxiliary requests to replace all previous auxiliary requests. Supplementary technical information concerning the calculation of the melt flow index of component (B) was also submitted.

IX. By letter dated 25 June 2010 respondent II (opponent 2) replied to the statement setting out the grounds of the appeal, submitting two tables relating to the calculation of the melt flow index of component (B). Respondent III (opponent 3) replied to the statement of grounds of the appeal by letter dated 20 July 2010, and filed further submissions dated 25 April 2012 and 5 September 2013.

By letter of 20 January 2012, respondent I (opponent 1) filed observations.

X. On 17 October 2013, summons to oral proceedings were issued by the Board.

XI. On 27 January 2014, respondent II requested that the Board indicate whether at the oral proceedings issues under Article 123(2) EPC would be considered. It was further requested not to admit the second to sixth auxiliary requests to the proceedings.

XII. By communication of 11 February 2014, the Board issued a preliminary opinion.

XIII. On 20 February 2014, the appellant filed amended versions of the first, second, fourth and fifth auxiliary requests. It was further requested that the question of Article 123 EPC should not be considered by the Board but that the case be remitted to the opposition division as that issue had not been considered in the contested decision.

XIV. Oral proceedings were held on 20 March 2014.

XV. The appellants' arguments concerning the main request may be summarised as follows:

Article 123(2) EPC

The ranges of the amounts of the components found their basis in claim 8 as filed. The maximum of the range of $MI_2$ was disclosed in original claim 2 and its minimum value was described as a preferred lower value on page 2 of the description as filed. The minimum value of the range of $MI_2$(A) was disclosed in original claim 6 and its maximum value on page 3 of the description as filed. The combination of those features was therefore implicitly disclosed in the application as filed. The

limitations were in line with the melt index values of the examples. The examples could not be used to overturn the teaching of the specification. The calculations necessary for the Hagström model were a purely technical issue based on data of known compositions and were therefore unrelated to the issue of added subject matter.

The argument under Article 123(2) EPC of respondent III should not be admitted to the proceedings because it was filed late and because Article 123(2) EPC had not been considered by the opposition division in its decision and did therefore not form part of the appeal procedure.

Article 100(b) EPC

The calculation of the melt index of the second polymer component was routine in the industry. It was also routine to determine the necessary values used in the Hagström formula for a particular class of resins by calibration, using melt blends of such resins on which the melt index could be measured directly. Other models existed, too, that could be used to calculate the melt index and each model was generally valid only within a certain range of melt index. This might explain why D24 fitted better for the examples of the patent, while D27 was more suitable for the data of D1.

Any multimodal ethylene polymer that satisfied all the other requirements of claim 1 of the main request would inevitably have a value of $MI_2$(B) of less than 10 g/ 10min. The determination of the value of $MI_2$(B) was a matter of Article 84 EPC and not Article 83 EPC.

XVI. The respondents' arguments concerning the main request may be summarised as follows:

Article 123(2) EPC

In cases where the multimodal polymer was produced by a process of two successive polymerization stages, the melt index of the first component - $MI_2(A)$ - was measured on a sample of polymer (A) taken from the first reactor. The melt index of the second component - $MI_2(B)$- was then calculated on the basis of the melt index of the whole composition - $MI_2$ - and the $MI_2(A)$. This meant that the $MI_2(A)$ and $MI_2(B)$ values were dependent on each other and on $MI_2$ via an unspecified relationship. It followed that even if the individual features modified in claim 1 found a basis in the application as filed, there was no basis for their combination because their relationship was not disclosed in the application as filed. Also, the application as filed did not provide a basis for the introduction of the minimum value of $MI_2$ and the maximum value of $MI_2(A)$ in the claims as this amendment excluded the representative examples 9, 11 and 12. By restricting the number of examples falling under the claims, the value of parameters necessary to calculate the $MI_2(B)$ with the Hagström model would change. Therefore, additional information about the calculation of the melt index that was not provided in the application as filed, would be needed in order to arrive at the claimed subject matter.

There was no indication in the application as filed unambiguously pointing to the combination of the preferred lower limit and the particularly preferred upper limit of $MI_2$ with the present range for $MI_2(A)$

because those ranges belonged to different levels of preference. That objection should be admitted to the proceedings because it did not concern a new ground of opposition but a new argument which could always be put forward at any stage of the proceedings. Furthermore, the argument was raised in reply to a point made by the Board in its preliminary opinion. Also, the argument now put forward was highly relevant for the decision and therefore should be admitted to the proceedings, even at this late stage.

Article 100(b) EPC

The properties of the polymer produced in the second reactor when two reactors were used in series could not be measured since the second polymer was in intimate admixture with the first polymer. Therefore, the melt index of the second polymer could only be calculated and not measured. The calculation models however all relied on certain assumptions regarding the polymerisation conditions, the polymerisation catalyst and the properties of the materials that were formed as the first and the second polymer component. For example, the Hagström model described in document D24, made certain assumptions regarding the polymerisation catalyst and the molecular weight distribution. The selection of the constants in equation (5) on page 2 of D24 depended on the different methods for determining the melt index, especially the weight used in the melt index measurement. As the patent in suit did not provide any information on the assumptions made in the model that was used, the melt index of the second polymer could not be reliably determined.

Due to the lack of information regarding the process conditions and materials used for the compositions

reported in the examples of the patent in suit, the skilled person was at a loss how to choose a realistic calculation model for the melt index of the polymer component made in the second reactor. Without the possibility of choosing a realistic calculation model, the skilled person was not able to determine whether a given polymer composition, for which the properties of the materials and the polymerisation conditions may well be known, fell within the scope of the present claims. The fact that different calculations provided different values for the melt index of the polymer produced in the second reactor emphasized that the appellant had not shown how the melt index could be calculated with a sufficient degree of accuracy.

D26 showed that the patent proprietor's calculations based on the Hagström formula disclosed in D24 did not give the same results as reported in the patent in suit. Also, information needed for the Hagström formula was based on internal knowledge only available to the experts of the appellant.

D26 showed that the values calculated with the help of the Hagström and the Haward models diverged from one another and were not in agreement with the values of the melt index reported in the patent in suit. Therefore, there was an uncertainty surrounding the calculation of the melt index of the polymer component produced in the second reactor.

The reference to the manufacturing process of D4 to which the patent specification referred (paragraph [0023]) did not enable the person skilled in the art to obtain consistently the claimed screw caps and the multimodal ethylene polymer compositions from which they were made.

D27 showed that the application of the Haward model was not appropriate to determine the $MI_2$(B) values of the claimed compositions with the necessary accuracy. This was all the more relevant because D1a disclosed compositions for screw caps falling just outside the claimed range.

Also, it was impossible to make the claimed composition meet the melt index requirements of the overall composition and of component (A) when component (B) had a melt index falling within a large part of its claimed range, i.e. less than 10 g/10min. In case the high molecular weight component (B) possessed an $MI_2$(B) value close to 9 or even 10 g/10min, the composition simply could not fulfill the ranges for $MI_2$ for the total composition as well as for component (A).

XVII. The appellant (patent proprietor) requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request filed on 5 September 2009 or, alternatively, on the basis of the first or second auxiliary request filed with letter of 20 February 2014, or on the basis of the third auxiliary request filed with letter of 27 February 2013, or on the basis of the fourth or fifth auxiliary request filed with letter of 20 February 2014, or on the basis of the sixth auxiliary request filed with letter of 27 February 2013.

The respondents requested the dismissal of the appeal.

Respondent I (opponent 1) further requested that all requests be examined regarding the requirements pursuant to Articles 123(2) and 84 EPC before any

remittal of the case to the first instance.

Respondent II (opponent 2) further requested that the first, second, fourth and fifth auxiliary requests be not admitted to the proceedings.

## Reasons for the Decision

1. The appeal is admissible.

*Main request*

2. Article 123(2) EPC

2.1 The lack of basis for claim 1 of the main request was raised by Respondent II in his reply to the statement of the grounds of appeal, at the earliest point in time during the appeal proceedings. In the present case, the considerations playing a role for Article 123(2) EPC might have an influence on the considerations regarding the requirements of Article 83 EPC, which are part of the statement of the grounds of appeal. Under the specific circumstances of the present case the Board considers it expedient to deal with the objections raised under Article 123(2) EPC against the main request.

2.2 The amended features of claim 1 are based on:
- originally filed claim 8 (amounts of (A) and (B)) referring to any preceding claim;
- originally filed claim 6 (minimum value of $MI_2$(A)) referring to any preceding claim;
- originally filed claim 2 (maximum value of $MI_2$) dependent on claim 1;

- page 2, line 17 (minimum value of $MI_2$)
- page 3, line 25 (maximum value of $MI_2(A)$).

2.3 The claims as originally filed contained a combination of open ranges of the melt indices of the whole composition ($MI_2$) and of component (A)($MI_2(A)$), together with the open range of the melt index of component (B) ($MI_2(B)$) in the combination of the subject matter of claims 8+6+2+1. Two of those open ranges have now been closed by the introduction in claim 1 of a minimum value for $MI_2$ and a maximum value for $MI_2(A)$ the basis for which can be found in the description. Therefore, amended claim 1 does not contain a new combination of melt indices that was not already disclosed in the application as originally filed.

2.4 It was not contested that the melt index of the composition $MI_2$ was related to that of its components (A) ($MI_2(A)$) and (B)($MI_2(B)$). However, that relationship did not form the basis for the amendments. The respondents have not shown how that relationship, which is not disclosed in the patent in suit, would result in the present claims containing subject-matter extending beyond the content of the application as filed.

2.5 D24 discloses equation (5) of the Hagström model, which is one of the existing models describing the variations in the calculation of the melt flow rate of a polymer composition from the melt flow rate of its components, including a parameter K ($K = w^{-b}/a$) which depends on the weight fraction (w) of the polymer components. As the examples in Table 2 of the patent in suit not only differ from one another by the melt indices of their components but also by their weight fractions of component (A), there can be no value of K representing

all these compositions. The argument that excluding a number of examples from the claimed scope led to a different parameter K with a consequential shift of melt index values calculated from that parameter can therefore not be followed. As a result, it cannot be concluded that the observed shift in the value of K is caused by the exclusion of the examples 9, 11 and 12 from the claimed subject matter, as argued by respondent II. In fact, examples 8 and 10 represent physical blends as now claimed with a comparable weight fraction of (A) (0,50 in example 8 and 0,55 in example 10) and appear to lead to comparable K values (0,25 in example 8 and 0,23 in example 10). Therefore, it cannot be concluded that the exclusion of some examples from the claimed scope would add a teaching not already disclosed in the originally filed documents.

2.6 The amendments to claim 1 therefore only limit a teaching already contained in claims 8+6+2+1 as originally filed, for which limitation there is a basis in the original description. The subject matter of claim 1 of the main request complies with Article 123(2) EPC.

2.7 Respondent III requested the admission of a further objection under Article 123(2) EPC, arguing that the limiting values of $MI_2$ and $MI_2$(A) introduced in claim 1 of the main request were not disclosed in combination in the application as originally filed since they belonged to different levels of preference and could therefore not be combined without extending the subject matter of the application beyond its content as filed.

2.7.1 This argument had not been raised in the replies to the statement of grounds of the appeal. It was submitted for the first time on 20 February 2014, one month

before the oral proceedings before the Board and contrary to the requirements of Article 12(2) RPBA which specifies that, in the case of the respondent, the reply to the statement of grounds of appeal must contain the party's complete case and set out clearly and concisely the reasons why it is requested that the decision under appeal be reversed, amended or upheld and should specify expressly all the facts, arguments and evidence relied on.

2.7.2 The argument now relied upon by respondent III differs substantially from that raised by respondent II in his reply to the statement of grounds of appeal and discussed above in points 2.1 to 2.5. It therefore amounts to an amendment of the case within the meaning of the RPBA with the result that it is only admissible at the Board's discretion under Article 13(1) RPBA.

2.7.3 Respondent III stated that the new argument was raised in reply to the communication of the Board of 11 February 2014 and in particular in response to the Board noticing, in reaction to the objection of the respondent II, that it was not apparent how the possible dependency between $MI_2$(A), $MI_2$(B) and $MI_2$ would constitute an extension of subject-matter in the sense of Article 123(2) EPC. This is not convincing, since the argument that a combination of values of melt indices belonging to different levels of preference was not an explicit disclosure, is an argument unrelated to the existence of a relationship between the melt indices disclosed in claim 1. Furthermore, there was no reason why the new argument could not have been raised earlier and it was not occasioned by a new point raised by the appellant in its reply or by the Board in its communication.

2.7.4 Therefore, the new argument regarding Article 123(2) EPC of respondent III is not admitted to the proceedings.

2.8 In view of the above, the main request complies with the requirements of Article 123(2) EPC.

3. Article 100(b) EPC

3.1 It was undisputed by the parties that a screw cap could be obtained from multimodal polyethylene compositions, irrespective of the question whether the polyethylene fell under the definition of claim 1. This is confirmed by the examples of the patent in suit, according to which screw caps could be produced also with polyethylenes outside the definition of claim 1 (examples 13R and 14R). The screw caps so obtained did perhaps not have the desired properties, as argued by the respondents, but since any desired properties of the screw cap are not defined in the claim but are only indicated in the description and therefore at most form part of the problem to be solved, that would be a question of inventive step (Article 56 EPC) rather than sufficiency (Article 83 EPC) (see G0002/03; Reasons 2.5.2).

3.2 The question to be answered is therefore if the patent contains enough information to enable the skilled person to make a screw cap from a composition that is based on the polymer as defined in claim 1. In order to do that, the skilled person has to be able to obtain that polymer.

3.3 In paragraph [0016] of the patent in suit it is stated that the multimodal ethylene polymer may be obtained by any suitable technique. It is possible, for example, to

perform the mixing of polymer (A) and copolymer (B) by any known process such as, for example, melt mixing the two preformed polymers. Preferred, however, are processes in the course of which polymer (A) and copolymer (B) are prepared in at least two successive polymerisation stages. In general, first polymer (A) is prepared and then copolymer (B) in the presence of polymer (A) obtained from the first polymerisation stage. It is clear from the description that although copolymer (B) is preferably prepared in the presence of polymer (A) in the second reactor, the alternative preparation in which polymer (A) is prepared in the presence of copolymer (B) is not excluded.

In paragraph [0022] of the patent in suit it is further stated that in the case of a process in two successive polymerization stages, the melt index of polymer (A) is measured on a sample taken from the first reactor and the melt index of copolymer (B) is calculated on the basis of the melt index of the total multimodal ethylene polymer $MI_2$ and the melt index of polymer (A), $MI_2(A)$.

3.4 It was not disputed that it was known in the art that the melt index of the second component could not be measured directly but had to be calculated. That can also be seen from D1a, which discloses the preparation of multimodal polyolefin compositions from at least two polyethylene components (A) and (B) in a two-stage polymerization. In Table 2 of D1a it is stated that the melt index reported for the component produced in the second stage of the polymerization is a calculated value.

3.5 The mathematical model to be used for the calculation of the melt index of the polymer produced in the second

reactor is not indicated in the patent in suit. A number of models are known in the prior art. D24 describes the Hagström model for the calculation of the melt flow ratio of polyethylenes produced in a two-step polymerization. A formula is given which involves the melt flow ratios of the components and that of their composition. Another model, the Haward model, is described in D27; its allows the calculation of the melt index on the basis of the composition of the blend. Finally, in the statement of grounds of appeal the appellant mentioned a model derived from the Hagström formula which involves the melt index $MI_5$. The existence of several different mathematical models applicable to the calculation of the melt index of polyethylenes produced in a two-step polymerization before the priority date of the patent in suit was undisputed among the parties.

3.6 The mathematical models available to calculate the melt index and discussed by the parties rely on a calibration of some sort to adjust to the specific polymers in the mixture and their preparation conditions. D26 shows that, for the compositions of the patent in suit, the values of the melt index of the polymer obtained in the second polymerization stage vary depending on the mathematical model used (Hagström or Haward) and on the order in which the components were produced. Also, the report provided by respondent II with his reply to the statement of the grounds of the appeal shows that estimations had to be made on the basis of reference compositions. It appears from the above that once the calculation model was chosen and the parameters of the polymerization conditions set, a melt index value of the polymer produced in the second polymerization stage could be obtained.

The point made by the respondents was that the value of the melt index obtained from the models available to the skilled person was not an accurate value because it depended on factors not described in the patent in suit.

3.7 Lack of accuracy however does not necessarily prevent the skilled person from obtaining a claimed composition. To establish the exact limits of a claim is a question of clarity (Article 84 EPC), which is not a ground for opposition. The respondents have merely shown the existence of an ambiguity due to a lacking definition of the model used to calculate the melt index of the polymer obtained in the second polymerization stage. It was not shown how that lack of accuracy would lead to a lack of sufficiency of disclosure of the claimed subject matter. In fact, the whole argumentation of the respondents about establishing the melt index of the second component is about carrying out measurements on a finished product, i.e. to establish the properties once the polymer has been prepared. On the finished product the melt index of the first component, too, cannot be measured anymore. The respondents even stated that it was not always possible to establish afterwards whether a polyethylene was actually bimodal. However, the insufficiency objection had never been based on that line of argument. The only point argued was a lack of accuracy for the determination of the melt index of the second component.

3.8 The question to be answered for sufficiency is not whether one can establish all the parameters on the finished product, but rather if the skilled person is able to obtain the product as claimed. In the present case it has not been shown, nor argued, that the

skilled person e.g. could not have obtained a polymer as defined in present claim 1. Nor has it been shown that the skilled person would not be able to realize the properties of the second component e.g. by measuring them on the product when made without the presence of the first component and then using those reactor conditions for producing the two-stage product. Therefore, the respondents have not shown that the skilled person would not be able to obtain or produce a polymer as defined in claim 1 simply because there was a lack of accuracy of the melt index value obtained by calculation. As a consequence, the ambiguity regarding the calculation of the melt index of the second component cannot be regarded as establishing insufficient disclosure.

3.9 A second line of argument regarding insufficiency submitted by the respondents was, that it was impossible to make the claimed composition meet all the melt index requirements over the whole range, i.e. a melt index of the whole composition of 0.8 to less than 2 g/10min, a melt index of the first polymer (A) of 80 to 200 g/10min and a melt index of copolymer (B) of less than 10 g/10min. This was not disputed by the appellant.

3.10 As shown in the examples of the patent in suit, it is possible to obtain a polymer falling within the definition of claim 1. The objection was rather that it was not possible to use the full ranges according to the definition in claim 1. However, the skilled person is aware of the existence of a relationship between the three melt indices indicated in claim 1, as can also be seen from the foregoing discussion regarding the models used for the calculation of the melt index of the second component. If the value of one of the melt

indices is changed, it is not possible to maintain the other values. In such a situation it is not always possible to have all the combinations within the claimed ranges. Therefore, when reading the claim, the skilled person would read it with that knowledge and not try to achieve combinations that were not feasible. The skilled person knows that restrictions on the melt index of the total polymer and of the first component automatically impose restrictions on the melt index of the second component. In the present case, there are many polymers that do fall within the ranges defined in claim 1 and the specification contains sufficient information on how to obtain those polymers (points 3.1 to 3.7 above). In such a case, the inclusion of non-working embodiments is of no harm (G 0002/03, reasons 2.5.2).

4. In view of the above, the conclusion has to be that the skilled person is able to obtain a polymer as defined in claim 1, so that also a composition based on that polymer and from that composition a screw cap can be made. Therefore the requirements of Article 83 EPC are fulfilled.

5. Since the main request fulfills the requirements of Articles 123(2) and 83 EPC, there is no need for a decision on the auxiliary requests. As the opposition division has not decided on the other requirements of the EPC, the case has to be remitted to the first instance for further prosecution.

**Order**

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

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution on the basis of main request as filed on 5 September 2009.

The Registrar: The Chairman:

B. ter Heijden B. ter Laan

Decision electronically authenticated