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D E C I S I O N
of 11 February 2003

Case Number: T 0533/00 - 3.2.5

Application Number: 92850160.0

Publication Number: 0521841

IPC: B29C 49/08

Language of the proceedings: EN

Title of invention:

Method for making a container of plastic, and container made
by means of the method

Patentee:

Rexam Aktiebolag

Opponent:

Schmalbach-Lubeca AG
Continental PET Technologies, Inc.

Headword:

-

Relevant legal provisions:

EPC Art. 56, 83, 84, 123(2)

Keyword:

"Sufficiency of disclosure (yes)"
"Inventive step (no)"

Decisions cited:

T 0079/89, T 1111/96

Catchword:

-



Case Number: T 0533/00 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 11 February 2003

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 27 March 2000
revoking European patent No. 0 521 841 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: W. Moser
Members: W. R. Zellhuber
W. Widmeier

Summary of Facts and Submissions

- I. The appellant (patent proprietor) lodged an appeal against the decision of the Opposition Division revoking the European patent No. 0 521 841.
- II. Oppositions were filed against the patent as a whole and based on Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) and Article 100(b) EPC.

In the appeal case T 1111/96, the then competent Board held that the method of claim 1 of the patent in suit as granted was novel and decided to remit the case to the first instance for further prosecution.

In the decision under appeal, the Opposition Division held that the ground for opposition of lack of inventive step (Article 56 EPC) prejudiced the maintenance of the patent in suit as granted, and that the claims filed as auxiliary requests did not meet the requirements of Articles 84 and 123(2) EPC.

- III. Oral proceedings were held before the Board of Appeal on 11 February 2003.
- IV. The appellant requested that the decision under appeal be set aside and, as a main request, that the patent be maintained on the basis of claims 1 to 3 of the patent as granted, or that the patent be maintained on the basis of the following documents filed on 10 January 2003:
 - (a) claims 1 and 2 as auxiliary request 1; or
 - (b) claim 1 as auxiliary request 2; or

- (c) auxiliary request 3: claims 1 to 3 filed as auxiliary request 6; or
- (d) auxiliary request 4: claims 1 and 2 filed as auxiliary request 7; or
- (e) auxiliary request 5: claim 1 filed as auxiliary request 8.

The respondents I and III (opponents 01 and 03) requested that the appeal be dismissed.

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

"1. A method for making a container (20), especially a bottle, by forming a blank or preform (10) of plastic, in particular substantially amorphous polyethylene terephthalate (PET), said blank (10) comprising a mouth portion (11), a substantially conical upper portion (12) extending from the mouth portion (11), and a substantially cylindrical portion (13) extending from said upper portion (12) towards the bottom of the blank (10), said container (20) comprising a mouth portion (21), a substantially cylindrical central portion (23), and a shoulder (22) connecting the cylindrical portion (23) and the mouth portion (21), **characterised** in that when forming the blank (10) into the container (20), the shoulder (22) of the container (20) is formed substantially only of material which in the blank (10) is located in the conical upper portion (12) of the blank while the cylindrical portion (23) of the container (20) is formed substantially only of material which in the blank (10) is located in the cylindrical portion (13) of the blank, and that during said forming the expansion of the material in the conical portion (12) of the blank (10) and of the material in the cylindrical portion (13) of the blank (10) is

selectively controlled in such a manner that the material in the respective portion undergoes stretching in the axial direction of the blank, defined by the quotient of the axial length of the conical portion (12) of the blank (10) and the axial length of the cylindrical portion (13) of the blank (10) having values in the approximate range of 0.25-0.35, and by the quotient of the axial length of the shoulder (22) and the axial length of the cylindrical portion (23) of the container (20) having values in the approximate range of 0.60-0.80."

Auxiliary request 1

Claim 1 of auxiliary request 1 differs from claim 1 of the patent in suit as granted in that the beginning of claim 1 is amended to read as follows:

"A method for making a container (20), especially a bottle, by forming a blank or preform (10) of substantially amorphous polyethylene terephthalate (PET), said blank (10) ...", and,

at the end of the claim the following feature is added:

"..., wherein, when forming the blank (10) into the container (20), the material in the conical portion (12) of the blank is expanded in the circumferential direction, whereby the material is given a total biaxial stretch which in the region closest to the cylindrical central portion (23) of the container (20) is in the approximate range of 7-15."

Auxiliary request 2

The single claim of auxiliary request 2 differs from claim 1 of auxiliary request 1 in that the following feature is added at the end of the claim:

"... and the material in the conical portion (12) of the blank is given a total biaxial stretch which in the region closest to the mouth portion (21) of the container (20) is in the range of 2.5-3.6, preferably 2.7-3.4."

Auxiliary request 3

Claim 1 of auxiliary request 3 differs from claim 1 of the patent in suit as granted in that, after the term "... **characterised** in that when forming the blank (10) into the container (20)", the following feature is inserted:

"the parts of the blank (10) forming the shoulder (22) and the substantially cylindrical central portion (23) are biaxially stretched, and"

Auxiliary request 4

Claim 1 of auxiliary request 4 differs from claim 1 of the patent in suit as granted in that

- (a) the beginning of claim 1 is amended to read as follows:

"A method for making a container (20), especially a bottle, by forming a blank or preform (10) of substantially amorphous polyethylene terephthalate (PET), said blank (10) ...";

- (b) after the term "... **characterised** in that when

forming the blank (10) into the container (20)," the following feature is inserted

"the parts of the blank (10) forming the shoulder (22) and the substantially cylindrical central portion (23) are biaxially stretched, and";

- (c) after the term "the shoulder (22) of the container (20) is formed substantially only of material which in the blank (10) is located in the conical upper portion (12) of the blank," the following term is inserted:

"by adjusting the temperature of the different portions of the blank", and

- (d) at the end of the claim, the following feature is added:

"..., wherein the material in the region between the shoulder (22) and a closed bottom (24) of the resulting container (20) has undergone a total biaxial stretch in the range of 7-15 times".

Auxiliary request 5

In comparison to claim 1 of the patent in suit as granted, claim 1 of auxiliary request 5 includes the above-mentioned amendments (b), (c) and (d) and, additionally, includes the following feature appearing at the end of the claim:

"... wherein the material in the conical portion (12) of the blank is given a total biaxial stretch which in the region closest to the mouth portion (21) of the container (20) is in the range of 2.5-3.6, preferably 2.7-3.4, when forming the blank (10) into the container (20)."

VI. In the course of the appeal procedure, the following documents have, *inter alia*, been referred to:

D11: EP-A 0 247 566, and

D13: Donald V. Rosato and Dominick V. Rosato; "Blow Molding Handbook" Hanser Publishers, Munich Vienna New York, 1989, pages 27 to 34, 109, 110, 122 to 124, 539 to 568, and 629 to 634.

VII. In the written procedure and during oral proceedings, the appellant argued essentially as follows:

Sufficiency of disclosure (Article 100(b) EPC)

The patent in suit concerned a method of making a container having certain dimensions starting from a blank having certain dimensions. The selection of these specific dimensions gave rise to a container showing thermal stability. The way of carrying out that process was subject-matter of the common general knowledge of the person skilled in the art. A person skilled in the art was enabled to selectively control the process and to adjust the temperature of the different portions of the blank such that a container having the dimensions indicated in the claims was formed.

The patent in suit also described the different parts of the preform and the container as well as their dimensions in a manner sufficiently clear and complete to enable a person skilled in the art to carry out that

method. The term "the shoulder (22) of the container (20) is formed substantially only of material which in the blank (10) is located in the conical upper portion (12) of the blank", which was used to define the invention, had to be construed as meaning that the shoulder was formed to a large extent by material which was located in the conical upper portion of the blank.

Main request, inventive step

As set out in the decision handed down in appeal case T 1111/96, the method of claim 1 differed from the method disclosed in document D1'' in that the dimensions of the blank and the container, i.e. the quotient of the axial length of the conical portion and the axial length of the cylindrical portion of the blank, and the quotient of the axial length of the shoulder portion and the axial length of the cylindrical portion of the container were defined (hereinafter called axial lengths quotients).

Starting from document D1'', which represented the closest prior art, the problem underlying the invention according to the patent in suit was to provide an alternative method of making a container which had a reduced tendency to shrink.

That problem was solved by the method according to claim 1, in particular, by the combination of the following two features

- (i) the shoulder portion of the container being formed of material which was located in the conical upper portion of the blank, whilst the cylindrical portion of the container being formed of material which was located in the cylindrical portion of the blank, and

(ii) the respective portions of the blank undergoing stretching in the axial direction in a manner as defined by the axial lengths quotients as indicated in claim 1.

Claim 1 of the patent in suit as granted focussed on these two features which were essential to the invention according to the patent in suit as granted.

Document D1'' referred neither to the axial lengths of the conical portion and the cylindrical portion of the blank nor to the axial lengths of the shoulder and the cylindrical portion of the container. Document D1'' did not suggest any numerical values in respect of the quotients of these axial lengths and, as already set out in the decision T 1111/96, page 9, second paragraph, did not address, or hint at, the significance of the axial lengths of the respective conical and cylindrical portions of both the blank and the finally formed container.

Document D1'' did not suggest solving the shrinkage problem by indicating the right quotients. It thus led away from the solution suggested in the patent in suit. There was no motivation, neither in document D1'' nor in any other of the cited documents, for making a container according to the method of claim 1.

Auxiliary request 1

Claim 1 specified that the plastic material was PET and indicated that the material in the conical portion of the blank was expanded in the circumferential direction, whereby the material was given a total biaxial stretch which in the region closest to the cylindrical central portion of the container was in the approximate range of 7 to 15.

The prior art did not hint at the combination of the features of claim 1, wherein the claimed increase of the axial stretch of the conical portion solved the problem of providing a container showing thermal stability.

Auxiliary request 2

Claim 1 of auxiliary request 2 further specified that the biaxial stretch in the region close to the mouth portion was in the range between 2.5 and 3.6. The cited prior art did not hint at that combination of features.

Auxiliary request 3

In claim 1 of auxiliary request 3, it was explicitly stated that the shoulder portion and the cylindrical portion of the container were biaxially stretched.

There was no motivation for a person skilled in the art to provide a method including the step of biaxially stretching in connection with axially stretching the conical portion in a manner as defined in claim 1.

Auxiliary request 4

Claim 1 of auxiliary request 4 indicated that the material had undergone a total biaxial stretch in the range of 7 to 15 times over the whole cylindrical part, and that the axial stretch was achieved by adjusting the temperature.

A basis for these features could be found in column 2, lines 44 to 50, and column 4, lines 30 to 38 of the application as filed (published version).

It was clear to the person skilled in the art what was meant by "adjusting the temperature", namely differently heating the different portions of the blank.

Auxiliary request 5

Claim 1 of auxiliary request 5 comprised further delimitations. Nothing in the cited prior art suggested a method comprising that great variety of features in order to achieve thermal stability.

VIII. In the written procedure and during oral proceedings, the respondents I and III argued essentially as follows:

Sufficiency of disclosure (Article 100(b) EPC)

The patent in suit was silent about essential details concerning the blank and the container, e.g. thickness and angle of the conical portion of the blank, degree of orientation, as well as about the way the process had to be controlled in order to form a container having the desired dimensions. The patent did not disclose any specific example.

Moreover, the requirement "formed substantially only of material ..." was incomprehensible.

It further was not disclosed as to how a biaxial stretch of 2,5 might be achieved in the region closest to the mouth portion as claimed in claim 3 of the main request. Due to the lack of any further information, the feature of "adjusting the temperature of the different portions of the blank" cited in the claims of auxiliary requests 4 and 5 had to be interpreted in its broadest sense, namely that the blank was heated.

Consequently, either the determination of all the parameters necessary for carrying out the method described and claimed in the patent in suit belonged to

the common general knowledge of a person skilled in the art, or the patent in suit did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

Main request, inventive step

The scope of claim 1 was very broad. The different portions of the preform and of the container were only vaguely described ("substantially conical", "substantially cylindrical central portion"), and the values only approximately indicated ("in the approximate range").

Furthermore, the method as claimed in claim 1 did not necessarily result in a container having thermal stability. Features which were essential for achieving thermal stability, e.g. minimum degree of orientation, hoop stretch, were not indicated.

The indication of the values for the axial lengths quotients were arbitrary. The axial length of the cylindrical portion of the container, and accordingly also that of the blank, might be selected with respect to the desired volume of the container. Shortening or lengthening of the axial lengths of the cylindrical portion of the container would give rise to a modification of the axial lengths quotients, however, without affecting the molecular orientation of the shoulder portion.

Accordingly, no technical effect was achieved by indicating specific values for the respective axial lengths quotients.

Consequently, the object underlying the patent in suit could not possibly relate to the shrinkage problem. Starting from document D1'' representing the closest prior art, the object was to provide a method for making containers of a different shape.

However, making containers of various shapes is commonly known, and the prior art showed that any preform might be used for making bottles of varying lengths portions. No specific problem had to be solved in order to make a container having the dimensions indicated in claim 1.

Furthermore, document D1'' suggested that the length of the conical portion of the blank should be greatly increased which permitted orientation of the shoulder area and reduced the tendency to shrink. Document D1'' itself thus disclosed varying the length of the conical portion of the blank for precisely achieving the object cited in the patent in suit. A person skilled in the art would consider using a blank and making a container both having the "approximate" structure required by claim 1. When using the proportions of the blank and the container depicted in Figures 2 and 5 of document D1'', one would fall within the ranges indicated in claim 1.

Auxiliary request 1

Claim 1 did not meet the requirements of Article 84 EPC. In particular, the definition of the area where the material was given a total biaxial stretch in the approximate range of 7 to 15 ("closest to the cylindrical central portion") was vague and the indication of the ranges were indefinite.

Moreover, the additional features of claim 1 did not go beyond that what had already been suggested in document D1''. Document D1'' concerned a method for making a container by forming a preform of amorphous polyethylene

terephthalate (PET) and suggested a total draw ratio within the range of 7 to 9, cf. claim 20 of document D1''. Since the wall thicknesses in the cylindrical portion of the container and the region above that portion were the same, cf. Figure 5 of document D1'', the material in the region close to the cylindrical central portion had substantially undergone the same total biaxial stretch.

Therefore, the subject-matter of claim 1 of auxiliary request 1 did not involve an inventive step.

Auxiliary request 2

Since, in the mouth portion of a container, the total draw ratio is zero, the indication of a region closest to the mouth portion having a total biaxial stretch in the range of 2.5 to 3.6 was unclear.

On the other hand, the shoulder portion of the container described in document D1'' would also inevitably comprise an area having a total biaxial stretch in the range of 2.5 to 3.6.

Moreover, according to document D13, page 32, last paragraph, the draw ratios that were used to achieve the best properties in a PET bottle were 3.8 in the hoop and 2.8 in the axial direction. Since there was practically no hoop stretch in the region close to the mouth portion, providing a total biaxial stretch in the range of 2.8 to 3.6 in that region was a normal consideration.

Therefore, the subject-matter of claim 1 of auxiliary request 2 also did not involve an inventive step.

Auxiliary requests 3, 4 and 5

The subject-matter of the independent claims 1 of auxiliary requests 3, 4 and 5 did not involve an inventive step for the reasons already given with respect to the subject-matter of claim 1 of the main request and auxiliary requests 1 and 2, respectively.

The feature "by adjusting the temperature of the different portions of the blank" cited in claim 1 of the auxiliary requests 4 and 5 had to be construed as meaning that the blank was heated to a temperature suitable for carrying out the stretch operation. Such a heating step represented a standard practice.

Furthermore, claim 1 of auxiliary request 4 contravened the requirements of Article 123(2) EPC. As a matter of fact, in the application as filed, cf. column 4, lines 11 to 38 (published version), a biaxial stretch in the range of 7 to 15 times of the material in the region between the shoulder and a closed bottom of the container had only be disclosed in combination with a biaxial stretch in the range of 7 to 15 times of the material in a region closest to the cylindrical portion. The stretch rates in these regions were thus not disclosed as being independently from each other, contrary to what is claimed in claim 1 of auxiliary request 4.

Reasons for the Decision

1. Opponent 02, Carlsberg A/S, withdrew his opposition on 26 April 1997; he thus ceased to be a party to the proceedings as far as the substantive issues of the present case are concerned.

2. *Sufficiency of disclosure (Article 100(b) EPC)*

The invention as defined in the claims according to the main request and the auxiliary requests 1 to 5 essentially concerns a method for making a container from a blank wherein the blank and the container have certain dimensions and wherein material of respective portions of the blank is used for forming respective portions of the container. At the priority date of the patent in suit, such methods, in particular orientation blow moulding methods for making containers, were widely known. Among the large number of documents cited in the course of the opposition and appeal procedures, it is particularly referred to document D13, pages 27 to 34, which, in general form, describes the blow moulding process. Accordingly, at the priority date of the patent in suit, a person skilled in the art knew as to how a process had to be controlled in order to make containers having the desired shape. Furthermore, in order to achieve particular shapes, he would also consider performing a reasonable number of test runs.

It was further known that, for carrying out the stretching process, the blank had to be heated to the proper orientation-blow temperature, wherein the "temperature profile is held accurately in the axial direction of the preform", cf. document D13, page 33, fourth full paragraph ("With the two-stage process ...").

Furthermore, in a stretch blow moulding process, the mouth portion of the container, in general, does not undergo stretching, cf. document D13, page 31, Figure 1.15. Accordingly, a person skilled in the art would take into consideration that there must be a transition zone between the mouth portion and the region

where the material is biaxially stretched above a particular stretching range. He would thus interpret the indication "closest to the mouth portion", used in claim 3 of the patent in suit as granted, accordingly.

There is no evidence that, at the priority date of the patent in suit, a person skilled in the art was not enabled to form a container by appropriately forming a blank wherein both the blank and the container have the structure and axial lengths quotients as defined in the claims according to the main request.

In the Board's view, the patent in suit discloses the invention as defined in the claims of the patent in suit as granted in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

By the same token, also the subject-matter of the invention as defined in the claims of the auxiliary requests meets the requirements of Article 83 EPC.

3. *Novelty (Article 54 EPC)*

The issue of novelty of the subject-matter of claim 1 of the patent in suit as granted had been dealt with and decided upon in the decision handed down in appeal case T 1111/96.

The subject-matter of claim 1 of the patent in suit as granted had been found novel. The present Board is bound by this finding (*res iudicata*); cf. decision T 79/89 (OJ EPO 1992, 283).

Since claim 1 of each of auxiliary requests 1 to 5 comprises all the features of claim 1 of the patent in suit as granted, the subject-matter of these claims is also novel.

4. *Inventive step (Article 56 EPC), main request*

4.1 Closest prior art

Document D1'', which is considered to represent the closest prior art, discloses a method for making a container wherein the shoulder of the container is formed of material which in the blank is located in the conical upper portion whilst the cylindrical portion of the container is formed of material which in the blank is located in the cylindrical portion, cf. claim 17 of document D1''.

The method according to claim 1 differs from the known method only in that the axial stretching of the respective portions of the blank is "defined by the quotient of the axial length of the conical portion (12) of the blank (10) and the axial length of the cylindrical portion (13) of the blank (10) having values in the approximate range of 0.25 to 0.35, and by the quotient of the axial length of the shoulder (22) and the axial length of the cylindrical portion (23) of the container (20) having values in the approximate range of 0.60 to 0.80", cf. page 12, point 2.5 of the decision handed down in appeal case T 1111/96.

4.2 Problem - solution

One of the objects of the claimed invention as cited in the description of the patent in suit, cf. column 2, lines 21 to 24, is to provide a method for making containers which have a reduced tendency to shrink.

According to the patent in suit, cf. column 2, lines 26 to 31 of the description, that object is achieved by the method as described in claim 1.

Claim 1 indicates specific values for the axial lengths quotients of the blank and the container, respectively.

As regards these values, the Board shares the opinion of the respondents I and III, cf. point VIII (inventive step, main request) above, in so far as the absolute values of the axial lengths are arbitrary and thus not material for the problem of reducing shrinkage.

Selecting a shorter or greater length of the cylindrical portion of the blank, and, in accordance hereto, making a container having a cylindrical central portion of respective shorter or longer axial lengths, gives rise to different values for the axial lengths quotients without necessarily affecting the structure of the shoulder portion of the container.

However, claim 1 indicates that the axial lengths quotient increases from an approximate range of 0.25 to 0.35 in respect of the blank to an approximate range of 0.60 to 0.80 in respect of the container, which implies that the axial length of the conical portion is more greatly increased than the axial length of the cylindrical portion. Such an increase of the axial length of the conical portion may be instrumental in providing a shoulder portion which is molecularly oriented, provided that the remaining process parameters are selected appropriately.

Accordingly, the objective problem underlying the invention of the patent in suit is to provide a method for making a container comprising steps suitable for reducing the tendency of the container to shrink.

That problem is solved by the solution given in claim 1 of the patent in suit, wherein the main aspect has to be seen in an increase of the axial length of the conical portion. This is also supported by the description of

the patent in suit, cf. column 2, lines 46 to 49, according to which, as regards the conical portion, "... the small expansion of the material in the circumferential direction is compensated for by an increased elongation in the axial direction of the blank, ..."

4.3 Obviousness

Document D1'' teaches on page 5, lines 11 and 12 that increasing the percent crystallinity in the container side wall reduces polymer molecular mobility and thus container shrinkage at a given temperature, and, on page 5, lines 26 to 28, that "... the length of the tapered portion 14 of the preform was greatly increased which permits orientation of the shoulder area 36 to within 0.250 inch of the finish area, and as close as 0.100 inch, for a generic 1.5 litre bottle configuration as is shown in Figure 5."

Document D1'' thus teaches the skilled person to increase the length of the tapered portion to increase the orientation of the shoulder of the container, thus reducing container shrinkage at a given temperature.

Accordingly, in order to provide a shoulder portion having a sufficient degree of orientation or crystallinity, a person skilled in the art was motivated to selectively controlling the elongation of the conical portion of the blank in such a manner that its axial length increased accordingly. In doing so, he would consider an elongation of the conical portion which falls within the ranges indicated in claim 1 of the patent in suit as granted without the necessity of applying an inventive step.

Consequently, the subject-matter of claim 1 of the patent in suit as granted does not involve an inventive step within the meaning of Article 56 EPC. Therefore, the main request of the appellant is not allowable.

5. *Auxiliary request 1*

5.1 Amendments

Claim 1 of auxiliary request 1 is based on the claims 1 and 2 of the application as filed. The scope of protection conferred by claim 1 is restricted with respect to claim 1 of the patent in suit as granted.

The Board is further satisfied that the subject-matter of claim 1 is sufficiently clear. The claim addresses the person skilled in the art and, in the Board's view, a person skilled is enabled to locate the region of the container defined as being "closest to the cylindrical central portion". Furthermore, in the present case, the use of the terms "substantially" and "approximate" does not render the subject-matter of the claim unclear. It merely signifies that minor deviations from the numerical values and definitions indicated in the claim should be considered as falling within the scope of the claims.

Claim 1 thus meets the requirements of Articles 84 and 123(2) and (3) EPC.

5.2 Inventive step

Claim 1 of auxiliary request 1 does not contain any feature which goes beyond the ordinary skill of a person skilled in the art. Document D1'' suggests making a container by forming a blank of substantially amorphous polyethylene terephthalate (PET), cf. page 2, lines 23 to 25, and suggests a total preform draw ratio of 7

to 9, cf. abstract and claim 20. Furthermore, document D13 also suggests that best properties in a PET bottle were achieved with draw ratios of 3.8 in the hoop and of 2.8 in the axial direction, cf. page 32, last two lines, which corresponds to a total biaxial stretch of 10.6. A person skilled in the art would thus consider providing a total biaxial stretch in the approximate range of 7 to 15 also, and in particular, in a region closest to the cylindrical central portion.

Consequently, the subject-matter of claim 1 of auxiliary request 1 does not involve an inventive step within the meaning of Article 56 EPC. Therefore, auxiliary request 1 is not allowable.

6. *Auxiliary request 2*

6.1 Amendments

Claim 1 of auxiliary request 2 is based on claims 1, 2 and 3 of the application as filed. The scope of protection conferred by claim 1 is restricted with respect to claim 1 of the patent in suit as granted.

The Board is further satisfied that the subject-matter of claim 1 is sufficiently clear. Since there is no biaxial stretch in the mouth portion, the indication of a total biaxial stretch in the range of 2.5 to 3.6 in the region "closest to the mouth portion" had to be construed as meaning in a region as close to the mouth portion as technically possible. In the Board's view, a person skilled in the art using the general technical knowledge does not have any difficulties in correctly understanding that indication.

Claim 1 thus meets the requirements of Articles 84 and 123(2) and (3) EPC.

6.2 Inventive step

The arguments mentioned above with respect to the subject-matter of claim 1 of auxiliary request 1 also apply to the subject-matter of claim 1 of auxiliary request 2. Furthermore, since there is substantially no hoop stretch in the region close to the mouth portion, a person skilled would consider providing at least an elongation of 2.8 in the axial direction as suggested in document D13, page 32, last two lines.

Consequently, the subject-matter of claim 1 of auxiliary request 2 does not involve an inventive step within the meaning of Article 56 EPC. Therefore, auxiliary request 2 is not allowable.

7. *Auxiliary request 3*

In comparison to claim 1 of the main request, claim 1 of auxiliary request 3 specifies that the parts of the blank forming the shoulder and the cylindrical central portion are biaxially stretched. However, that is already known from document D1'' which represents the closest prior art, cf. abstract and Figures 2 and 5.

Consequently, the subject-matter of claim 1 of auxiliary request 3 does not involve an inventive step within the meaning of Article 56 EPC. Therefore, auxiliary request 3 is not allowable.

8. *Auxiliary request 4*

8.1 Amendments

A basis for the additional features (a), (b), (c), and (d) of claim 1 of auxiliary request 4, cf. paragraph V ("*Auxiliary request 4*"), can be found in the application as filed (published version) in claim 1,

column 5, lines 41 to 42, ("... amorphous polyethylene terephthalate (PET) ...", feature (a)), in column 4, lines 26 to 38 ("... biaxial stretch ...", feature (b)), in column 2, lines 44 to 50 ("... by adjusting the temperature ...", feature (c)), and in column 4, lines 30 to 38 ("In the region between the shoulder 22 and the closed bottom 24 ...", feature (d)), respectively. As regards the feature (d), in the application as filed, the invention is described "...in more detail in some non-restrictive embodiments with reference to the accompanying drawings", cf. column 3, lines 3 to 5. That part of the description (column 3, line 8 to column 5, line 34) is thus not directed to a specifically detailed embodiment. Consequently, a person skilled in the art would not consider all the features disclosed in that part as being strictly related to each other.

Furthermore, the scope of protection conferred by claim 1 is restricted with respect to claim 1 of the patent in suit as granted.

In the Board's view, the term "adjusting the temperature" is clear in that it had to be construed as meaning that the blank is heated to a temperature suitable for being stretched in a manner as defined in the claim. The patent in suit does not give any hint at a different understanding.

Claim 1 thus meets the requirements of Articles 84 and 123(2) and (3) EPC.

8.2 Inventive step

The additional features (a) to (d) of claim 1 of auxiliary request 4 represent measures which fall within the customary practice of a person skilled in the art. The features (a) and (b) have already been suggested in

document D1'', cf. paragraphs 5.2 and 7 above. Furthermore, as regards feature (c), in order to form a container by biaxially stretching a blank of PET, it is known that the blank has to be heated to attain the proper stretching temperature and a proper temperature profile, cf. document D13, page 33, fourth complete paragraph. Finally, as regards feature (d), document D13 also suggests a total biaxial stretch within the claimed range, as already pointed out in paragraph 5.2 above.

Consequently, the subject-matter of claim 1 of auxiliary request 4 does not involve an inventive step within the meaning of Article 56 EPC. Therefore, auxiliary request 4 is not allowable.

9. *Auxiliary request 5*

In comparison to claim 1 of auxiliary request 4, claim 1 of auxiliary request 5 additionally comprises the feature of the material in the conical portion of the blank being given a total biaxial stretch which in the region closest to the mouth portion of the container is in the range of 2.5 to 3.6.

However, that further amendment cannot be regarded as forming any support for inventive step. As already pointed out in paragraph 6.2 above, since there is substantially no hoop stretch in the region close to the mouth portion, a person skilled in the art would consider providing at least an elongation of 2.8 in the axial direction as suggested in document D13, page 32, last two lines.

Consequently, the subject-matter of claim 1 of auxiliary request 5 does not involve an inventive step within the meaning of Article 56 EPC. Therefore, auxiliary request 5 is not allowable.

10. It follows that neither the main request nor any of the auxiliary requests of the appellant are allowable. The appeal has thus to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Dainese

W. Moser