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D E C I S I O N
of 16 June 1998

Case Number: T 0359/96 - 3.2.1
Application Number: 87107602.2
Publication Number: 0247566
IPC: B65D 1/02
Language of the proceedings: EN

Title of invention:
Refillable polyester beverage bottle

Patentee:
Continental Pet Technologies, Inc.

Opponent:
01: Pepsico, Inc.
02: PLM AB
04: Nissei ASB Machine Co., Ltd.
05: Constar International Holland B.V.

Headword:
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Relevant legal provisions:
EPC Art. 111(1), 112(1)(a), 123(2), 123(3)

Keyword:
"Addition of subject-matter (main request, yes; alternative request, no)"
"Extension of scope (no)"
"Referral to Enlarged Board of Appeal (no)"
"Decision re-appeals - remitted (yes)"

Decisions cited:
G 0001/93, T 0443/89

Catchword:
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Boards of Appeal

Chambres de recours

Case Number: T 0359/96 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 16 June 1998

Appellant:
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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 19 February 1996
revoking European patent No. 0 247 566 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: F. Pröls
Members: S. Crane
J.-C. Saisset

Summary of Facts and Submissions

- I. European patent No. 0 247 566 was granted on 24 March 1993 on the basis of European patent application No. 87 107 602.2.

Claim 1 of the granted patent reads as follows:

"A returnable transparent refillable container (30) having stress crack resistance, the container (30) being blow molded from a preform (10), biaxially oriented and composed of polyethylene terephthalate (PET), the container (30) having a container body comprising a transparent, biaxially oriented sidewall, a rigid integral bottom wall (34) and a neck finish (12) for receiving a closure, characterised by the polyethylene terephthalate (PET) having a moderate intrinsic viscosity (IV) on the order of 0.72 to 0.84, the container sidewall being flexible and having up to 30% crystallisation, the container body thickness being on the order of 7 to 9 times less than the preform body wall thickness, the bottom wall (34) having a low orientation and a thickness greater than the thickness of the sidewall and an oriented extended tapered portion (36) in the area adjacent said neck finish (12), whereby the container (30) is capable of at least five re-use cycles with an absence of crack failure and dimensional stability during each washing and filling cycle whereby the maximum volume deviation over the at least five re-use cycles is $\pm 1.5\%$, in each cycle the container (30) having been subjected to a hot caustic wash at a temperature of about 60°C (140°F) and product filling and capping at a pressure of about $4.05 \times 10^5 \text{ Nm}^{-2}$ (4 Atmospheres)."

- II. The granted patent was opposed by the present respondents (opponents 01, 02, 04 and 05) and opponents 03 on the grounds that its subject-matter lacked novelty and/or inventive step (Article 100(a) EPC), that the claimed invention was insufficiently disclosed (Article 100(b) EPC) and that the patent contained added subject-matter (Article 100(c) EPC).
- III. With its decision posted on 19 February 1996 the Opposition Division held that the main claim as granted as well as the respective main claim of all auxiliary requests filed during the opposition proceedings contained added subject-matter and accordingly revoked the patent. The other grounds of opposition were not dealt with in the decision.
- IV. An appeal against that decision was filed on 18 April 1996 and the fee for appeal paid at the same time.
- The statement of grounds of appeal was filed on 26 June 1996.
- V. In a communication dated 26 September 1997 pursuant to Article 11(2) RPBA the Board stated that the main issue to be discussed at the oral proceedings would be objections under Article 100(c) EPC. In the event that the Board were to decide in favour of the appellants (proprietors of the patent) on this issue it would remit the case to the Opposition Division for examination of the substantive questions under Articles 100(a) and (b) EPC.
- VI. Oral proceedings before the Board were held on 16 June 1998.

With a telefax received in the EPO on 15 June 1998, but which did not reach the Board until after the oral proceedings, opponents 03 stated that they withdrew their opposition.

Opponents 05 had already stated in their letter of 10 June 1998 that they would not be attending the oral proceedings and were not present.

At the oral proceedings the appellants requested that the decision under appeal be set aside and the case remitted to the first instance for further prosecution on the basis of a set of claims 1 to 14 according to a new main request or a set of claims 1 to 13 according to an "alternative" main request both submitted at the oral proceedings (to be distinguished from the "auxiliary requests" filed previously).

Claim 1 of the main request reads as follows:

"A returnable transparent refillable container (30) having stress crack resistance, the container (30) being blow molded from a preform (10), biaxially oriented and composed of polyethylene terephthalate (PET), the container (30) having a container body comprising a transparent, biaxially oriented sidewall, a rigid integral champagne-type base (34) including a chime area (40) having a peripheral contact radius and an unoriented recessed central portion, and a neck finish (12) for receiving a closure, characterised by the polyethylene terephthalate (PET) having a moderate intrinsic viscosity (IV) of 0.72 to 0.84, the container sidewall being flexible and having up to 30% crystallisation, the container body thickness being 7 to 9 times less than the preform body wall thickness, the champagne-type base (34) having a low orientation and a thickness greater than the thickness of the sidewall, and an oriented extended tapered portion (36)

in the area adjacent said neck finish (12), whereby the container (30) is capable of at least five re-use cycles with an absence of crack failure and dimensional stability during each washing and filling cycle whereby the maximum volume deviation over the at least five re-use cycles is $\pm 1.5\%$, in each cycle the container (30) having been subjected to a hot caustic wash at a temperature of about 60°C (140°F) and product filling and capping at a pressure of about $4.05 \times 10^5 \text{ Nm}^{-2}$ (4 Atmospheres)."

Dependent claims 2 to 14 relate to preferred embodiments of the container according to claim 1.

In claim 1 of the alternative main request the reference to "up to 30% crystallisation" has been replaced by "from 24 to 30% crystallisation". In all other respects the two claims are identical. Dependent claims 2 to 13 of the alternative main request correspond to claims 2 to 13 of the main request.

The respondents requested that the appeal be dismissed.

One of the respondents (opponents 01) also requested that a question be referred to the Enlarged Board of Appeal. They formulated the question substantially as follows (the Board has made some limited editorial amendments):

"Is it possible to use a not disclosed wording here "rigid, flexible, low orientation" in a claim 1 as distinguishing feature here "being flexible" - "having low orientation", when it may be derived only from the content of the disclosure that these wordings are abilities which can be derived for the person skilled in the art?"

Is there a difference in using these wordings as adjectives to a main word here "flexible sidewall"; "rigid bottom wall"; "low orientated bottom"?"

VII. In support of their requests the appellants argued substantially as follows:

As had been made clear by the Enlarged Board of Appeal in its decision G 1/93 (OJ EPO 1994, 541), the underlying idea of Article 123(2) EPC was that an applicant should not be allowed to improve his position by adding subject-matter not disclosed in the original application. When this yardstick was applied to the present case it was apparent that none of the amendments objected to by the respondents constituted any such improvement. Although it was conceded that some individual words and terms to be found in the present main claim were not to be found as such in the original application it was nevertheless manifest, when the original application was subjected to a proper technical analysis, that all features of the container now claimed were in fact implicitly disclosed there for the person skilled in the art and that present claim 1 of the main request did not encompass anything not originally disclosed.

The contested decision had been based solely on the finding that the expressions "flexible" and "rigid" were relative terms without any well-recognised meaning in the art and which could not therefore be derived implicitly from the original application. In coming to this conclusion the Opposition Division had made no real analysis of the structure and function of the relevant parts of the container described and illustrated in the original application. This was in stark contrast to both the approach adopted and the conclusion reached in decision T 443/89 (not published in OJ EPO) where it was held that the attribute

"rigid", although a relative term, was nevertheless technically significant and that it could be derived from the drawings of the original application that a knife element shown there was indeed "rigid". The application of this correct approach to the present case would lead inevitably to the conclusion that the sidewall of the container originally disclosed was "flexible" and its base "rigid", as these terms would normally be understood by the person skilled in the art, or at least that the sidewall was relatively flexible and the base relatively rigid when the two were compared with each other.

The term "bottom wall" as used in granted claim 1 had now been replaced by a reference to the preferred form of bottom wall particularly disclosed, namely a champagne-type base of specified form. It was clear to the person skilled in the art that the central portion of this base would be to all extents and purposes unoriented and that the degree of orientation would increase as one went radially outwardly into the transitional zone between the base and the sidewall. Seen as a whole, therefore, the base had "low orientation". There was therefore no inconsistency between what was stated in the present claims and the original disclosure.

There was nothing in the original application which could be read as requiring that the degree of crystallation of the sidewall had to be between 24 and 30%. In fact, the range of 24 to 30% had been clearly stated to be merely a preferred range and was contained in a dependent claim, thus showing that it was not essential. All that could be derived from the original disclosure was that the degree of crystallisation should not be above 30% and accordingly the use of this limitation in claim 1 of the main request should be allowed. However, in order to cope with this objection,

the lower limit of 24% had been introduced into claim 1 of the alternative main request.

All of the other objections to added subject-matter raised by the various respondents seemed to be based on an over legalistic approach to the interpretation of the original application, ignoring the essential fact that the addressee was a person skilled in the art.

Since neither the Opposition Division nor the Board had yet addressed the question of what constituted the closest state of the art, the separation of features between the preamble and characterising clause of the amended claims had been left unchanged with respect to the granted claim 1. If necessary this question could be taken up again when the Opposition Division considered the ground of opposition under Article 100(a) EPC.

VIII. The arguments of the respondents, insofar as they are relevant to the revised claims and the issues at hand, can be summarised as follows:

The appellants themselves seemed to be unsure as to whether the terms "flexible" and "rigid" as used in the claims were absolute or merely relative. Be that as it may, there was nothing in the original application which could be understood as a clear and unequivocal generally applicable teaching that the sidewall of the container was flexible and its base rigid, or even, which now appeared to be the preferred line adopted by the appellants, that the sidewall was relatively flexible with respect to the relatively rigid base. In their argumentation the appellants had relied to a large extent on the sidewall thickness of the preferred embodiment of 1.5 litre container disclosed. Claim 1, however, was not limited to containers of any particular size and contained no numerical limitation

on sidewall thickness. Furthermore, as could be seen from various prior art documents cited in the course of the proceedings, sidewall thickness alone was not definitive in determining whether this part of a container was flexible or rigid, it being well-known to increase the rigidity of a thin-walled container by the incorporation of reinforcing formations.

The reliance placed by the appellants on decision T 443/89 was also misplaced. There it became apparent, after consideration of all the technical facts, that the knife element in question had to be rigid. In the present case on the other hand there was no technical requirement for the sidewall of the container to be flexible, since the container would function equally well if the sidewall were rigid.

All that could be clearly derived from the original disclosure with respect to the orientation of the base of the container was that its central portion was unoriented. There was no basis for the statement now to be found in claim 1 that the base as a whole had a "low orientation". Furthermore, the replacement of the term "bottom wall" in granted claim 1 by the term "champagne-type base" in the present claim 1 offended against Article 123(3) EPC since it was not clear that these two parts of the container were identical.

When considered as a whole the original application could only be understood as teaching that a sidewall crystallisation level of between 24 to 30% was an absolute prerequisite for obtaining a container with the desired characteristics. The passage relied upon by the appellants in which the reasons given for not going above 30% were explained could not be assimilated to a statement that anything below this level would also be satisfactory.

Lastly, there was no clear and unequivocal teaching in the original application that the container was "transparent", had "stress crack resistance" and was made of PET with a "moderate" intrinsic viscosity.

In the opinion of the first respondents (opponents 01) the very way the terms "flexible" and "rigid" were used in claim 1 gave serious cause for concern. The chosen wording put special emphasis on the fact, for example, that the sidewall was "flexible", thus suggesting that something special was being done here rather than merely relying on an inherent property of the material involved. This issue threw up an important point of law which should have been addressed to the Enlarged Board of Appeal.

Reasons for the Decision

1. The appeal complies with the formal requirements of Articles 106 to 108 and Rules 1(1) and 64 EPC. It is therefore admissible.
2. The original application (subsequent page references are to the published A-document) begins with an exposition of the characteristics required of a refillable plastics bottle, in particular the necessity for the bottle to retain certain properties, especially fill level volume, impact breakage resistance and transparency, over at least five re-use cycles. It is then indicated that of potentially usable commercially available polymers polyethylene terephthalate (PET) is considered the best. There follows an explanation in general terms as to why conventional methods for making non-returnable PET beverage containers cannot be used to make returnable containers.

The fairly extensive particular description of the application is somewhat unusual, at least for this area of technology, in that it resembles a scientific research report setting out the various stages of development on the route towards a commercially and functionally viable returnable PET container. Original claim 1 is also unusual in that it is directed to any polyester container of conventional blow-moulded form which is capable of maintaining viability over a minimum of five usage loops comprising the steps of caustic washing, product filling, storage, distribution, end use and return, the claim however not specifying any technical features by which this goal is to be achieved.

To a certain extent it is undoubtedly the nature of original claim 1 which has led to the plethora of objections of added subject-matter in the present case since, in the course of the examination proceedings, it was necessary to fill the essentially empty vessel of that claim with technical content by the incorporation of various features, the original basis for many of which has given rise to dispute.

Some of the areas of dispute with respect to granted claim 1 have been dealt with by amendment. Two of these amendments are wholly uncontentious. These concern the elimination of the broadening term "on the order of" from before the given range of 0.72 to 0.84 of the intrinsic viscosity of the PET and the ratio of 7 to 9 between the preform body wall thickness and the container body thickness. The third amendment concerns the replacement in granted claim of the reference to a "bottom wall (34)" by a reference to a "champagne-type base (34)", this base being further defined in the preamble of the claim as "including a chime area (40) having a peripheral contact radius and an unoriented recessed central portion". This amendment has given

rise to an objection under Article 123(3) EPC to the effect that it was not clear that the bottom wall and the champagne-type base were necessarily one and the same part of the container. In this context the Board notes that the term "bottom wall" does not as such appear in the original disclosure and appears to have been generalised from the only form of container base actually illustrated there, which was of the champagne-type. Furthermore, granted dependent claim 5 states that "said container bottom (34) has a champagne-type base (34) including a peripheral contact radius (32) and an unoriented recessed central portion". From a consideration of the above it is apparent that the champagne-type base now defined in the amended main claims is a preferred embodiment of the bottom wall defined in granted claim 1, so that the replacement of the latter term by the former cannot constitute an inadmissible extension of the scope of protection contrary to Article 123(3) EPC. The more complex question of whether the references in the amended claims to the degree of orientation of the champagne-type base conform with the requirements of Article 123(2) EPC is dealt with in more detail below.

3. The three aspects of claim 1 of the main request which have been the most contentious as regards the question of added subject-matter are the requirement that the base of the container be "rigid" and the sidewall "flexible", the requirement that the base have "a low orientation and the requirement that the sidewall has "up to 30% crystallisation".
- 3.1 Turning first to the issue of the rigidity of the base of the container, it is clear from the original application that the purpose of the form of the base disclosed, which is of a relatively thick "champagne-type" shape, is to provide a firm footing for the container when this is standing upright. To achieve

this it is evident to the person skilled in the art that the base must be "rigid" as this term would be understood in the field of blow moulding PET containers.

As regards the flexibility of the sidewall of the container it is necessary to draw a distinction between two different lines of argument of the appellants. The first, which was dominant in the Statement of Grounds of Appeal but which has now slipped somewhat into the background, is that the term "flexible" would be comprehended by the person skilled in the art as meaning capable of being readily deflected inwardly by manual squeezing when the container is in an unfilled state and that there was an implicit teaching of this in the original application. Here, the appellants relied to a large extent on the dimensions of the 1.5 litre bottle portrayed as the preferred embodiment of the invention. The second line of argument, advanced forcefully in the submissions of the appellants dated 12 May 1998 and at the oral proceedings, is that the flexibility of the sidewall has to be judged in relation to the rigidity of the base.

The Board has little difficulty in accepting, given the overall size of the illustrated 1.5 litre bottle and the fact that the thickness of its sidewall is only slightly more than 0.6 mm, that this sidewall is indeed flexible in the sense put forward by the appellants. But this is not the decisive issue. The point is that the claim under consideration specifies neither the overall size of the container, nor the thickness of its sidewall and there is nothing to be found in the original application which could be seen as giving a clear teaching to the person skilled in the art that all containers falling within the ambit of the invention disclosed there should have such a flexible sidewall. The first line of argument of the appellants

therefore fails. Their second line of argument is however more compelling. As explained on page 4, at lines 29 to 38, the container is blow moulded from a specially designed preform in such a way as to produce a continuously reinforced base which is relatively thick in comparison with the sidewall. It is also stated in this passage that although the actual thickness of the base and sidewall may be varied the thickness ratio (which in the embodiment of Figure 5 is of the order of seven to one) should remain constant. In the opinion of the Board the person skilled in the art would recognise from this, even taking into account other factors (higher orientation, higher crystallisation) which might increase the inherent stiffness of the material of the sidewall over that of the base, that the sidewall would be significantly more flexible than the rigid base (see above). This difference in flexibility would be wholly commensurate with the different roles the base and the sidewall are expected to play in the use of the container. To this extent, therefore, the Board has come to the conclusion that the requirement of claim 1 of the main request that the sidewall be flexible does not offend against Article 123(2) EPC.

- 3.2 The next objection to be considered under this heading is the requirement that the base has a low orientation. Here, in contrast to the objection to the terms rigid and flexible considered above, the problem lies not so much in the fact that the term "low orientation" does not appear in the original application, although that is indeed the case, but more in the fact that this term is arguably inconsistent with what is to be found there. In particular, the original application contains clear statements, for example in claim 8, that the recessed central portion of the champagne-type base is "unoriented" and furthermore the last paragraph on page 5 of the description, although somewhat unclear in

its terms, could be interpreted as meaning that the whole of the base is "unoriented". However, the Board takes the view that such an interpretation of this passage would not be consistent with the technical realities of the stretch blow moulding process used to manufacture the container, which process must inevitably lead in regions of the base radially outside the recessed central portion to progressively increasing amounts of stretch in the material of the base and thus to its orientation. The amount of this orientation will however always be significantly less than that of the sidewall of the container. It is therefore apparent that, considered as a whole, the base of the container can be fairly said to have "low orientation", even though, as now clearly stated in claim 1 of the main request, (see point 2 above) its recessed central portion is unoriented. Thus also this objection under Article 123(2) EPC does not hold good.

- 3.3 The last issue to be considered in this section is the requirement of claim 1 of the main request that the sidewall have "up to 30% crystallisation". In the last two paragraphs of page 4 and in the passage at lines 1 to 18 of page 5 of the description of the original application there is a discussion of the need to reduce the container volume change to below $\pm 1.5\%$ and the step adopted to achieve this, namely the use of "recently developed technology" to produce containers with a 24-30% crystallinity level with improved thermal stability (i.e. resistance to shrinkage at elevated temperatures) in comparison with containers produced by conventional non-returnable PET bottle technology (page 5, lines 15 to 18). On page 6, at lines 24 to 33, there is then a discussion of an investigation as to whether there would be any advantage in increasing the crystallinity level above 30% and the conclusion drawn that there would not be. This is then followed by the

statement that "under the circumstances, it is believed that 24-30% crystallinity is an optimum level". This range of sidewall crystallinity is the subject of original dependent claim 5.

In the opinion of the Board the description of the original application, when read as a whole, gives the person skilled in the art the clear teaching that in order to achieve a functionally viable returnable PET container it is necessary to adopt special measure to achieve a certain minimum level of crystallinity in the sidewall, that minimum level being 24%. On the other hand, the passages on page 6 particularly relied upon by the appellants as demonstrating that the skilled person is merely instructed to keep the crystallinity level below 30% can only be seen as indicating that there was thought to be no point in going above this level. There is nothing here to support the contention of the appellants that the person skilled in the art would see in these passages a teaching that the previously discussed special measures for increasing crystallinity of the sidewall and hence thermal stability of the container were not in fact necessary.

The appellants have also argued that the appearance of the range of 24-30% crystallisation in a dependent claim indicates that this was only a preferred feature of the invention. There are no doubt cases where this argument might hold good but, given the nature of the original claim 1, see point 2 above, this does not appear to be one of them. In any case, even if the range of 24-30% crystallisation were indeed to be seen as being merely preferred rather than essential, this would not in itself provide a proper basis for the requirement of "up to 30%" crystallisation under consideration.

The Board has therefore come to the conclusion that

claim 1 of the main request falls at this hurdle, so that the main request must be rejected in accordance with Article 123(2) EPC. The "alternative" main request, which differs from the main request only in respect of the limitation to the range of from 24 to 30% crystallisation, is however allowable in this regard.

4. Having dealt with the three most contentiously argued aspects of the conformity of the claims with Article 123(2) EPC it is still necessary to deal with the remaining objections.

The first of these is that the original application did not teach that the container as claimed was "transparent". There is however a clear statement on page 2, at line 17, that an ideal returnable container should be "transparent" and there can be no doubt that the containers produced according to the detailed instructions contained in the particular description of the application would indeed have this quality.

The second objection is that there was no teaching in the original application as to the stress crack resistance of the containers. However, the problem of stress cracking is discussed extensively on page 4 of the application, together with the measures taken to give the necessary stress crack resistance.

The last of the objections is to the use of the term "moderate" to qualify the value of the intrinsic viscosity of the PET, now stated to be between 0.72 to 0.84. Given the restriction to that range it seems substantially irrelevant to the Board whether the term "moderate" is appropriate to qualify it. Certainly, there can be no suggestion of an addition of subject-matter through the use of the term in this context.

5. Having regard to the above, the Board is of the opinion that claim 1 according to the alternative main request does not offend against Article 123(2) EPC.

Since the substantive issues of novelty, inventive step and sufficiency of disclosure have not yet been addressed by the Opposition Division the Board makes use of its power under Article 111(1) EPC to remit the case to the first instance for further prosecution.

For the avoidance of any doubt the Board emphasises that it has made no analysis of the appropriateness of the two-part form of the claim and that its approval of the claim as a basis of further prosecution is not intended to be taken as a confirmation of the fact, for example, that a flexible container sidewall is a distinguishing feature over the closest state of the art. In fact, the appellants have explicitly recognised that it may become necessary to adjust the two-part form of the claim one the closest state of the art has been identified and evaluated.

6. According to Article 112(1)(a) EPC a Board of Appeal shall, following a request from a party, refer any question to the Enlarged Board of Appeal if it considers that a decision is required in order to ensure uniform application of the law, or if an important point of law arises.

In the course of the oral proceedings the first appellants (opponents 01) requested that the question set out in section VI above be referred to the Enlarged Board of Appeal.

However, the question which has been formulated concerns not a question of law, but one of language, and furthermore is so closely associated with the specific details of the present case that is not of

general interest. In any case, the premise on which the question is built, namely that certain features ("wording") were not originally disclosed, does not apply in the present case so that the Board does not need to have the question answered before it can take its decision. Thus none of the pre-requisites for a referral of a question to the Enlarged Board of Appeal are present and the request is therefore rejected.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The request for a referral to the Enlarged Board of Appeal is rejected.
3. The case is remitted to the first instance for further prosecution.

The Registrar:



S. Fabiani

The Chairman:



F. Pröls