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Datasheet for the decision of 22 May 2015

Case Number: T 1533/11 - 3.2.07

Application Number: 05113043.3

Publication Number: 1681239

IPC: B65D1/02, B32B27/36

Language of the proceedings: EN

Title of invention:
Preform, method for producing a preform and a container

Patent Proprietor:
Granarolo S.P.A.

Opponent:
RESILUX N.V.

Headword:

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - main request (no) - common general knowledge - auxiliary request (yes)

Decisions cited:

Catchword:

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Case Number: T 1533/11 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 22 May 2015

Appellant: (Opponent)	RESILUX N.V. Damstraat 4 9230 Wetteren (BE)
Representative:	Petsis, Christos 4-6, Kyparissias 542 49 Thessaloniki (GR)
Respondent: (Patent Proprietor)	Granarolo S.P.A. Via di Cadriano n. 27/2 40127 Bologna (BO) (IT)
Representative:	Asensio, Raffaella Consuelo Perani & Partners S.p.A. Piazza San Babila, 5 20122 Milano (IT)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 9 May 2011 rejecting the opposition filed against European patent No. 1681239 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	H. Meinders
Members:	V. Bevilacqua
	G. Weiss

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the opposition division rejecting the opposition against European patent 1 681 239.

II. The following grounds of opposition had been raised:
- Article 100(a) EPC (lack of novelty, lack of inventive step);
- Article 100(b) EPC (sufficiency of disclosure), subsequently withdrawn.

The Opposition Division held that none of these grounds prejudiced the maintenance of the patent as granted.

The documents taken into consideration by the opposition division and relevant for the present decision are:

D1 : EP 0 904 922 B1;
D2 : First PET World Congress 23+24 April 2002, slide n° 22;
D3 : First PET World Congress 23+24 April 2002, slide n° 18;
D8 : Extract from the program of the First PET World Congress;
D9 : further evidence related to D2.

The following documents were submitted together with the statement setting out the grounds of appeal:

P1: Declaration of Mr Büchler;
P2: Declaration of Mr Verburgh;
P3: Copy of D8 validated by a signature of Mr Verburgh, together with slides allegedly presented at the First PET World Congress.

The following documents were not submitted to the Board, but were mentioned in the statement setting out the grounds of appeal.

A1: US 6 117 506 A;
A2: US 2006 029 822 A1;
A3: WO 0 068 000 A;
A4: JP 4 272 825 A;
A5: JP 6 255 052 A;
A6: JP 4 173 134 A.

The following documents were introduced by the Board as evidence of the common general knowledge in the field:

- Zweifel, Maier, Schiller "Plastics Additives Handbook", 6th Edition, pages 840 and 841;
- Saechtling "Kunststoff Tachenbuch", 24. Ausgabe, pages 55 and 56;
- Dr. Gächter und Dr. Müller "Taschenbuch der Kunststoff-Additive", 3. Ausgabe, pages 672 - 675;
- The New Oxford Dictionary of English, 1998, 2001, pages 274 and 1945.

III. The appellant requests that the decision under appeal be set aside and the patent be revoked.

IV. The respondent (patent proprietor) requests that the appeal be dismissed (main request) or, in the alternative, that the decision under appeal be set aside and the patent maintained in amended form on the basis of one of the auxiliary requests filed with letter dated 22 April 2015.

The respondent also objects to the admissibility of the letter filed by the appellant per fax on 21 May 2015, especially of the explanations of the admissibility of

the documents P1 and P2 and the admissibility of the auxiliary requests 1 to 4.

V. **Claim 1 of the main request**, corresponding to claim 1 of the patent as granted, reads as follows:

Preform having a body comprising layer means and barrier means adjacent to said layer means, said layer means and said barrier means being made of polyethylene terephthalate , characterized in that said barrier means is substantially impermeable to visible light.

Claim 27 of the main request, corresponding to claim 27 of the patent as granted, reads as follows:

Container delimited by wall means, comprising layer means and barrier means adjacent to said layer means, said layer means and said barrier means being made of polyethylene terephthalate, characterized in that said barrier means is substantially impermeable to visible light.

Claim 1 of the first auxiliary request reads as follows (amendments in respect of the main request are in bold, emphasis added by the Board):

Preform having a body comprising layer means and barrier means adjacent to said layer means, said layer means and said barrier means being made of polyethylene terephthalate, characterized in that said barrier means is substantially impermeable to visible light **and is made of a material comprising a dye comprising carbon black, wherein said barrier means comprises a quantity variable between 2% and 8% in weight of said dye and said dye comprises approximately 25% in weight of carbon black.**

Claim 24 of the first auxiliary request reads as follows (amendments in respect of the main request are in bold, emphasis added by the Board):

Container delimited by wall means comprising layer means and barrier means adjacent to said layer means said layer means and said barrier means being made of polyethylene terephthalate, characterized in that said barrier means is substantially impermeable to visible light **and contains a dye comprising carbon black, wherein said barrier means comprises a quantity variable between 2% and 8% in weight of said dye and said dye comprises approximately 25% in weight of carbon black.**

The wording of the claims of the second to fourth auxiliary requests is of no importance in view of the outcome of this decision.

VI. Insofar as relevant to the present decision, the appellant argued as follows:

A starting point for discussing inventive step of the subject-matter of claim 1 of the main request is D1, which discloses a preform having a barrier layer of colored polyethylene terephthalate.

Starting from the preform of D1 the problem to be solved is how to modify this preform in order to form a container with visible light barrier properties.

Inventive step cannot not be acknowledged because the skilled person, having knowledge of colorants, would immediately use a known opacifier to solve this problem.

Inventive step should also not be acknowledged for the subject-matter of the combination of granted claims 1, 4, 5, and 6 (corresponding to claim 1 of the first auxiliary request), because the skilled person, when optimizing the properties of the barrier in a process of trial and error, would have arrived at such a combination of features.

The subject-matter made available at the First PET World Congress casts serious doubts, if confirmed, on the novelty of independent claim 27 of the patent as granted (main request), as well as on inventive step of independent claim 1 of the patent as granted (main request).

This subject-matter should be given due consideration and all the respective documents (D2, D3, D8, D9 and P1-P3) should be admitted into the proceedings.

A witness is offered to confirm the public availability of this subject-matter.

Admission of A1-A6 is only requested for the case that the above mentioned subject-matter is disregarded by the Board.

The auxiliary requests of the respondent should not be admitted because of the high number of amended sets of claims submitted and because of their late filing.

VII. Insofar as relevant to the present decision, the respondent argued as follows:

The letter of the appellant dated 22 April 2015 should not be admitted, as it contains arguments submitted only one day before the oral proceedings.

D1 deals with improving gas barrier properties in transparent containers, does not address the issue of protecting food products from visible light, and is therefore not a suitable starting point to discuss inventive step of the subject-matter of the independent claims of the main request.

Even starting from D1, the step of selecting a colorant blocking visible light should not be considered as straightforward for a skilled person, because colorants form a very extensive category of compounds from which to select, and the skilled person has no guidance on how to come to this particular selection, blocking visible light.

Also the step of gradually increasing its concentration until opacity is achieved cannot be the result of the application of general knowledge, because it is known that these additives, especially if they are of mineral nature and if the finished products have thin walls, have important side-effects on the mechanical and rheological properties of polyethylene terephthalate.

The skilled person is also faced with the additional problem of achieving a homogeneous distribution of colorant in the preform, knowing that any variation in the preform would result in differently colored areas of even stripes in the final blow molded container.

For these reasons inventive step should be acknowledged for the subject-matter of the independent claims of the main request.
As the side-effects of adding carbon black as a colorant on the mechanical and rheological properties of polyethylene terephthalate are very important, the

step of selecting a dye comprising carbon black cannot be discussed separately from the percentages (mentioned in the independent claims of the first auxiliary request) of carbon black in the dye and of the dye in the barrier means.

The combination of these features surprisingly achieves the effect that non toxic, opaque polyethylene terephthalate barrier means are achieved, with good mechanical and rheological properties.

This solves the problem of reliably producing, by blow molding, a container of the type disclosed in D1, which additionally has very thin barrier means impermeable to visible light and therefore with an improved shelf life for the dairy product contained.

Inventive step should therefore be acknowledged also for the subject-matter of the independent claims of the first auxiliary request, as there is no evidence on file suggesting that the skilled man was aware that this particular combination of features solves the above mentioned problem, as none of the documents submitted by the appellant (comprising those related to the First PET World Congress), or introduced by the Board mentions it.

VIII. Oral proceedings before the Board were held on 22 May 2015 in the absence of the appellant pursuant to Rule 115(2) EPC and Article 15(3) RPBA, who had indicated its absence with letter of 21 May 2015. The decision was pronounced at the end of these proceedings.

Reasons for the Decision

1. *Admissibility of the last submission of the appellant*

1.1 The respondent requests that the letter filed by the appellant by fax on 21 May 2015 not be admitted, as it contains arguments in favour of the admissibility of the documents P1 and P2 and a request to reject the auxiliary requests 1 to 4 of the respondent.

1.2 The Board notes that this letter does not mention facts or evidence which were not already presented by the appellant in his statement setting out the grounds of appeal.

The appellant also does not formulate therein new arguments on admissibility of these documents, which could be considered as an amendment to its case, as presented in his previous correspondence and as discussed in the preliminary opinion of the Board annexed to the summons to oral proceedings.

The arguments briefly submitted in this letter for not admitting the four auxiliary requests are regarded by the Board as a reaction to be expected against these auxiliary requests, which again cannot be considered as a change of direction in the appellant's case.

For these reasons, the Board decides not to exclude the above mentioned letter from the appeal proceedings.

2. *Admissibility of the auxiliary requests 1 to 4*

2.1 Admissibility of the four auxiliary requests has been questioned by the appellant on the grounds that they have not been filed with the reply to the statement

setting out the grounds of appeal. Also the high number (four) of sets of claims submitted should be sufficient reason for not admitting them.

2.2 The admissibility of any amendment to the respondent's case after it has filed its reply to the statement setting out the grounds of appeal is subject to the discretion of the Board. This discretion is exercised with a view of *inter alia* the complexity of the new subject-matter, the current state of the proceedings and the need for procedural economy (Article 13(1) RPBA).

In the present case, the appellant does not identify any issue which he or the Board cannot reasonably be expected to deal with due to its complexity, the current state of the proceedings, or the need for procedural economy.

The Board does not see any of such issues, in particular because these auxiliary requests only contain combinations of the independent claims with dependent claims of the patent as granted. They were filed one month before the oral proceedings and do not bring any extraordinary complexity. The Board therefore decides to apply its discretion and admits these auxiliary requests.

3. *Main request - Obviousness of the subject-matter of claim 1*

3.1 Starting point

D1 relates to multi-layered preforms used to produce polyethylene terephthalate containers for food products (see paragraphs [0001] and [0002]), said preforms (see

figure 5) having a body comprising external layers (40A) of polyethylene terephthalate and an internal layer (40B).

Paragraph [0031] discloses three possible embodiments of this internal layer:
-a "gas-barrier" resin;
-recycled polyethylene terephthalate;
-colored polyethylene terephthalate.

3.1.1 The respondent argues that among these only the layer made of "gas barrier" resin could be considered as barrier means in the sense of claim 1 of the main request, and concludes that a skilled person would not at all consider D1 as a suitable starting point to discuss inventive step.

This is because D1 is clearly only concerned with improving gas barrier properties and teaches that **MX nylon resins** (see paragraphs [0033] and [0034]) are superior to polyethylene terephthalate in this respect, such that a skilled reader would not be led towards internal gas barrier means made of polyethylene terephthalate.

In addition to that, D1 is clearly aimed at producing transparent containers (as explained at paragraphs [0040] and [0170]) such that a skilled reader would also be held away from realizing the gas barrier means as substantially impermeable to visible light.

3.1.2 The Board disagrees.

Polyethylene terephthalate is, in the eyes of the skilled reader, a food packaging material which inherently has gas barrier properties (see also the

acknowledgement in the description of the patent in suit, paragraphs [0008] and [0018]). Its presence in the above mentioned list is therefore justified.

As a consequence, also the recycled polyethylene terephthalate layer and the coloured polyethylene terephthalate layer mentioned at paragraph [0031] of D1 fall, as gas barriers, within the terms of claim 1 of the main request.

A coloured polyethylene terephthalate layer also necessarily limits, at least up to a certain extent of wavelength, visible light transmission through the wall of the preform, and therefore also acts as a visible light barrier, be it partly.

The embodiment of D1 with coloured polyethylene terephthalate represents a promising springboard for discussing inventive step, because figure 5 of D1 clearly shows that this colored polyethylene terephthalate layer (40B) having gas and light barrier properties, is adjacent to the inner and outer layer means (40A), which are also made of polyethylene terephthalate (see again paragraph [0031]).

D1 is further showing that the skilled person already has the general knowledge in the application of colorants to intermediate PET layers.

3.2 Difference

There is no disclosure in D1 that the barrier means of this embodiment are substantially impermeable to visible light, i.e. wavelength between 390 nm and 700 nm, because coloured polyethylene terephthalate does not necessarily have this overall property.

3.3 Effect - problem to be solved

This feature has the effect of blocking visible light traversing the wall of the container later obtained by e.g. blow molding this preform (see paragraphs [0001], [0003] and [0004] of the patent in suit).

Starting from this effect, and based on the general knowledge that dairy products are sensible to visible light, the Board formulates the problem to be solved as:

how to reduce degradation of dairy products when they are contained in such known triple layer polyethylene terephthalate containers (see paragraph [0003] of the patent in suit).

3.4 Obviousness

3.4.1 The Board considers that a person skilled in the art of processing engineering plastics is aware that a coloured polyethylene terephthalate contains a colorant, and that the effect of this substance on the transmissivity of transparent polyethylene terephthalate increases with its concentration.

Consequently, if, for the packaging of dairy products, transmission of visible light should be reduced to a minimum, the skilled person starting from D1 would select an appropriate colorant (namely an opacifier), and then, with a process of simple trial and error, arrive at the desired opacity level of the wall of the final container resulting from the further blow molding of the preform, by increasing concentration of this

opacifier in the polyethylene terephthalate material used for the barrier layer in the preform of D1 (40B).

Since the walls of the preform are much thicker than the walls of the final container, they are necessarily more opaque than the walls of the visible light impermeable container blown therefrom.

As a consequence, the subject-matter of claim 1 does not involve an inventive step.

3.4.2 The respondent argues that D1 does not provide a pointer to the solution as presented in claim 1 because it only deals with gas barriers and explicitly aims at producing containers with such barriers, additionally having good transparency.

Based on that, the respondent concludes that since "colorants" encompass an extensive category of compounds there is no reason why a skilled person, starting from D1, would necessarily select a colorant which achieves a barrier substantially impermeable to visible light.

The Board disagrees. There is no need in the present case for a pointer in D1 towards selecting an opacifier to be present in D1 since this choice is already the consequence of the wish to solve the problem, i.e. reduce degradation by visible light. The solution resides in the skilled person merely applying his common general knowledge when faced with this problem, since it is well known that opacifiers block visible light. It is therefore not a singling out of the solution from amongst an extensive number of colorants.

3.4.3 The respondent further argues that a suitable colorant would necessarily be, due to the constraints on food packaging, non-toxic and therefore a pigment of mineral nature.

In such a situation the skilled person would be prevented from increasing the concentration of the colorant above a certain limit because it is generally known that this type of additives has a detrimental effect on the flow properties of the molten plastic and increases fragility of the final products.

This is especially true as in the present case the pigment would be added to an already thin layer of polyethylene terephthalate in the preform, which becomes even thinner after blow molding into a container.

In addition to that, the skilled person would also be faced with problems in achieving a homogeneous distribution of colorant in the preform, as any slight variation in the preform would result in different coloring intensities or even stripes, after blow molding.

The Board disagrees also with this line of arguments, because the wording of claim 1 of the main request does not contain any reference to the packaging of food products.

Furthermore, as the preform of D1 (and the container produced therefrom) already contains colorant dispersed in a thin layer, the Board considers that the problem of balancing the concentration of additives with fragility, as well as the problems of achieving a uniform color distribution in the preform and in the

final container are already addressed and solved by the skilled person in the prior art.

The Board cannot see a difference in these respects between a colorant and an opacifier.

4. *Main request - Obviousness of the subject-matter of claim 27*

D1 clearly explains that the injection molded preform obtained by the method disclosed therein (see the first two lines of paragraph [0007], see also paragraph [0030]) is a precursor of a multilayered container.

D1 therefore implicitly discloses a container delimited by wall means, comprising layer means.

It is clear to the skilled reader that the layer configurations and materials present in the disclosed preform correspond to those of the container.

As a consequence of that, as already discussed above in relation to claim 1, D1 also discloses barrier means (made of colored polyethylene terephthalate, 40B) adjacent to said layer means (40A), said layer means also being made of polyethylene terephthalate (see paragraphs [0030] and [0031]).

D1 fails to disclose that the barrier means of the container is substantially impermeable to visible light.

The effect and the problem to be solved correspond to those already formulated for claim 1, namely:

- Blocking the visible light traversing the wall of the container (see paragraphs [0001], [0003] and [0004] of the patent in suit);

- How to increase the shelf life (or to reduce degradation) of the contained dairy products, which are notoriously sensitive to visible light, when they are contained in this container (see paragraph [0003] of the patent in suit).

Again, the Board comes to the conclusion that the skilled man would not need inventive skills to achieve the desired opacity by selecting an appropriate colorant and increasing its concentration in the already colored polyethylene terephthalate material of the central layer of D1 (40B).

As a consequence, also the subject-matter of claim 27 of the main request does not involve an inventive step .

5. *First auxiliary request - Inventive step of the subject-matter of claim 1*

5.1 D1

The Board regards the above discussed embodiment of D1 comprising an inner layer of coloured polyethylene terephthalate (see paragraph [0031]) as a suitable springboard for the inventive step discussion on the subject-matter of the independent claims of the first auxiliary request.

5.2 Differences

The differences identified are that the barrier means are not only (see the discussion of the main request) substantially impermeable to visible light but are also made of a material comprising a dye comprising carbon black, wherein said barrier means comprises a quantity variable between 2% and 8% in weight of said dye and said dye comprises approximately 25% in weight of carbon black.

5.3 Effects - problems to be solved

5.3.1 According to the description of the patent in suit, the effect of using carbon black as a pigment in the dye is that (see paragraph [0025]) the polyethylene terephthalate barrier layer becomes black, and therefore substantially impermeable to visible light.

The concentration of carbon black in the dye (25%) and of the dye in the polymer (2 to 8%) achieve together the effect that the barrier means comprises only a very limited amount, namely from 0,5% to 2%, of carbon black.

5.3.2 The respondent argues that as the effects of carbon black on the mechanical and rheological properties of polyethylene terephthalate cannot be disregarded, these two features are closely interrelated and should therefore be discussed, for the purpose of inventive step, only in combination.

5.3.3 The Board agrees with this to a certain extent, as it clearly would make no sense to discuss the percentages of carbon black independently from the selection of

carbon black as a pigment with the partial problems approach.

The Board, however, considers that a skilled person could only optimize the concentration of a colorant, taking account of its side-effects, once the type of colorant is known.

As a consequence of that the Board formulates two distinct problems to be solved in sequence:

-how to select an appropriate colorant to block visible light so as to reduce degradation of dairy products when they are contained in the polyethylene terephthalate containers of D1;
-how to select an appropriate concentration for this particular type of colorant and for this particular application.

5.4 Discussion of inventive step

5.4.1 The Board judges that the skilled person has the general knowledge to solve the first problem by selecting carbon black, as it is a well known, mineral, non-toxic pigment widely used for opacifying plastics used in the packaging of food products (see also the documents introduced by the Board).

5.4.2 However, as the respondent argues, once this selection is made, the skilled person finds no guidance at all in the documents on file, on how to dose this mineral pigment for this particular application.

In optimizing the concentration of this mineral pigment not only the correspondence between concentration and opacity has to be taken into account, but also the

side-effects on the rheological properties of the molten polymer (which play an important role during injection molding of the preform) and on the mechanical properties (before, during and after blow molding).

The Board does not see how, based on the evidence on file and the common general knowledge for which it could find documentary support, a skilled person could directly and straightforwardly, by performing simple experiments and following a normal process of trial and error, arrive at the subject-matter of claim 1 of the first auxiliary request.

6. *First auxiliary request - Inventive step of the subject matter of claim 24*

As already discussed for the main request, D1 clearly explains that the injection molded preform obtained by the method disclosed therein is (see the first two lines of paragraph [0007], see also paragraph [0030]) a precursor of a multilayered container.

As a consequence of that the same differences already discussed in relation to claim 1 of the first auxiliary request can be identified between the content of the disclosure of D1 and the subject-matter of claim 24 of the first auxiliary request.

As also the effects and the problems to be solved correspond to those already formulated for claim 1, the Board judges that also for the subject-matter of claim 24 inventive step should be acknowledged.

7. *Issues related to the subject-matter allegedly made available during the First World PET Congress*

The appellant requests that the subject-matter allegedly made available during the First World PET Congress (D2, D3, D8, D9 and P1-P3) be given due consideration and admitted in the proceedings.

The Board acknowledges that carbon black pigmented barrier layers were mentioned in the presentations allegedly made at this congress, but after reviewing the documentation submitted by the appellant, does not find any guidance or indication on how the concentration of this mineral pigment should be determined for this particular application in a preform as well as in the final container.

In this respect the Board considers that the content of D2, D3, D8, D9 and P1-P3, even if it is proven that it has been made available to the public as alleged, cannot question the inventive step in the subject-matter of the independent claims of the first auxiliary request.

As a consequence of the above the Board does not see how admitting these documents, or hearing the offered witness, could have relevance to the present decision, and therefore sees no necessity to discuss their admissibility in the opposition proceedings or in the appeal proceedings under Articles 12(2) and 12(4) RPBA, as well as the objections thereto formulated by the respondent.

8. *Admissibility of A1-A6*

A1-A6 were not supplied to the Board, contrary to Article 12(2)(a) RPBA.

The Board therefore leaves these documents out of consideration.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The case is remitted to the opposition division with the order to maintain the patent in amended form on the basis of the following documents:

- description, pages 2 to 6 filed at the oral proceedings;

- claims 1 to 47 filed as first auxiliary request with letter dated 22 April 2015;

- figures 1 to 5 of the patent as granted.

The Registrar: The Chairman:

B. Atienza Vivancos H. Meinders

Decision electronically authenticated