

Internal distribution code:

- (A) [] Publication in OJ
(B) [] To Chairmen and Members
(C) [X] To Chairmen

DECISION
of 31 May 1994

Case Number: T 0952/93 - 3.3.3

Application Number: 89302381.2

Publication Number: 0335520

IPC: B32B 27/18

Language of the proceedings: EN

Title of invention:
Improvements in and relating to packaging

Applicant:
CarnaudMetalbox plc

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 84, 87(4), 123(2)

Keyword:
"Clarity of functional features (yes, if putting into practice
requires no undue burden)"
"Entitlement to priority (yes)"
"Incorporation of features by reference (yes)"

Decisions cited:
T 0006/84, T 0689/90, T 0720/92

Catchword:



Case Number: T 0952/93 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 31 May 1994

Appellant: CarnaudMetalbox plc
Woodside
Perry Wood Walk
Worcester WR5 1EQ (GB)

Representative: Sawers, Lawrence Peter
PAGE, WHITE & FARRER
54 Doughty Street
London WC1N 2LS (GB)

Decision under appeal: Decision of the Examining Division of the
European Patent Office dated 25 June 1993 refusing
European patent application No. 89 302 381.2
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: C. R. J. Gérardin
Members: P. Kitzmantel
W. M. Schar

Summary of Facts and Submissions

- I. This appeal, which was filed on 21 August 1993 (with letter dated 18 August 1993), lies against the decision of the Examining Division posted 25 June 1993 refusing European patent application No. 89 302 381.2, filed on 10 March 1989, published under the No. 0 335 520 and claiming priority from four GB applications (12 March 1988: GB 8805931, 22 March 1988: GB 8806752, 1 July 1988: GB 8815699, 27 January 1989: GB 8901761).

The appropriate appeal fee was paid together with the Notice of Appeal and a Statement of Grounds of Appeal was filed by facsimile on 22 October 1993.

- II. The decision under appeal was based on a set of 12 claims filed on 13 October 1992 (with letter dated 7 October 1992), of which Claim 1 read as follows:

"A wall for a package comprising -

- (a) an outer set of one or more layers, and
- (b) an inner set of one or more layers, which layer or the outermost of which layers is formed of a composition which scavenges oxygen, characterised in that said composition comprises a base polymer incorporating an oxidisable organic polymer component and a transition metal in a positive oxidation state, the oxidisable organic polymer component, the transition metal and the respective amounts thereof being selected so that the transition metal promotes oxidation of the oxidisable organic polymer component to effect oxygen scavenging, the materials constituting the outer and inner sets of layers being further selected so that:

- (i) the outer set of layers would have, if separate from the inner set and in the absence of any oxygen-scavenging properties in any of the layers or the layer constituting the outer set, a permeance, for oxygen, of not more than 1.5 $\text{cm}^3/(\text{m}^2 \text{ atm day})$;
- (ii) the inner set of layers would have, if separate from the outer set and in the absence of oxygen-scavenging properties in any of the layers or the layer constituting the inner set, a permeance, for oxygen, of at least 2.0 $\text{cm}^3/(\text{m}^2 \text{ atm day})$; and
- (iii) the inner set of layers would have, if separate from the outer set, a permeance, for oxygen, less than the permeance specified in (ii) by at least 1.0 $\text{cm}^3/(\text{m}^2 \text{ atm day})$ by virtue of the oxygen-scavenging in at least the layer specified in (b)."

The appealed decision held that "either one or more of the claims is either not novel, does not involve an inventive step, is not clear or is not supported by the original description". In particular the statements in Claim 1 "a transition metal in a positive oxidation state" and "the oxidisable organic polymer component ... to effect oxygen scavenging" were considered to offend against Article 123(2) EPC, and the oxygen permeance features in Claim 1 were objected to as lacking clarity under Article 84 EPC. Furthermore the subject-matter of Claim 1 was held to be not novel under Article 54(2) EPC over

D1: US-A-4 048 361,
D2: EP-A-0 083 826 or
D3: GB-A-1 188 170,

and under Article 54(3) EPC over

D7: EP-A-0 301 719.

It was also concluded in the appealed decision that in view of the novelty destroying character of D7, this document must be considered as an earlier application of the same invention by the present Applicant, which fact destroyed the entitlement of the application in suit to the claimed priorities, thereby making D7 a document citable also under Article 54(2) EPC. As a consequence, D7 in combination with

D4: DE-A-2 643 204 or
D6: Encycl. Pol. Sci. & Techn. Vol. 10, p. 464

rendered obvious any further subject-matter in the application.

III. Together with the Notice of Appeal the Appellant submitted a conditional request for oral proceedings confirmed in the Statement of Grounds of Appeal.

In a communication dated 18 February 1994 the Appellant was informed by the Rapporteur inter alia that the lack of clarity objections raised in the appealed decision were maintained and that the comments made by the same Board in case T 720/92, concerning another application of the Appellant dealing with technically related subject-matter, did mutatis mutandis apply also here.

He was summoned for oral proceedings to take place in the present case on 1 June 1994, but was informed in the related case T 720/92 by a communication dated 18 February 1994, as follows: "Two days are reserved for the oral proceedings in the two related cases T 720/92 and T 952/93. It is however intended to deal with the second case T 952/93 immediately after the closure of the proceedings of the first case T 720/92 if sufficient time should be available on the first day." There was sufficient time after the termination of the oral proceedings of case T 720/92 on 31 May 1994 and the oral proceedings for the present case took also place on 31 May 1994.

At the outset of the oral proceedings the Appellant requested their postponement until after receipt of the written reasons for the decision in case T 720/92, arguing that only then he would be able to properly deal with similar issues (lack of clarity) in the present case. The Board dismissed this request but offered that the proceedings take place on 1 June 1994, the date originally foreseen in the summons. This offer was rejected by the Appellant.

In the oral proceedings the Appellant submitted a new main request, a first auxiliary request and a second auxiliary request which are as follows:

Main request (13 claims)

Claim 1:

"A wall of a package comprising -

(a) an outer set of one or more layers, and

(b) an inner set of one or more layers, which layer or the outermost of which layers is formed of a composition which scavenges oxygen, characterised in that the said composition comprises an oxidisable organic polymer and a transition metal in a positive oxidation state which promotes oxidation of the oxidisable organic polymer to effect oxygen scavenging, the materials constituting the outer and inner sets of layers being further characterised in that: - [follow the unchanged statements (i), (ii) and (iii) of Claim 1 as quoted above, section II];

each such permeance measurement being made at steady state, in the dark, at a temperature of 23°C, at an oxygen partial pressure of 0.21 atm and at a relative humidity of 50% on the oxygen-rich side of the wall."

First auxiliary request (11 claims)

Claim 1:

Differs from Claim 1 of the main request only by defining under (b): "... characterized in that the said composition comprises an oxidisable organic polymer which is a polyamide, ..."

Second auxiliary request (11 claims)

Claim 1:

Differs from Claim 1 of the main request only by defining under (b): "... characterized in that the said composition comprises an oxidisable organic polymer which is a polyamide of the formula -arylene-CH₂-NH-CO-, ..."

The three sets of claims comprise a further independent claim directed to a package containing an oxygen-sensitive product and having a wall according to Claim 1. The other claims are dependent on Claim 1.

- IV. (i) Concerning the lack of clarity objections in the appealed decision the Appellant relied on its arguments brought forward also in case T 720/92 maintaining that the functional term "oxidisable organic polymer" and its definition via the purpose to be achieved (oxygen permeance data in Claim 1) would be entirely clear to the expert and involved only a limited amount of obvious experimentation.
- (ii) With respect to the lack of novelty objection the Appellant argued that D7 would not conjointly disclose all features of Claim 1, thereby rebutting also the objection to the priority entitlement in the appealed decision. He contended in particular that in the appealed decision three separate elements had incorrectly been combined (Fig. 4, Claim 23, data from the examples) and that even such combination would not directly and unambiguously destroy the novelty of the present claims because it did not draw any distinction between the respective layers in Fig. 4 and Claim 23. For these reasons D7 were not to be considered an earlier disclosure of the same subject-matter.
- (iii) Furthermore the Appellant tried to overcome the objection under Article 123(2) EPC by filing amended claims.

- V. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the requests filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. *Procedural matters*

The Appellant's request for postponement of the oral proceedings until after receipt of the written reasons in his other case T 720/91 before the same Board (point III above) because he could only then properly deal with similar issues under Article 84 EPC (clarity) in the present case had to be refused.

The Board's objections concerning clarity had been duly communicated to the Appellant in both cases several months prior to the date scheduled for oral proceedings. Contrary to his allegations, the Appellant had thus ample opportunity to properly deal with this issue and a change of the Board's preliminary opinion had neither occurred nor could it appear out of the reasoned written decision in case T 720/92; otherwise this would have been communicated to the Appellant. A postponement would therefore have merely resulted in an undue delay of the proceedings.

3. *Article 123(2) EPC*

- 3.1 In the appealed decision it was held that the features "a transition metal in a positive oxidation state" and "the oxidisable organic polymer component ... to effect

oxygen scavenging" were not disclosed in the original specification.

- 3.2 According to Claim 1 of all requests "the said composition comprises an oxidisable organic polymer, and a ... metal ... which promotes oxidation of the oxidisable organic polymer to effect oxygen scavenging". This statement is fully in line with the disclosure in original Claim 5, according to which "the composition scavenges oxygen through the metal-catalysed oxidation of an oxidisable organic component thereof", in conjunction with original Claim 7, setting out that "the oxidisable organic component is a polymer".

There is thus no room for the objection in the appealed decision that the disclosure would not encompass a combination of oxidisable polymer and metal such that the composition scavenges oxygen; the aforementioned statement in Claim 1 of all requests is therefore unobjectionable under Article 123(2) EPC.

- 3.3 In contrast thereto, there is no explicit mention in the original application of the feature "a transition metal in a positive oxidation state", but reference is made in the original application on several places to the disclosure of the EP-A-301 719 (D7 in this case), and of the corresponding GB-A-2 207 439 (= GB application No. 88 306 175.6), which disclosure contains the feature in question.

In respect of Article 123(2) EPC it must therefore be assessed whether the transfer of that feature from the cross-referenced EP-A-301 719 (or GB-A-2 207 439) into the present claims goes beyond the content of the application as filed.

3.4 It is the specific purpose of a patent application that it defines for which technical solution protection is sought. If reference for this purpose is made to the state of the art the application has to state clearly and unambiguously which concrete elements from the often vast field of the state of the art are to be taken into consideration for the claimed invention. The question to be answered here is thus whether the added feature was contained in the application in that specific sense (see also T 6/84, OJ EPO 1985, 238 and T 689/90, OJ EPO 1993, 616). In the present case the application refers from page 4, line on to D7 (or the corresponding GB-A) and to important elements of its content, including to "oxydisable organic components" and "metal catalysts" and goes on to say in the context of the presentation of its technical solution (the claimed invention) on page 6, line 30: "Oxydisable organic components and metal catalysts preferred are those described in GB 88 306175.6.", which corresponds to D7 (see preceding paragraph). In D7 it is however conspicuous that "transition metals in a positive oxidation state" are the most preferred candidates of metal catalysts for the same oxygen-scavenging compositions (oxydisable organic component/metal catalyst: cf. Claim 1 of D7) used in the application in suit (cf. D7, page 6, lines 17 to 19: "We do not understand fully the role which the metal catalyst plays in the oxidation, although we regard metals ..., especially transition metals, as the most promising catalysts when added in one of the positive oxidation states, ...").

There can thus be no doubt that the subject-matter in question was mentioned as part of the technical solution applied for and the explicit introduction of

this subject-matter complies therefore with the requirements of Article 123(2) EPC.

- 3.5 The conditions of measurement of the permeance incorporated into Claim 1 of all requests are supported by the disclosure on page 9, lines 15 to 21 of the original application.

The feature that the permeance measurement is made "at steady state" was not explicitly disclosed but is again based on the cross-reference to D7 (page 3, lines 43 to 46), where the same permeance measurement is explained in great detail on page 3, line 21 to page 4, line 3.

- 3.6 The definition in Claim 1 of the first auxiliary request of the oxidisable organic polymer being a polyamide is supported by original Claim 8.

- 3.7 The definition in Claim 1 of the second auxiliary request of the polyamide being one of the formula - arylene-CH₂-NH-CO- is a generalisation of the formula in original Claim 9 justified also by the cross-reference to D7, page 6, lines 35 to 37.

- 3.8 The amendments in the further claims of the three requests amount to an adaptation of the language to the respective Claim 1 only.

- 3.9 The sets of claims of all requests therefore satisfy the requirements of Article 123(2) EPC.

4. *Entitlement to priority*

4.1 It is not disputed by the Appellant that GB 8901761, filed 27 January 1989, is the only one of the four priority documents which could provide a basis for a priority entitlement of the present subject-matter.

4.2 The appealed decision held that D7, being an application filed by the same company which filed the present application, disclosed all of the latter's features. Since D7 was filed earlier (on 6 July 1988) than the only relevant priority date, and since D7 was not withdrawn, abandoned or refused prior to its publication, GB 8901761 was not, according to that decision, the first application for the subject-matter of the present application and could not, therefore, be used to establish a valid priority (Art. 87(4) EPC).

4.3 The crucial question in respect to the priority entitlement is therefore, whether or not D7 discloses the same invention as does the present application.

4.3.1 In brief, the subject-matter of the present application is a laminated wall comprising an outer layer of low oxygen permeance and an inner layer having oxygen-scavenging properties, the oxygen permeance of the layers being further defined.

4.3.2 The lack of novelty objection in the appealed decision was based on the combination in D7 of Figure 4, Claim 23 and the examples. Figure 4 relates to a 3-layer laminate with a central oxygen-scavenging layer (1) of low permeance and with two external layers (2), (3) of "a non-oxidisable polymer which do not significantly reduce the permeance" (page 8, lines 48 to 50). Whether this expression is interpreted as

meaning that these layers are not oxygen-scavenging or that they do not prevent passing of oxygen, in both cases these layers (2), (3) do not provide the oxygen barrier properties required for the outer layer of the present subject-matter.

Claim 23 of D7 describes a wall comprising a first layer comprising an oxygen-scavenging composition as defined in Claim 1, and at least a second layer containing a polymer which "reduces by a factor of two or more the permeance that the wall would have in the absence of oxygen-scavenging properties." This definition of the second layer can only mean that its composition is also oxygen-scavenging, because otherwise no "reduction of the permeance of the wall" could occur.

There is thus no clear disclosure in either Figure 4 or Claim 23 of a wall construction according to present Claim 1, let alone having the precise oxygen permeance characteristics as defined therein. None of the examples of D7 relates to a laminated structure and their combination with Figure 4 and/or Claim 23 - even if considered justified - could not, therefore, lead to the present subject-matter.

- 4.3.3 In view of the above, D7 does not deprive of novelty the present subject-matter; it even differs therefrom with regard to an essential element. D7 does not, therefore, qualify as an earlier disclosure of the same invention within the meaning of Article 87(1) and (4) EPC and does not invalidate the present application's entitlement to the priority of GB 8901761, filed 27 January 1989.

5. *Article 84 EPC*

5.1 Main request

In the appealed decision it was held that the definitions (i), (ii) and (iii) in Claim 1 would be unclear and that the unusual permeance parameters used to characterise the different layers were used to disguise lack of novelty.

This objection was apparently to be seen in connection with the fact that it was via the fulfilment of the permeance requirements only that the "oxidisable organic polymer component" and the metal catalyst were defined.

In the Board's judgment, the definition of the term "oxidisable organic polymer component" by way of a desired reduction of the oxygen permeance (definitions (ii) and (iii) in Claim 1) lacks indeed clarity, because the assessment of those "oxidisable organic polymers" which in combination with a transition metal catalyst could meet this condition would require a very large number of experiments to be carried out at random and would thus impose an undue burden on the expert. As appears also from the Board's decision in the related case T 720/92, Reasons 2.1.3, the word "oxidisable" in the context of the application in suit is used in a very special meaning, i.e. "oxidisable in the presence of appropriate amounts of an appropriate transition metal catalyst"; the fulfilment of the desired oxygen permeance reduction of the inner set does not allow to conclude that this was in any case and fully imputable to the "oxidisable organic polymer" used, even less so

when the inner set of layers, in addition to the oxygen-scavenging layer, comprises further layers of undefined composition.

Since there is no information in the application guiding the skilled person in such a way that with a few orienting experiments he will in reasonable time be able to sort out those polymers which meet the functional definition of Claim 1, the term "oxidisable organic polymer" is considered unclear within the meaning of Article 84 EPC.

5:2 First auxiliary request

In view of the fact that the only polyamide exemplified in the application is MXD6 (a very special polyamide from m-xylene diamine and adipic acid), the applicability of polyamides in general as "oxidisable organic polymer" is doubtful. These doubts are confirmed by the statement in the cross-referenced document D7, page 6, lines 45 to 47 that with fully aliphatic polyamides "we have so far not achieved the very good results which we have achieved with MXD6".

In the Board's judgment, therefore, the necessary information for putting the teaching of Claim 1 into practice, which involves the selection of those polyamides, other than of MXD6-type, which would lead to the desired result (= oxygen permeance reduction of inner set) is lacking. In the absence of any guidance to that, there would be an undue burden on the skilled person to establish the **special** meaning of the term "polyamide" in the present context and this term has therefore to be considered unclear within the meaning of Article 84 EPC.

5.3 Second auxiliary request

5.3.1 In Claim 1 of this request the scope of the term "polyamide component" has been narrowed down to polyamides of the formula -arylene-CH₂-NH-CO-.

Since the feasibility of MXD6 for scavenging oxygen in amounts meeting the desired reduction of the oxygen permeance is proved by the evidence in the specification, the skilled person is aware of the important structural criteria and will be able with some usual experimentation to identify further homologous polyamides which come under the oxygen permeability requirements of Claim 1. There is thus no undue burden on the skilled person and, consequently, Claim 1 of the second auxiliary request is clear within the meaning of Article 84 EPC.

5.3.2 By amendment of the original language in Claim 1 "wall for a package" to "wall of a package" the relative position towards the content of the package of the "inner" and "outer" set of layer(s) has been clarified.

5.3.3 Independent Claim 11 of the second auxiliary request refers to a package having a wall according to Claim 1; it is therefore clear with respect to the definition of the wall and also otherwise meets the requirements of Article 84 EPC. The same applies to the dependent Claims 2 to 10.

6. *Novelty, second auxiliary request*

None of the cited documents D1, D2, D3 or D4 discloses a wall structure comprising a polyamide of units -arylene-CH₂-NH-CO-.

D7, an intermediate document to be taken into account under Article 54(3) EPC, as discussed in section 4.3 of this decision, does not disclose the claimed wall structure.

The novelty of the subject-matter of Claims 1 and 11 of the second auxiliary request can therefore be acknowledged.

7. *Inventive step, second auxiliary request*

It was the object of the present application to provide a wall structure for a package which is capable of lowering the oxygen content of the gas volume within the package, typically in the head space of a beverage bottle.

This object was achieved by a wall having an outer set of layers acting as an oxygen barrier and an inner set of layers capable of scavenging oxygen.

The same problem of scavenging oxygen from the head space of a food package while preventing ingress of oxygen from the outside was solved in D2 and D3 in a different way. While according to both these documents a barrier layer (e.g. from ethylene vinyl alcohol copolymer, metal, polyvinylidene chloride) was used for the outside of the package wall, the scavenging of oxygen from the head space was accomplished quite differently from the present application. In D2 potassium sulphite, activated by moisture, is used to scavenge the oxygen, in D3 the head space is flushed with hydrogen which, catalysed by a redox catalyst provided in an intermediate layer of the wall, combines with any residual oxygen.

These methods are remote from the present solution using the susceptibility to oxidation of special polyamides in the presence of transition metal catalysts and there is nothing in any of the other cited documents which could lead the skilled man to adopt this solution. D1 uses an antioxidant, e.g. propyl gallate, to absorb and bind oxygen; D4 and D6 disclose the stabilisation (not oxidation) of polyamides (polyamide-6 or -6,6) with mixtures of copper(I) salts (bromide or iodide) and calcium, zinc or magnesium bromide or halides of alkali metals. D7, being an intermediary publication, is not to be taken into account for the purpose of assessing inventive step.

An inventive step can therefore be recognized for the claimed subject-matter.


8. Thus, in view of the non-compliance of their respective Claims 1 with the requirements of Article 84 EPC, the main request and the first auxiliary request are not allowable; the claims of the second auxiliary request, however, comply with the requirements of the EPC.

Order

For these reasons it is decided that:

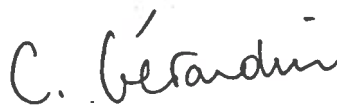
1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent on the basis of Claims 1 to 11 filed on 31 May 1994 as second auxiliary request and a description yet to be adapted.

The Registrar:



E. Görgmaier

The Chairman:



C. Gérardin

JK 11.10.94