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Datasheet for the decision of 8 January 2013

Case Number: T 0692/11 - 3.3.09

Application Number: 03005557.8

Publication Number: 1344641

IPC: G09F 3/02, G09F 3/10, B32B 7/06, B32B 3/24, B32B 27/20

Language of the proceedings: EN

Title of invention:
Oxygen—absorbing label

Patent Proprietor:
MITSUBISHI GAS CHEMICAL COMPANY, INC.

Opponent:
Multisorb Technologies, Inc.

Headword:
-

Relevant legal provisions:
EPC Art. 56
RPBA Art. 12(2)

Keyword:
"Admissibility of documents filed with grounds of appeal (yes)"
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0692/11 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 8 January 2013

Appellant: (Opponent)	Multisorb Technologies, Inc. 325 Harlem Road Buffalo, NY 14224—1893 (US)
Representative:	James, Anthony Christopher W.P. Carpmaels & Ransford One Southampton Row London WC1B 5HA (GB)
Respondent: (Patent Proprietor)	MITSUBISHI GAS CHEMICAL COMPANY, INC. 5—2, Marunouchi 2—chome Chiyoda—ku, Tokyo (JP)
Representative:	Gille Hrabal Patentanwälte Brucknerstrasse 20 D-40593 Düsseldorf (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 20 January 2011 rejecting the opposition filed against European patent No. 1344641 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman: W. Sieber
Members: M. O. Müller
F. Blumer

Summary of Facts and Submissions

I. This decision concerns the appeal filed by the opponent against the decision of the opposition division to reject the opposition against European patent No. 1 344 641.

II. An opposition had been filed by the opponent requesting revocation of the patent in its entirety on the grounds that the claimed subject-matter was not inventive (Article 100(a) EPC) and that the patent 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 (Article 100(b) EPC).

The documents submitted during the opposition proceedings included:

D1: US 6,139,935 A.

III. The opposition division's decision, issued in writing on 20 January 2011, was based on the claims as granted, of which claim 1 reads as follows:

"1. An oxygen-absorbing label which has a laminated structure successively comprising a base layer having a release adhesive layer on its surface, an oxygen-absorbing sheet made from an oxygen-absorbing resin comprising a thermoplastic resin and an oxygen absorbent blended therein, and an air-permeable layer, wherein the air-permeable layer is bonded to the base layer at a position surrounding an outer periphery of the oxygen-absorbing sheet, and the air-permeable layer comprises (A) a water-resistant moisture-permeable

resin film having a water pressure resistance of 2,000 mmH_2O or higher and a moisture permeability of 1,000 $g/m^2/24$ h or higher and (B) a microporous film."

IV. In its decision, the opposition division reasoned essentially as follows:

The invention underlying the opposed patent was sufficiently disclosed.

With regard to inventive step, D1 was the closest prior art, from which the subject-matter of claim 1 differed by the presence of the microporous film (B) and the values for the water pressure resistance and moisture permeability of layer (A). Comparative example 1 of the opposed patent was identical to the working examples except that the air-permeable layer was replaced by a perforated PET/PE film placed on oil- and water-resistant paper. This resulted in the observation of rusts on the surface of the oxygen-absorbing label. Comparative example 2 was essentially the same as comparative example 1, except that a non-perforated PET/PE film was used. This resulted in undesirably low oxygen-absorbing properties. The objective problem was therefore to provide oxygen-absorbing labels which avoided oozing (eg of rusts) and/or provided sufficient oxygen absorption. There was no teaching in D1 that the use of moisture-permeable resin films having a water pressure resistance and moisture permeability as required by claim 1 would solve this problem, particularly in conjunction with a microporous film. The solution to this problem was furthermore nowhere suggested in any of the other prior art documents. Inventive step was therefore to be acknowledged.

V. On 16 March 2011, the opponent (in the following: the appellant) filed a notice of appeal against the above decision, requesting that the decision under appeal be cancelled in its entirety, and paid the prescribed fee on the same day. On 30 March 2011, the notice of appeal was re-filed requesting that the decision under appeal be set aside in its entirety, and the patent be revoked in full and at least to the extent sought in the notice of opposition. A statement setting out the grounds of appeal was filed on 27 May 2011 together with

D10: EP 0 466 515 A2.

VI. The proprietor (in the following: the respondent) filed its reply by letter of 7 October 2011.

VII. In its communication of 15 June 2012, the board summoned the parties to oral proceedings and issued its preliminary opinion. It was explained that *inter alia* D1 could be used as the closest prior art for the assessment of inventive step. The subject-matter of claim 1 differed from the embodiment described in figure 4 of this document in terms of the water pressure resistance and moisture permeability and by the presence of the microporous film (B). It would have to be discussed during the oral proceedings what problem was solved by these distinguishing features and whether in view of this problem the claimed subject-matter was obvious.

VIII. By its letter of 26 November 2012, the respondent announced that it would not attend oral proceedings and

requested that the case be decided on the basis of the current contents of the file.

IX. On 8 January 2013, oral proceedings were held before the board in the respondent's absence.

X. The appellant's arguments as made during the written and oral proceedings can be summarized as follows:

The claimed subject-matter lacked an inventive step *inter alia* in view of closest prior art document D1 in combination with D10. The distinguishing features with regard to figure 4 of D1 were the water pressure resistance and moisture permeability of air-permeable layer (A) and the presence of microporous film (B). According to the opposed patent, the technical problem was the provision of an oxygen-absorbing label having in combination, (a) good oxygen permeability, (b) sufficient moisture permeability to allow water vapour to penetrate into the label to activate the oxygen- absorbent and (c) sufficient water resistance to prevent oozing of oxygen-absorbing components and rusts to the outer surface of the oxygen-absorbing label, even when the label was applied to foods containing a large amount of water. It was already disclosed in column 3, lines 52-61 of D1 that top sheet 15 had to be water- and gas-permeable but liquid-impermeable in order to avoid the staining of the top sheet due to the oxidation of iron. It was furthermore known from column 4, lines 46-50 of D1 that moisture had to be attracted through the top sheet to activate the oxygen absorbent. The skilled person would therefore have known from D1 that a high water pressure resistance was needed in order to avoid the oxidation

of iron and that a high moisture permeability was needed in order to activate the oxygen absorbent.

There was no evidence in the opposed patent that there was anything inventive about the specific values of 2000 mmH_2O and 1000 $g/m^2/24hr$ as chosen in claim 1 for the water pressure resistance and moisture permeability. As the water pressure resistances and moisture permeabilities realised in the examples and comparative examples of the opposed patent were all far away from the threshold values chosen in claim 1, the latter appeared to be plucked out of the air and therefore could not support any inventive step.

As to the microporous film (B), its purpose according to column 5, lines 8-13 of the opposed patent was as follows: "Since the microporous film (B) has a high oxygen permeability, even when the oxygen permeability of the water-resistant moisture-permeable resin film (A) is not so high, a sufficient oxygen-absorbing rate is ensured by allowing oxygen to penetrate from the end surface of the microporous film (B)".

However, this implied that the microporous film (B) only provided an advantage when the oxygen permeability of air-permeable layer (A) is low. Therefore, the alleged technical advantage was not achieved over the whole scope of the claim. For example, the Pebax resin films (A) used in the examples of the opposed patent had very high oxygen permeability, so in these embodiments the microporous film (B) did not provide the advantage of ensuring a sufficient oxygen absorption rate. Moreover, claim 1 of the opposed patent was not limited to microporous films (B) having

high lateral (edge) permeability. For instance, a continuous microperforated polymer film (B) had high permeability from the top surface to the bottom surface, but no permeability from the edges. Therefore, again, the alleged technical advantage was not achieved over the full scope of the claim.

In view of this, the problem solved by microporous film (B) of claim 1 at maximum was to provide a support for the oxygen permeable layer (A). The solution to this problem was however already known from page 4, lines 15-16 of D10.

XI. The respondent's arguments, as provided during the written proceedings, can be summarized as follows:

The claimed subject-matter was inventive in view of the closest prior art D1, which disclosed neither the presence of a microporous film (B) nor a water pressure resistance or moisture permeability as required by claim 1. The object underlying the invention in view of D1 was to provide an oxygen-absorbing label that was free from oozing of oxygen-absorbing components and rusts even when applied to foods containing a large amount of water and that nevertheless had a high oxygen-absorbing capacity. While in the examples of the opposed patent, the oxygen concentration was significantly reduced and no abnormal change was observed in the appearance of the oxygen-absorbing labels, the oxygen concentration in the comparative examples was only slightly reduced and rusts were formed. There was absolutely no teaching in D1 itself that led the skilled person to use a moisture-permeable resin film that had a water pressure resistance and

moisture permeability as required by claim 1 in order to solve this problem. On the contrary, D1 clearly suggested that any kind of air-permeable layer could be used and that, for example, an oil- and water-resistant paper was sufficient to avoid staining of the oxygen-absorbing layer. Although D1 acknowledged that the functioning of the oxygen absorption depended on the presence of an appropriate amount of water and discussed the degree of moisture absorption in detail, no part of D1 had any specific relation to the subject of the present invention to provide a specific cover sheet with specific properties. Moreover, D1 did not suggest an embodiment in which the resin was used in conjunction with a microporous film (B). Such a microporous film was however needed in order to keep the oxygen permeability of the label according to the present invention high.

As to D10, this document should not be introduced into the appeal proceedings as it was late filed and not *prima facie* highly relevant. In particular, D10 did not teach an oxygen-absorbing label comprising an air-permeable layer which comprised a microporous film (B) and a resin film (A) having a water pressure resistance and moisture permeability as required by claim 1. Moreover, the absorbing performance of the examples of the opposed patent was much better than that of D10. It was thus the object of the invention to provide an oxygen-absorbing label that had an improved oxygen-absorbing property. D10 itself did not comprise any pointer that this effect might be achieved with the claimed invention.

XII. The appellant requested that the decision under appeal be set aside and that European patent No. 1 344 641 be revoked.

XIII. The respondent requested in writing that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of D10 into the proceedings*

2.1 The respondent requested in writing that D10 should not be admitted into the appeal proceedings as it lacked *prima facie* relevance.

2.2 First of all, D10 was filed with the appellant's statement of grounds of appeal (letter dated 27 May 2011), ie in compliance with the requirements of Article 12(2) RPBA.

2.3 Secondly, D10 addresses the observation made in the opposition division's decision that D1 was *inter alia* lacking a disclosure of a microporous film (B) and that the solution as chosen in claim 1 was not suggested by any of the prior art. More particularly, as will be set out below, it is this disclosure of a microporous film that is present in D10. Consequently, as will also be set out below, D10 in combination with the closest prior art document D1 is prejudicial to inventive step, and thus is *prima facie* highly relevant, contrary to the respondent's position.

2.4 The board therefore decided to admit D10 into the proceedings.

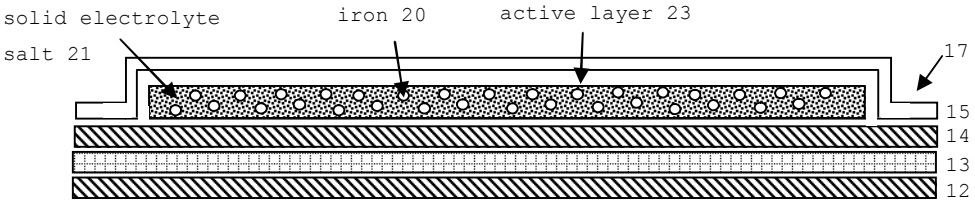
3. *Inventive step*

3.1 The invention concerns adhesively-fixing oxygen-absorbing labels (column 1, lines 5-6). It aims at labels that are free from oozing of oxygen-absorbing components and rusts to the outer surface of the oxygen-absorbing label even when applied to foods containing a large amount of water and that do not show a decrease in the oxygen absorption rate (column 2, lines 39-43 and 51-52).

3.2 D1 is directed to labels that contain an oxygen-absorbing compound (column 1, lines 12-13). D1 in particular aims at oxygen-absorbing labels that efficiently absorb oxygen and will not stain or discolour either as a result of the oxidation of the iron contained therein or as a result of being subjected to the contents of the container (column 1, lines 31-33 and lines 40-42).

Consequently, as acknowledged by both parties and the opposition division, D1 can be considered to represent the closest prior art.

3.2.1 Figure 4 of D1 discloses a label with the following structure



The label comprises a base sheet 13 that carries on its underside a pressure sensitive adhesive layer 12, and on its top side an adhesive layer 14 (column 5, lines 37-39 in conjunction with column 3, lines 14-40). On top of this adhesive layer 14, an "active layer 23" is located that consists of eg polyolefins and additionally contains iron 20 and solid electrolyte salt 21 (column 5, lines 42-52). The active layer 23 is covered by a top sheet 15 that is attached to base sheet 13 at peripheral edge 17 and thereby encloses the active layer 23 (column 3, lines 50-52 and column 4, lines 1-3). Top sheet 15 is fabricated from oil- and water-impermeable paper, coated paper, or plastic film, or laminates thereof, which may or may not be microperforated. It is oil- and water-impermeable and vapour- and gas-permeable so that oxygen gas will pass therethrough but liquid water will not (column 3, lines 52-58).

3.2.2 The pressure sensitive adhesive layer 12 of figure 4 of D1 corresponds to the release adhesive layer of claim 1.

The base sheet 13 of figure 4 of D1 corresponds to the base layer of claim 1.

The polyolefins in the active layer 23 of figure 4 of D1 correspond to the thermoplastic resin of claim 1. The iron 20 contained in the active layer 23 of figure 4 of D1 corresponds to the oxygen absorbent of claim 1. Consequently, the active layer 23 of figure 4 of D1 corresponds to the oxygen absorbing sheet of claim 1.

Top sheet 15 of figure 4 of D1 corresponds to the water pressure resistant and moisture permeable resin film (A) of claim 1. In the same way as required by claim 1, this sheet is bonded to the base layer at a position surrounding the outer periphery of the oxygen-absorbing sheet.

3.2.3 No values are disclosed in D1 for the water pressure resistance and moisture permeability of top sheet 15 and no proof has been provided that this sheet inherently has values within the claimed ranges. Furthermore, the label of figure 4 of D1 does not contain any microporous layer between top sheet 15 and the active oxygen-absorbing layer 23.

The label of claim 1 of the opposed patent thus differs from the label disclosed in D1 in terms of the water pressure resistance and moisture permeability and by the presence of microporous film (B).

3.3 The problem underlying the opposed patent is the provision of oxygen-absorbing labels that have a sufficient oxygen-absorption rate and in which oxygen absorbing components and rusts are not oozing and any deterioration of the labels' appearance is thereby avoided (column 2, lines 16-25, 39-43 and 51-52 of the patent and the penultimate paragraph on page 3 of the respondent's letter dated 7 October 2011).

3.4 As a solution to this problem, the patent proposes a label according to claim 1 which is characterised by an air-permeable layer comprising

– a resin film (A), having a water pressure resistance of 2000 mm H_2O or higher and a moisture permeability of 1000 g/m^2/24h or higher, and
– a microporous film (B).

3.5 The board has no doubt that in view of the examples of the opposed patent, this problem has been credibly solved.

3.6 It remains to be examined whether the solution as chosen in claim 1 is obvious in view of the prior art.

3.6.1 As has already been set out by the appellant during the written proceedings (third paragraph on page 6 of its letter dated 27 May 2011), D1 already teaches the skilled person in column 3, lines 59-63 that the top sheet 15 has to be water-impermeable such that the sheet will not stain and thus will resist discoloration due to the oxidation of the iron contained in the label.

3.6.2 As equally set out by the appellant in the written proceedings (fourth paragraph on page 6 of its letter dated 27 May 2011), D1 teaches the skilled person that top sheet 15 is vapour-permeable (column 3, line 57) and that moisture has to penetrate through top sheet 15 in order to initiate the basic electrolytic action which is necessary for the iron to absorb oxygen (column 4, lines 46-50).

3.6.3 The skilled person, trying to avoid the formation and oozing of rust and aiming at sufficient oxygen absorption, would thus be taught by D1 to choose a top sheet 15 that is (a) water-impermeable (to avoid the penetration of an excessive amount of water and thus

the formation and oozing of rusts) while (b) having a sufficiently high moisture permeability (to allow penetration of moisture to activate the oxygen absorbent). It is thus obvious on the basis of D1 itself to select a high water pressure resistance and a high moisture permeability.

3.6.4 The opposed patent does not present any evidence whatsoever that there is anything special about the specific values chosen in claim 1, ie the minimum water pressure resistance of 2000 mmH_2O and the minimum moisture permeability of 1000 $g/m^2/24hr$.

Referring to the water pressure resistance parameter, the opposed patent attempts to demonstrate a technical advantage by means of comparative example 1. This comparative example uses a perforated PET/PE film as the layer (A). Obviously, a perforated film has zero water pressure resistance. The two values exemplified in the opposed patent thus are 0 mmH_2O in the comparative example and 10000 mmH_2O in examples 1 and 2. These are either far below (comparative example) or far above (examples of the invention) the value of 2000 mmH_2O required as the lower limit in claim 1. The data in the opposed patent therefore cannot prove any criticality of the chosen lower limit for the water pressure resistance.

Referring to the moisture permeability parameter, the opposed patent attempts to demonstrate a technical advantage for the claimed range of at least 1000 $g/m^2/24hr$ by means of comparative example 2. This comparative example uses a film (A) of non-perforated PET/PE. PET/PE films are almost completely impermeable

to moisture and hence have a moisture permeability close to 0 g/m^2/24hr, since water is not soluble in PET/PE. Hence the only values exemplified in the opposed patent are a value close to 0 g/m^2/24hr for the comparative example and of 5000 g/m^2/24hr for the examples. Again, these values are either far below (comparative example) or far above (examples of the invention) the lower limit of 1000 g/m^2/24hr required in claim 1. Consequently, the data contained in the opposed patent cannot prove any criticality of the lower limit chosen for the moisture permeability in claim 1.

The lower limits chosen in claim 1 for the water pressure resistance and moisture permeability thus represent an arbitrary selection of high values already suggested by D1 for the water pressure resistance and moisture permeability. The selection of these values therefore cannot support any inventive step in view of this document.

3.6.5 As regards the microporous film (B), in the board's view, it does not provide any contribution to the solution of the problem underlying the opposed patent of providing oxygen-absorbing labels that have a sufficient oxygen-absorption rate and in which oxygen-absorbing components and rusts are not oozing and any deterioration of the labels' appearance is thereby avoided. In fact, if anything, it may be assumed in the respondent's favour that this film serves as a support for resin film (A).

D10 does however already disclose an oxygen-permeable film covering an oxygen-absorbing composition and comprising an asymmetric porous membrane composed of

- a very thin dense skin layer forming one surface of the membrane (corresponding to layer (A) of claim 1) and
- a porous layer (corresponding to film (B) of claim 1) "supporting the dense skin layer" (page 4, lines 15-16, emphasis added).

Consequently, the skilled person looking for a support for resin film (A) would have known from D10 to use a microporous film (B).

3.6.6 As regards film (B), the respondent had argued that the microporous film (B) also contributes to the solution of the problem of providing a sufficiently high oxygen absorption rate. However, this argument is not convincing for the following reason:

The respondent had referred to the passage in column 5, lines 8-13 of the opposed patent, where it is stated: "Since the microporous film (B) has a high oxygen permeability, even when the oxygen permeability of the water-resistant moisture-permeable resin film (A) is not so high, a sufficient oxygen-absorbing rate is ensured by allowing oxygen to penetrate from the end surface of the microporous film (B)" (emphasis added).

However, this implies that the microporous film (B) only contributes to the solution of the problem of providing a sufficient oxygen absorption rate when the oxygen permeability of air-permeable layer (A) is low. Therefore, the alleged technical advantage is not

necessarily associated with the microporous film over the whole scope of the claim. For example, the Pebax resin films (A) used in the examples of the opposed patent have very high oxygen permeability, so in these embodiments the microporous film (B) does not provide the advantage of ensuring a sufficiently high oxygen absorption rate.

Moreover, claim 1 of the opposed patent is not limited to microporous films (B) having high lateral (edge) permeability. For instance, a continuous microperforated polymer film (B) has high permeability from the top surface to the bottom surface, but no permeability from the edges. Therefore, again, the alleged technical advantage of allowing oxygen to penetrate from the end surface of the microporous film (B) is not achieved over the full scope of the claim.

Consequently, the alleged contribution of microporous film (B) to provide sufficient oxygen absorption is not present over the full scope of the claims and therefore has to be disregarded in the context of inventive step.

3.7 The subject-matter of claim 1 therefore lacks an inventive step in view of D1 in combination with D10.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Cañueto Carbajo W. Sieber