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Datasheet for the decision of 21 November 2008

Case Number: T 0441/07 - 3.2.07

Application Number: 99122375.1

Publication Number: 1000873

IPC: B65D 81/26

Language of the proceedings: EN

Title of invention:
Desiccant material included in a closed container

Patentee:
CSP Technologies, Inc.

Opponent:
Airsec S.A.

Headword:
-

Relevant legal provisions:
EPC Art. 54, 83, 84, 100(c), 123(2)
RPBA Art. 13(1)

Relevant legal provisions (EPC 1973):
-

Keyword:
"New line of argumentation in oral proceedings for existing grounds - not admitted (reasons point 1)"
"Clarity and sufficiency - yes (both requests)"
"Novelty - no (both requests)"

Decisions cited:
G 0002/88

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0441/07 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 21 November 2008

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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 09 January 2007 concerning maintenance of European patent No. 1000873 in amended form.

Composition of the Board:

Chairman: H. Meinders
Members: P. O'Reilly
E. Dufrasne

Summary of Facts and Submissions

I. Opposition was filed against European patent No. 1 000 873 as a whole based on Article 100(a) EPC (lack of novelty and lack of inventive step), Article 100(b) EPC (insufficiency of disclosure) and Article 100(c) EPC (added subject-matter).

The opposition division decided to maintain the patent in amended form in accordance with the fourth auxiliary request. It held that: claim 13 of the main request offended Articles 76(1) and 123(2) EPC; that the subject-matter of claim 1 of each of the first to third auxiliary requests was not novel; but that the subject-matter of claim 1 of the fourth auxiliary request was novel and involved an inventive step.

II. The proprietor (hereinafter appellant/proprietor) and the opponent (hereinafter appellant/opponent) each filed an appeal against that decision.

III. The appellant/proprietor requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or, in the alternative, of the auxiliary request both filed with letter of 1 October 2008.

The appellant/opponent requested that the decision under appeal be set aside and that the patent be revoked.

IV. Oral proceedings were held before the Board on 21 November 2008.

V. The independent claim of the main request reads as follows (amendments when compared to claim 1 of the patent as granted are depicted in bold or struck through):

"1. A container (1) having desiccating capabilities, said container (1) comprising:
a container body (12) forming at least a partial enclosure so that an inside space (201) and an outside space (202) is created with respect to said container body (12);
an insert (200) formed from desiccant entrained thermoplastic **having polypropylene or polyethylene as the base material** and being fixed relative to said container body (12); and
at last a portion of said insert (200) being exposed to the inside space (201) of said container body (12) for absorbing moisture therefrom,
characterised in that said desiccant entrained thermoplastic from which said insert (200) is constructed further comprises ~~at least one~~ **a** polar organic compound that enhances the absorption rate of said desiccant entrained thermoplastic."

The independent claim of the first auxiliary request reads as follows (amendments when compared to claim 1 of the main request are depicted in bold or struck through):

"1. ~~A~~ **The use of a polar organic compound for** enhanc~~es~~**ing** the absorption rate of ~~said~~ **a** desiccant entrained thermoplastic **of** an insert (200) formed from **the** desiccant entrained thermoplastic**; the desiccant entrained thermoplastic** having polypropylene or

polyethylene as the base material **and comprising the polar organic compound,**
the insert being comprised in a container (1) having desiccating capabilities, said container (1) comprising:
a container body (12) forming at least a partial enclosure so that an inside space (201) and an outside space (202) is created with respect to said container body (12);
the insert ~~and~~ being fixed relative to said container body (12); and
at last a portion of said insert (200) being exposed to the inside space (201) of said container body (12) for absorbing moisture therefrom
~~characterised in that said desiccant entrained thermoplastic from which said insert (200) is constructed further comprises a polar organic compound that~~."

VI. The documents cited in the present decision are the following:

D4: EP-A-0 599 690
D19: Copy of US provisional application filed at USPTO on 23 April 2002.
D21: Extract "Verwaltungstechnik" from an internet science archive available over the URL given in the letter of the opponent dated 15 November 2006.
D26: Extract "Polarity of Organic Compounds" from an internet science site available over the URL given in the letter of the proprietor dated 27 September 2007.

VII. The arguments of the appellant/proprietor may be summarised as follows:

(i) Claim 1 of each of the requests complies with Article 123(2) EPC and the arguments of the appellant/opponent are not *prima facie* relevant so that the line of argument in this respect should not be admitted into the proceedings, in particular since it is raised for the first time during the oral proceedings before the Board. Since the description of the application as originally filed indicated that the provision of a cap was optional (see page 4, lines 15 to 18) it was permissible to delete the feature from claim 1 as originally filed. Also there is no limitation in the patent that polypropylene and polyethylene were only disclosed in combination with particular ranges for the quantity of desiccant. In the description there is an indication of the maximum bearable amount of desiccant with each of these thermoplastics (see page 8, lines 27 to 32) and an indication of a "Typically" range (see page 8, lines 19 to 22) for the quantity of desiccant. However, there are also examples (see page 16, lines 24 to 29) of polypropylene with a quantity of desiccant which falls well outside the above mentioned "Typically" range.

(ii) Claim 1 as amended of each of the requests is clear and the invention is sufficiently disclosed.

The polypropylene or polyethylene are clearly part of the thermoplastic. Also the reference to their forming the base material is clear since the

skilled person knows that this means that they are the dominant constituent.

The skilled person can also carry out the invention since it is a simple matter to test for the rate of absorption of humidity and this can be done first for a desiccant alone and then with a possibly enhancing compound. A suitable test is described in D4, page 3, lines 26 to 45.

(iii) The subject-matter of claim 1 of the main request is novel over D4. This document does not disclose the feature of claim 1 whereby "said insert … further comprises a polar organic compound that enhances the absorption rate of said desiccant entrained thermoplastic." The heating involved in the injection moulding process necessary to form the insert would change the cotton fibres mentioned in D4 such that they could not enhance absorption. This is indicated in D19, page 6, paragraph [012].

(iv) The subject-matter of claim 1 of the auxiliary request is novel over D4. The amendment to claim 1 of this request compared to claim 1 of the main request means that the feature of the enhancement of the absorption rate of the desiccant is a feature of the claim which, in accordance with Enlarged Board of Appeal decision G 2/88 (OJ EPO 1990, 93), must be taken into account when assessing the novelty of the subject-matter of the claim. Since D4 does not disclose this property the subject-matter of claim 1 of the request is novel.

VIII. The arguments of the appellant/opponent may be summarised as follows:

(i) Claim 1 as amended of each of the requests does not comply with Article 123(2) EPC. The reasons are *prima facie* relevant so that the line of argument should be admitted into the proceedings even though it is only raised as late as the oral proceedings. In claim 1 of the application as originally filed it was indicated that there is a cap. This feature is no longer in claim 1. Also claim 1 includes the feature that the thermoplastic is polypropylene or polyethylene. These thermoplastics, however, were only disclosed in combination with specific ranges for the desiccant which are not included in the claim.

(ii) Claim 1 of each of the requests is not clear and the invention is not sufficiently disclosed.

The reference to polypropylene or polyethylene as base material is ambiguous since it could refer back either to the insert or to the thermoplastic. Also the expression "as base material" is unclear since the amount required to be a base material is not indicated.

The skilled person would not know how to select compounds which are suitably polar, since the required polarity is not given in the patent in suit and there is as no indication as to how the absorption enhancement property can be found without an undue burden of testing, whereby no

test for this property is given in the patent in suit.

(iii) The subject-matter of claim 1 of the main request lacks novelty over D4. There is no dispute that D4 discloses the features of claim 1 except the feature whereby "said insert … further comprises a polar organic compound that enhances the absorption rate of said desiccant entrained thermoplastic." However, also this feature is disclosed in D4.

In D4 there is disclosed a list of fibres which are included in the composition which is on the interior surface of the container. The natural fibres, i.e. wool, silk, cotton and linen, are all based on organic compounds and they all are absorbent as evidenced by D21. Non-polar molecules repel water and hence cannot be absorbent. In order to be absorbent it is necessary that the molecules are polar so it is evident that all the listed natural fibres are polar. Also the listed compounds for the synthetic fibres, i.e. acrylics, polyesters and polyamides, are polar organic molecules as shown by D26 which refers to amides and esters and to the fact that acrylic is composed of carboxylic acid groups, which are polar, on a hydrocarbon backbone.

These fibres enhance the absorption of the desiccant in the container disclosed in D4. This is shown by the fact that the composition for the layer in which they are held replaces the previous two-layer construction wherein the first (inner)

layer was permeable and the second layer was a desiccant. The replacement composition contains a desiccant and a thermoplastic/thermosetting resin to hold it as well as the fibres. The fibres are clearly provided to replace the function of the permeable layer by allowing access of the humidity to the desiccant in the interior. In other words they enhance the absorption rate of the desiccant entrained thermoplastic.

(iv) The subject-matter of claim 1 of the auxiliary request lacks novelty. Following G 2/88 (*supra*), the feature of the enhancement of the absorption rate is a feature of the material specified in the claim which must be taken into account when assessing the novelty of the subject-matter of the claim and D4 implicitly discloses this feature. As has already been explained with respect to claim 1 of the main request the skilled person recognises that the fibres disclosed in D4 have the purpose and effect of providing a wicking property and hence an absorbent enhancing property.

Reasons for the Decision

1. *New lines of arguments under Articles 100(c) and 123(2) EPC - both requests*

1.1 At the start of the oral proceedings before the Board the appellant/opponent indicated that it wished to pursue arguments under Article 100(c) EPC and Article 123(2) EPC which had not previously been brought forward in the proceedings. The lines of arguments concerned claim 1 of each of the requests.

1.2 The line of argument of the appellant/opponent under Article 100(c) EPC concerned the absence of a feature - a cap - in claim 1 which had been present in claim 1 of the application as originally filed. Although the appellant/opponent had raised the ground of Article 100(c) EPC in its notice of opposition it had not previously attacked the absence of this feature from claim 1 as granted. The appellant/opponent argued that there was no basis in the application as originally filed for the deletion of this feature from the claim.

The appellant/proprietor pointed out that there was an explicit statement in the application as originally filed (see page 4, lines 15 to 18) that the cap was optional which provided a basis for deleting the feature from claim 1.

1.3 The line of argument of the appellant/opponent under Article 123(2) EPC was that the feature of the thermoplastic having polypropylene or polyethylene as the base material had only been disclosed originally in combination with specific ranges of the quantity of

desiccant as given in the description of the application as originally filed (see page 8, lines 19 to 22).

The appellant/proprietor pointed out that the description did not give any values for the quantity of desiccant present with a particular thermoplastic material but only indicated the maximum "bearable" amount of desiccant with these. Moreover, the appellant/proprietor pointed out that the specifically disclosed range was only indicated as "Typically" (see page 8, lines 19 to 22) which means that it is an example and not an absolute limit. It further pointed out that on page 16, lines 24 to 29 of the application as originally filed examples are given which lie outside the range specified on page 8, lines 19 to 22 and thus show that the disclosed range was merely illustrative and not a disclosure in combination with polypropylene or polyethylene.

1.4 The Board considers that these lines of argument could have been brought forward earlier in the proceedings. In particular, the arguments under Article 100(c) EPC could and should have been presented in the opposition proceedings.

The arguments under Article 123(2) EPC could have been presented with the appeal grounds since the claims of the patent as maintained amended by the opposition division contained the feature attacked by the appellant/opponent in the amendment. Alternatively, the appellant/opponent could have presented its arguments with its response to the appeal of the proprietor since the latter included therewith requests based on the sets of claims which included the feature in question.

The Board also considers that the lines of argument of the appellant/opponent are not *prima facie* relevant. In the case of the absence of the feature of the cap there is a basis in the application as originally filed for the removal of this feature from claim 1 as the cap is mentioned as an optional feature and has no functional relationship with the other features of the container. In the case of the argument that the range of values for the quantity of desiccant should also be specified in claim 1 there is also a plausible argument that this is not necessary since there are also examples in the description outside this range.

1.5 The Board therefore decided in accordance with Article 13(1) Rules of Procedure of the Boards of Appeal not to allow this amendment to the case of the appellant/opponent.

Both requests

2. *Sufficiency of disclosure and clarity of the claims, Articles 83 and 84 EPC*

2.1 The appellant/opponent alleged that claim 1 as amended of each request lacked clarity and that its teaching could not be carried out by a person skilled in the art.

2.2 The appellant/opponent argued that it was not clear whether the wording "having polypropylene or polyethylene as base material" referred to the thermoplastic or to the insert.

The appellant/opponent also attacked the expression "as a base material" arguing that the skilled person would not understand what this meant.

2.2.1 In the view of the Board the wording of the claim is clear in this respect. The present participle "having" refers to the immediately preceding word, i.e. "thermoplastic". For this wording to refer to the "insert", which is at the beginning of the phrase, it would be necessary that there was either a comma or the word "and" after "thermoplastic". Each of these possibilities would change the subject of the present participle and its adjoining adverbial phrase to the "insert". In the absence of either of these there is no doubt that the subject of the phrase is "thermoplastic". This view is confirmed in the description of the patent in suit in paragraph [0029] wherein there is a discussion of the thermoplastic indicating that it can be polypropylene or polyethylene.

2.2.2 Also the reference to "as base material" is clear. It is clear that the base material is the one which dominates over the other constituents.

2.3 The appellant/opponent argued that the skilled person would not know how to find polar organic compounds which enhance the absorption rate of a desiccant without having an undue burden to carry out extensive tests given the lack of information in the patent as to how to identify such molecules. In this respect there is no indication of what degree of polarity is required and which test method is needed to establish if a compound is within scope of the claims.

2.3.1 In the view of the Board the skilled person would have no difficulty to carry out the claimed invention.

The properties of molecules and their constituent atoms which lead to a compound being polar are well known, i.e. it is their relative electronegativity.

2.3.2 Also, the skilled person knows that it is only necessary to first place a sample of desiccant in a humid atmosphere on a weighing scale and to note the measured weight over time. In order to check if a compound enhances the absorption rate the compound is added to the desiccant and the test is repeated. If the measured weight over time is increased then the compound fulfils the requirements. In D4 on page 3, lines 23 to 26 an indication of such a test is given. The fact that there may be large numbers of such compounds is irrelevant and speaks for sufficiency since the skilled person can then even more easily find suitable compounds.

2.4 The Board concludes that claim 1 of each of the requests is clear and that the alleged invention is sufficiently disclosed so that the requirements of Articles 83 and 84 are complied with.

Main request

3. *Novelty*

3.1 Lack of novelty was argued by the appellant/opponent on the basis of D4. The crucial point which was discussed with the parties was whether D4 discloses the feature of claim 1 of "a polar organic compound that enhances the absorption rate of said desiccant entrained

thermoplastic" in combination with "an insert formed from desiccant entrained thermoplastic having polypropylene or polyethylene as the base material".

3.2 In D4 it is explained that previously there were, going from the interior to the exterior of a container, a porous layer to let the vapour pass, a layer absorbing vapour, and a sealing layer (see page 2, lines 9 to 13). It is then explained that producing such multi-layer products is complex and it would be desirable to reduce the number of layers by replacing the first two layers by a single layer. Next it is indicated that this reduction can be achieved by an internal layer (see claim 9 of D4) of a container having a composition including a thermoplastic or thermosetting polymer, a desiccating agent, an elastomer, and synthetic and/or vegetable and/or animal fibres.

It is explained that the thermoplastic or thermosetting polymer can be of any type, though a list of preferred types is given which explicitly includes polyethylene and polypropylene.

The preferred desiccating agents are stated as are the preferred elastomers.

Examples of the fibres are given which are acrylics, polyesters, polyamides, or natural animal fibres such as wool or silk, or vegetable fibres such as cotton or linen.

3.3 It was common ground between the parties that D4 contains no explicit statement that the fibres are or contain a polar organic compound that enhances the

absorption rate of the desiccant entrained thermoplastic. Indeed D4 contains no direct statement as to the properties and purpose of the disclosed fibres. The question to be resolved therefore is whether it is implicitly disclosed in D4 that the fibres contain a polar organic compound that enhances the absorption rate of said desiccant entrained thermoplastic.

The appellant/proprietor argued during the oral proceedings before the Board that the document gives no information at all regarding the purpose of the fibres. The appellant/proprietor had, however, in an earlier submission dated 24 September 2007 argued that while not explicitly disclosed the fibres would have a wicking effect. The appellant/proprietor pointed out that the fibres could perform a structural function though it was not able to explain what structural function the specific fibres disclosed in D4 could perform. The appellant/proprietor further argued that the fibres and their function would be destroyed by the heat of the injection moulding operation to produce the container of claim 1.

The appellant/opponent has pointed out that whilst the document makes no direct statement regarding the purpose of the fibres it is nevertheless possible to derive their purpose by considering the properties of the features that they are replacing. It is indicated in D4 that the composition for the proposed single layer replaced the permeable layer and the desiccant containing layer. It is evident that the permeable layer performed the function of allowing access of the humidity to the desiccant containing layer. Therefore the replacement compositions must also perform these

functions. The thermoplastic/thermosetting layer provides a structure for containing the desiccant. The elastomer performs a structural function giving elasticity to the composition (as agreed by the appellant/proprietor). The appellant/opponent argued that the fibres must therefore perform the function of providing access of the humidity to the desiccant, in other words enhancing the absorption rate of the desiccant. The appellant/opponent further argued that the disclosed examples of the proposed fibres are all examples of polar organic compounds and that the skilled person would recognise that these would perform a wicking function, thus enhancing the absorption rate of the desiccant.

3.4 The Board finds the arguments of the appellant/opponent convincing.

The composition of D4 was intended to replace the functions of two layers, the permeable layer and the desiccant layer. The composition includes desiccant so that the rest of its components must be carrying out the function of replacing the permeable layer. This layer had provided containment of the desiccant and also transmitted vapour thereto. The containment function is fulfilled by the thermoplastic/thermosetting polymer, possibly aided by the elastomer. The appellant/proprietor agreed that the function of the elastomer was structural and did not indicate any other possible function for the thermoplastic/thermosetting polymer. With the desiccant contained in the thermoplastic/thermosetting polymer, whereby this can, according to D4 (see page 2, lines 27 to 28), be any thermoplastic/thermosetting polymer, it is necessary to

ensure that the vapour can reach it since otherwise it would be sealed from contact with the vapour. Given this requirement, stemming from the need to replace the function of the permeable layer, it would be clear for the skilled person that it must be the fibres which perform this function. This means that the fibres enhance the absorption rate of said desiccant entrained thermoplastic/thermosetting polymer. In order to perform this function it is clear to the skilled person that the fibres must be polar since otherwise they would repel water vapour and thus not perform this function. The skilled person also, when considering the list of fibres, would note that they are all polar and organic and would therefore understand that it is their polar organic property which makes them perform this function.

Although D4 refers to thermoplastic or thermosetting polymers it includes polyethylene and polypropylene as suitable polymers which are thermoplastic compositions. The appellant/proprietor argued that the fibres would be destroyed in the moulding process. However, the appellant/proprietor produced no plausible evidence that specifically this problem would arise when using polyethylene and polypropylene. There is also no reason for the skilled person when reading D4 to immediately assume that its teaching would not work. The possible fact that an investigation eight years after D4 was published included a general indication of problems, cf. D19, page 6, paragraph [012], is not proof that the skilled person would have dismissed the teaching of D4 as wrong.

3.5 Therefore, the subject-matter of claim 1 of the main request is not novel in the sense of Article 54 EPC.

Auxiliary request

4. *Novelty*

4.1 Claim 1 of the auxiliary request differs from claim 1 of the main request in that the claim has been amended so as to be directed to the use of polar organic compounds to achieve the effect of enhancing the absorption rate of the desiccant.

4.2 When considering the question of novelty the Board has not considered the compliance of the amendments to the claim with Article 123 EPC since it considered that this question could be considered if and when it had concluded that the subject-matter of the claim was novel and involved an inventive step. As will be seen below the Board came to the conclusion that the subject-matter of the claim lacks novelty.

4.3 In its decision G 2/88 (*supra*) the Enlarged Board of Appeal made a distinction between an inherent property of a compound and a property that had been made available to the public. The Enlarged Board of Appeal saw an inherent property of a compound as one which it had, though this might not be known to the public as a property of the compound, whereas a property that had been made available to the public was one which the compound had and the public was aware that it had this property. It considered that an inherent property does not form part of the state of the art pursuant to Article 54(2) EPC, whereas the property does form part of the state of the art if this property of the compound has been made available to the public.

In the present case as explained above with respect to claim 1 of the main request the Board considers that the skilled person would implicitly understand from D4 that the fibres disclosed therein have the property and function of enhancing the absorption rate of the desiccant. This means that this property of the polar organic compounds constituting these fibres has been made available to the public in the sense of Article 54(2) EPC. Following the reasoning of G 2/88 (*supra*) therefore the disclosure of D4 implicitly made available to the public the technical effect of the enhancement of the absorption rate of the desiccant so that this leads to an objection under Article 54(1) EPC, cf. point (iii) of the order in G 2/88 (*supra*).

4.4 Therefore, the subject-matter of claim 1 also of the auxiliary request is not novel in the sense of Article 54 EPC.

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:

G. Nachtigall H. Meinders