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Datasheet for the decision of 24 March 2011

Case Number: T 0198/09 - 3.2.07

Application Number: 03813735.2

Publication Number: 1578671

IPC: B65D 5/02

Language of the proceedings: EN

Title of invention:
A method of heat-treatment of a package

Patentee:
Tetra Laval Holdings & Finance SA

Opponent:
SIG Technology AG

Headword:
-

Relevant legal provisions:
EPC Art. 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"It is immaterial whether the person skilled in the art would have considered a document (point 3) if this document does not suggest the claimed method step (point 7.4)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0198/09 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 24 March 2011

Appellant: (Opponent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 11 November 2008 rejecting the opposition filed against European patent No. 1578671 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman: H. Meinders
Members: H.-P. Felgenhauer
E. Dufrasne

Summary of Facts and Submissions

I. The appellant (opponent) has filed an appeal against the decision of the opposition division rejecting the opposition against European patent No. 1 578 671. It requests the impugned decision to be set aside and the patent to be revoked.

The respondent (patent proprietor) requested that the appeal be dismissed. It further requested documents D7 and D8 (cf. point IV below) not to be admitted.

Both parties filed an auxiliary request for oral proceedings.

II. Claim 1 as granted reads as follows (with an added division of features concurrent with the one introduced by the respondent with its letter dated 7 July 2009):

(a) "A method of heat-treatment of a package made from a paper-based packaging laminate, comprising the steps of:

(b) placing a number of filled and sealed packages in a retort,

(c) pressurizing the retort to a first pressure by the supply of a gaseous pressurisation medium with low moisture content, such as air or the like,

(d) supplying a heating medium for heating the package and the product packed in the package,

(e) raising, in connection with the supply of the heating medium, the pressure in the retort to a second pressure, and

(f) reducing, during the final phase of the heat-treatment, the pressure in the retort in such a manner that

(f1) the pressure in the packaging material and

(f2) the pressure within the package

(g) is higher than or equal to the pressure prevailing in the retort outside the package".

III. The following documents are considered in the present decision:

D1: WO-A-98/16431

D3: EP-A-0 749 696

D7: GB-A-2 183 444

D8: DE-A-26 11 389

D1 and D3 have already been considered in the decision under appeal. D7 has been filed with the grounds of appeal and D8 with appellant's letter dated 24 February 2011.

IV. Impugned decision

According to the impugned decision the method according to claim 1 is novel and involves an inventive step in view of D1, which has been considered as constituting the closest prior art.

In particular features (c), (e) and (f), (f1), (f2) and (g) relating i.a. to pressures in the retort were considered as not being suggested by the method of D1 (reasons, point 3, statement preceding section A)).

Document D3 has not been considered as further prior art since it does not disclose the treatment of a package including a paper-based packaging laminate and since it is not concerned with problems associated with the de-stabilisation of paper structures by moist sterilisation media (reasons, point 3, section C)).

V. The submissions of the appellant relevant for the present decision can be summarized as follows:

(i) Document D7 filed with the grounds of appeal should be admitted into the proceedings in view of the impugned decision that D3 was prior art which the skilled person, starting from the method according to D1, would not consider. The reason given, namely that D3 does not relate to packages made of paper-based laminate whereas the problem to be solved by the claimed method concerns heat-treatment of packages made from exactly such a laminate, clearly applies no longer in view of the fact that D7 teaches that pressure control is important to avoid deformation of packages during

heat-treatment irrespective of the particular type of material used for the packages, as it refers to flexible material including plastics, paper, aluminum foil and the like.

Corresponding reasons applied to the admission of D8.

Document D7 furthermore can, independently of D3, be considered as prior art relevant for the examination of inventive step.

(ii) D1 represents the closest prior art. It relates to a method of heat-treatment of a package of the kind referred to in claim 1 made from a paper-based packaging laminate. D1 furthermore refers to a problem associated with heat-treatment of packages made from paper-based packaging laminate, namely a partial loss of the good sealing properties due to the paper or board layers soaking up liquid used in the treatment.

(iii) In order to minimize the loss of the sealing properties and to maintain the strength of the package despite the impact of temperature and moisture during the heat-treatment, the person skilled in the art would consider D3 since it relates to a method of the kind disclosed in D1.

Taking D3 into consideration it is apparent that it discloses a first method step in which corresponding to feature (c) of claim 1, the retort is pressurized to a first pressure by the supply of a gaseous pressurisation medium with low

moisture content, namely compressed air. The skilled person knows that such a pressurisation prior to the heat treatment of the packages in the retort by applying hot water upon them leads to the pressure being equalized within the retort, the packages as well as within the package material, which would further prevent the soaking of the material since any portions of the material which are prone to soaking have their pores already filled by compressed air.

(iv) Combined consideration of D1 and D3 thus inevitably leads to the method according to claim 1 taking into account that the provision of a support pressure as defined by feature (e) in connection with the supply of the heating medium and the reduction of the pressure in the retort as defined by features (f), (f1), (f2) and (g) are steps inherent to the method according to D1 or D3.

VI. The submissions of the respondent relevant for the present decision can be summarized as follows:

(i) Documents D7 and D8 should not be admitted since they have been late filed, lack *prima facie* relevance and cannot be considered as representing general technical knowledge in the technical field concerned.

If D8 is admitted postponement of the oral proceedings is requested since this document is too complex to be dealt with appropriately considering the short time available between its

reception and the date of the oral proceedings (only two and a half weeks).

(ii) D1 represents the closest prior art since it relates to a method of heat-treatment of a package which is, like the one referred to in claim 1, made from a paper-based packaging laminate. D1 already attempts to find a solution for the problem arising for packages made from such material, namely that portions of the paper-based laminate tend to soak up liquid used during the heat-treatment, with a negative effect on the sealing quality.

(iii) Since D3 clearly does not concern heat-treatment of packages made from a paper-based packaging laminate and since it does not in any other way concern the problem of soaking of package material during heat-treatment, the impugned decision is correct in disregarding it.

(iv) In case D3 is considered as further prior art it lacks any disclosure concerning the problem as it is solved by the method of claim 1. It cannot, even in combination with D1 render obvious the first pressurizing step according to feature (c).

VII. In the annex to the summons to oral proceedings the Board expressed its preliminary opinion indicating i.a. that it seems to be necessary to examine which indication(s) can be derived from D3 and considered as leading the skilled person to modify the method of D1 and whether such modification would render the method according to claim 1 obvious.

VIII. Oral proceedings took place on 24 March 2011.

Reasons for the decision

1. *Consideration of D3 / Admittance of D7 and D8*

In view of the result of the present decision that claim 1 involves an inventive step in view of the combined consideration of D1 and D3, the question of whether the impugned decision is correct in its finding that the skilled person would not have consulted D3 as further prior art (see reasons, point 3 C)) is immaterial.

Exercising its discretionary power the Board admitted documents D7 and D8 into the proceedings. In view of the result of the present decision for which D8 played no role and D7 was only considered in view of a general problem referred to by the appellant (see point 7.4.1 below) this issue needs no further consideration.

2. *Subject-matter of claim 1*

2.1 Claim 1 defines a method of heat-treatment of a package, wherein the package is made from a paper-based packaging laminate.

2.2 As indicated already in the annex to the summons to oral proceedings the heat-treatment comprises steps (c) - (g) of which steps (c), (e) and (f) are directed to pressurizing the retort to a first and subsequently to a second higher pressure, followed by a reduction of

the pressure in the retort in the final phase of the heat-treatment under the conditions defined by features (f1), (f2) and (g).

According to the patent in suit this type of pressurization solves the problem to avoid or at least reduce the so-called edge suction intake (cf. paragraphs [0010] and [0011]) by the paper-based packaging laminate.

2.3 It is undisputed that pressurization to the first pressure with a gaseous pressurisation medium with low moisture content, such as air or the like, the feature (c) plays a major role in solving this problem.

According to the description (paragraph [0012]) one probable reason which at least partly explains how edge suction intake is reduced is that by supplying of a low-moisture gaseous medium such as air under pressure before the packaging laminate is exposed to the moist heated steam at the higher pressure, the pores in the edges of the paper-based material are already filled with pressurized air, thus preventing the ingress of moisture.

It remained undisputed that feature (c) has this effect.

3. *Disclosure of D1*

3.1 D1 discloses, corresponding with the method according to claim 1: a method of heat-treatment of a package made from a paper-based packaging laminate (claim 1; page 1, lines 4 - 8; page 2, lines 7 - 27) comprising the steps of:

placing a number of filled and sealed packages in a retort according to feature (b) (cf. claim 1; page 1, lines 4 - 8; page 3, lines 8 - 16; page 4, line 11),

pressurizing the retort to a first pressure by the supply of a gaseous pressurisation medium according to a part of feature (c) (page 2, lines 29 - 31)

supplying a heating medium for heating the packages and the product packed in the packages according to feature (d) (page 2, lines 13 - 17).

3.2 According to D1 containers made of laminates based on paper board risk to rapidly lose their mechanical strength when they are subjected to liquid or moisture (page 1, lines 17 - 24), the reason being that the paper or board layers soak up liquid (page 3, lines 12 - 19). To minimise this risk D1 mentions that it is important that containers of this type are exposed as briefly as possible to such unfavourable environments (page 3, lines 12 - 21; page 5, lines 9 - 17). According to D1 this is achieved in that the heat transfer medium used for heating and/or cooling of the container, respectively, is exchanged during the heating and/or cooling of the container at a critical temperature for the container (claim 1; page 5, lines 9 - 30). With this approach the process time can be considerably reduced (page 5, lines 31 - 33).

4. *Features distinguishing the method of claim 1 from the method of D1*

4.1 The respondent disputes D1 discloses the placing of a number of filled and sealed packages in the retort. Since this aspect is immaterial concerning the examination of inventive step it need not further be dealt with.

4.2 The method according to claim 1 is firstly distinguished from the one of D1 in that according to the remaining part of feature (c) the first pressurization of the retort is done with a gaseous pressurization medium with low moisture content, such as air or the like.

It is common ground that according to D1 the pressurisation takes place together with the heat treatment. In this respect it states that generally a heat treatment with moist heat is utilised at overpressures in autoclaves which are filled with water or steam (page 2, lines 28 - 33).

4.3 The method according to claim 1 is further distinguished from the one of D1 in that the pressure in the retort is, in connection with the supply of the heating medium, raised to a second pressure (feature (e)), and in that the pressure in the retort is, during the final phase of the heat-treatment reduced in the manner defined by features (f) and (g).

Since these features are immaterial concerning the examination of inventive step they need not further be dealt with. Therefore it can be left open whether or

not as argued by the appellant the pressures referred to in these features have to be considered as being merely the result of temperature conditions prevailing in the retort.

5. *Problem to be solved in view of the method of D1*

5.1 Starting from the method of D1, in which the risk of losing mechanical strength is minimised by shorter exposure to the moist heating environment and by an exchange of the heat transfer medium (see point 3.2 above) the problem underlying the method of claim 1 of the patent in suit can be seen in providing an alternative solution for minimising that risk.

5.2 It is common ground that the problem to be solved thus is the one stated in the patent in suit, namely "to realise a method of heat-treating a packaging material by means of which it is possible to retort packages of paper-based packaging laminate and avoid or at least reduce the so-called edge suction intake" (paragraph [0010]).

It is undisputed that this problem is solved by the method according to claim 1 and furthermore that, as referred to above (see point 2.3), pressurising the retort to a first pressure as defined by feature (c) is of major importance in this respect.

6. *Obviousness*

6.1 It is common ground that D1, in taking a different approach to solve the problem (see points 3.2 and 5.2 above) does not give an indication which might be

considered as leading to the solution according to the method defined by claim 1.

6.2 According to the appellant combined consideration of D1 and D3 leads in an obvious manner to the solution of the problem.

6.3 The key issue discussed in this respect in writing as well as during the oral proceedings has been the question of whether or not D3 discloses a method involving pressurization of the retort to a first pressure by the supply of a gaseous pressurization medium with low moisture content, as in feature (c).

6.3.1 According to the appellant D3 discloses a method of heat-treatment of a package according to which corresponding to feature (b) a number of filled and sealed packages is placed in a retort (cf. claim 1).

Concerning the material for the packages the appellant concludes from the reference to laminated sheet material (column 1, lines 11 - 15) that the material is at least such that similar to the paper-based packaging laminate according to feature (a) problems due to edge suction intake can occur.

The appellant concludes from the description in column 3, lines 7 - 17 and in particular lines 7 - 11 "In this condition (namely after a number of packages have been placed in the sterilization tank - remark added), the pressure in the sterilization tank is raised to, and maintained at, the predetermined value, by means of a pressure sensor provided within the sterilization tank and the analog pressure regulating

valve provided in the pneumatic circuit; ..." that the method of D3 comprises a step corresponding to the one of feature (c).

The appellant in this respect also referred to the block diagram of figure 1, indicating that due to the provision of a compressor 5, which is connected to sterilization tank 1 via pneumatic conduit 7 and pressure regulating valve 6, and a temperature and pressure sensor 16, 8 it can clearly be derived that all necessary means are provided which allow a pressurisation by air corresponding to feature (c).

6.3.2 According to the respondent D3 does not relate to packages made from a paper-based packaging laminate as defined by feature (a) since in the description (column 1, lines 11 - 15) "highly gas-impermeable laminated sheet material" is referred to, which in the context of the retort pouches, pouches or packages concerned (column 1, lines 11 - 15; column 2, line 56 - column 3, line 6) can only be understood as relating to laminates composed of various layers of plastic and possibly metal material.

Furthermore, D3 does not disclose a pressurising step corresponding to the one defined by feature (c). Concerning the part of the description referred to by the appellant (column 3, lines 7 - 17) it needs to be considered that it describes method steps to be performed but, going beyond that, no time sequence in which these steps are performed.

6.3.3 The Board considers the assessment of the disclosure of D3 as given by the respondent to be correct.

The reference to "a bag ("retort pouch") formed of highly gas-impermeable laminated sheet material" (column 1, lines 11 - 15) does not suffice to conclude that with the laminates disclosed in D3 also the paper-based packaging laminate referred to in feature (a) is envisaged.

The Board considers furthermore that the wording in the description part referred to by both parties (column 3, lines 7 - 17) does not give any clue as to whether the description listing the method steps of raising the pressure, raising the temperature of the hot water and applying the hot water onto the food packages in the sterilization tank is also meant to indicate the sequential order in which these steps are performed. If any information can be derived it appears to be that these method steps are performed simultaneously, as referred to by the respondent, following the reference to "the temperature of the hot water **flowing** (emphasis added) in the secondary of the heat exchanger" (column 3, lines 7 - 17). This can only mean that the pressure rise occurs during application of hot water and not separately, before.

This assessment is furthermore supported by another part of the description of D3 (column 5, lines 48 - 57), stating that "The analog pressure regulating valve 6 and the drain valve 34 (correctly: 35) are operated to **maintain the pressure** in the tank at a predetermined pressure value **corresponding to the temperature** (emphasis added) of the hot water".

Reference to figure 1 cannot support the appellant's view either since none of the figures gives information concerning the sequence of the steps: pressurisation of the tank / application of hot water to raise the temperature.

Finally the appellant was, when questioned by the Board during the oral proceedings, unable to convincingly demonstrate which effect a first pressurizing step, without simultaneous application of hot water, would have in the method disclosed by D3. As far as it referred in this connection to the disadvantage indicated in D1 which would be caused by edge suction intake, the Board considers that hindsight is involved since as indicated above D3 does not relate to paper-based laminate as packaging material. This, however, would be necessary for the skilled person to consider that edge suction intake is prevented or at least plays a role in connection with the method of D3.

Consequently D3 cannot be considered as disclosing a package material as defined by feature (a) pressurized to a first pressure as defined by feature (c).

6.4 The person skilled in the art starting from the method according to D1 and attempting to find a different solution for the problem associated with edge suction intake could not have derived any suggestion from D3 in this respect, let alone one rendering the solution as defined by claim 1 obvious.

The method of claim 1 thus involves an inventive step (Article 56 EPC).

6.4.1 The above result is also obtained considering the argument of the appellant that, besides the problem referred to in the patent in suit (see point 5.2 above), a further problem (see D7, page 1, lines 77 - 83), namely of avoiding deformation of the packages needs to be considered. Such deformation is caused by air or inert gas in the headspace of the packages expanding and the pressure thus rising due to an increase of the temperature in the retort and likewise in the package.

The reason is that, as indicated by the Board during the oral proceedings, this is a second, separate problem, not linked to the first problem and that the combined consideration of the methods according to D1, D3 as well as D7 for this second problem still does not help in solving the first problem, i.e. does not lead to a sterilisation method comprising a pressurizing step as defined by feature (c).

6.4.2 For completeness sake it is indicated that the finding of the impugned decision, namely that the skilled person would not have consulted D3 (see grounds, point 3 C)) led to the same result, namely that the method of claim 1 is not obvious.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

K. Boelicke H. Meinders