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**Datasheet for the decision  
of 23 November 2006**

**Case Number:** T 1496/05 - 3.2.07

**Application Number:** 00912553.5

**Publication Number:** 1161370

**IPC:** B65B 11/50

**Language of the proceedings:** EN

**Title of invention:**

A process for producing a water soluble package

**Patentee:**

UNILEVER PLC, et al

**Opponent:**

The Procter & Gamble Company

**Headword:**

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**Relevant legal provisions:**

EPC Art. 54

**Keyword:**

"Novelty (no)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1496/05 - 3.2.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.07  
of 23 November 2006

**Appellant:**  
(Patent Proprietor)

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**Decision under appeal:**

Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
4 October 2005 concerning maintenance of  
European patent No. 1161370 in amended form.

**Composition of the Board:**

**Chairman:** H. Meinders  
**Members:** K. Poalas  
C. Holtz

## Summary of Facts and Submissions

- I. The appellant (patent proprietor) lodged an appeal against the decision of the Opposition Division maintaining European patent No. 1 161 370 in amended form.
- II. Opposition had been filed against the patent as a whole based on Article 100(a) EPC on the grounds of lack of novelty (Article 54 EPC) and lack of inventive step (Article 56 EPC).
- III. The Opposition Division found that the subject-matter of claim 1 as granted was not novel. The Opposition Division also found that the subject-matter of claim 1 of the "new first auxiliary request" filed during the oral proceedings on 20 September 2005 was novel and involved an inventive step.
- IV. Of the documents cited in the decision under appeal, the following are relevant for the present appeal:
- D1: US 3 597 899 A
- D7: Encyclopaedia of Packaging Technology, second edition, John Wiley and Sons, 1997, pages 910-923.
- V. Oral proceedings before the Board took place on 23 November 2006.
- (a) The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted.

(b) The respondent (opponent) requested that the appeal be dismissed.

VI. Independent claim 1 as granted reads as follows:

"A process for producing a thermoformed package comprising the steps of:

- placing a first sheet of film over a forming die having at least one cavity;
- heating the film;
- moulding the film into the at least one cavity thereby forming at least one recess in the film;
- placing composition in the at least one formed recess; and
- sealing a second sheet of film across the at least one formed recess to produce at least one closed package,

the process being characterised in that the composition is in the form of a liquid or gel and once formed the or each recess is substantially retained in its formed orientation by the application of a vacuum through the or each cavity".

VII. The appellant argued essentially as follows:

D1 does not directly and unambiguously disclose "a process for producing a thermoformed package", which requires "moulding the film into at least one cavity thereby forming at least one recess in the film".

Those parts in D1 which are referred to in the decision under appeal do not disclose any moulding but instead cold-forming, see e.g. "vacuum-drawing" at column 1, lines 42 to 43; formation of a receptacle "by

expanding, by suction" at column 2, lines 44 to 47 and again formation by suction at column 6, lines 56 to 57.

The only mention of any heating whatsoever is a cursory reference to an optional "heating step in which the temperature of the films is raised above room temperature to a level at which the film is appreciably softened without objectionably weakening it" can be found in column 3, lines 12 to 21 of D1.

However, mere softening cannot be regarded as the same thing as heating a product so that it is moulded into a particular shape. The intrinsic properties exhibited by any material (softening, expanding) in response to merely raising the temperature "above room temperature" cannot be considered a disclosure of a moulding process, wherein a permanent deformation is performed.

D7 evidences that moulding during thermoforming requires relatively very high and very specific temperatures for the these materials (see first complete paragraph on page 915, under "Heating"). Merely heating "above room temperature" as mentioned in D1 would only be read by the skilled addressee as a temperature slightly above room temperature which is not the same thing as moulding at the relatively very high temperatures (as exemplified in the patent in suit, column 5, lines 11 to 12 where the film is heated to 100 to 120°C).

VIII. The respondent argued essentially as follows:

In the first complete paragraph on page 915 of D7 it is indicated that temperatures in the range of 141-163°C

are typically required for "thermoforming", in order that the plastic film is heated to a state in which it is ductile, i.e., such that it neither flows without drawing nor ruptures early in the forming process. When the plastic is in such a ductile state, it is also referred to as "heat-softened", see page 914 of D7, in particular line 3 of the paragraph headed "Thermoforming". Therefore, "thermoforming" requires that the plastic film is heated to a state in which it is "heat-softened".

Document D1 discloses at column 3 lines 12-21 that the film is "appreciably softened without objectionably weakening it". This is a disclosure of "heat-softening" of the film, as referred to in the above cited passage on page 914 of D7, and further the level of softening is the same as that disclosed on page 915 of D7, since the film is "appreciably softened" (i.e. such that it flows without drawing) "without objectionably weakening it" (i.e. such that it doesn't rupture). Therefore, D1 discloses heating to a level necessary to enable "thermoforming" to occur. Considering what constitutes "forming" in the context of the word "thermoforming", according to the cited passage on page 914 of D7 "pressure" must be applied in order to "shape" a film and this "pressure" may be developed by a vacuum.

D1 discloses therefore "thermoforming", and hence it discloses also a "process for producing a thermoformed package" as required by claim 1 of the patent in suit.

Irrespective of whether "moulding" implicitly requires "heating", however, D1 discloses both "heating" and

"forming" as discussed above, and hence D1 must disclose also "moulding" of a film.

The appellant's argument that heating as defined in D1, i.e. heating "above room temperature" is insufficient to cause "thermoforming" is clearly unfounded in the light of the above.

### **Reasons for the Decision**

1. The appellant disputes that the feature of "a process for producing a thermoformed package", which requires "moulding the film into at least one cavity thereby forming at least a recess in the film" in claim 1 as granted is known from document D1 but admits that the remaining features of claim 1 are known from document D1.
2. The question at stake is therefore, whether the feature of "a process for producing a thermoformed package", which requires "moulding the film into at least one cavity thereby forming at least an recess in the film", is also directly and unambiguously derivable from D1.
3. The appellant argues that the package produced by the process according to D1 is not a thermoformed package. It is in particular of the opinion that the reference in column 3, lines 14 to 21 of D1: "to perform the process with a heating step in which the temperature of the films is raised above room temperature to a level at which the film material is appreciably softened without objectionably weakening it" is not a direct and unambiguous disclosure of a thermoformed package

resulting from the process. It further argues that thermoforming needs a careful selection of the temperature, as discussed in D7, left column, first complete paragraph, and right column, last complete paragraph and figure 1 of page 915, and that such a selection is not derivable from D1.

4. These arguments cannot be followed by the Board for the following reasons.

4.1 According to D7, page 914, right column, first paragraph of the chapter "Thermoforming", thermoforming means shaping thermoplastic sheet into a product through the application of heat and pressure. In most cases, the heat-softened plastic is forced against the mould until it cools and sets, whereby forming pressure may be developed by vacuum.

4.2 On page 915, left column, first complete paragraph of the same document it is stated that by thermoforming the thermoplastic sheet is typically heated to a temperature range adequate for forming, usually 141 to 163°C, depending on the material used. Temperature control is critical because of plastic's poor thermoconductivity and because temperature affects the forming characteristics, i.e., ductility, of the materials: too much heat and the sheet flows without drawing; too little and it ruptures early in the forming process.

4.3 According to the above-mentioned paragraphs of D7 thermoforming involves "heat-softening" and in particular vacuum application for forming the shape, ie. moulding the thermoplastic film.



- 4.4 Document D1 discloses at column 3, lines 12 to 18 that the film is "appreciably softened without objectionably weakening it". The application of elevated temperature is proposed for certain applications, where an unusually thick casing wall is required, i.e. an unusually thick film is treated. This means that an increase in temperature of the films is recommended for thick films in order to facilitate the suction of the films via vacuum into a suction cup. This is the same as "heat-softening" of the film as referred to at page 914 of D7, whereby the level of softening is the same as that disclosed in the first complete paragraph of page 915 of D7, since the film is "appreciably softened" (i.e. such that it flows without drawing) "without objectionably weakening it" (i.e. such that it doesn't rupture).
- 4.5 Therefore D1 discloses heating to a level necessary to enable "thermoforming" to occur. D1 discloses also the expansion, by suction, of the film into the shape of a receptacle pocket (column 2, lines 47 to 49). Hence the film is "shaped", and "pressure" is applied by suction, i.e. by vacuum. Consequently, D1 discloses "forming" in the same sense as is understood in the context of the word "thermoforming".
5. The appellant's argument that "mere softening cannot be regarded as the same thing as heating a product so that it is moulded into a particular shape" has no meaning in connection with the teaching of column 3, lines 12 to 21 of D1, since not "mere softening" is proposed in D1, but a purpose-related "appreciable softening" of the film in order to facilitate thicker films to be

formed via the application of vacuum into the suction cup 16, shaping thereby the film into a receptacle pocket, see column 2, lines 41 to 48 of D1.

Since D1 discloses "sufficient heating" for the required "forming" of a package, D1 relates to "thermoforming", and hence necessarily to a "process for producing a thermoformed package" as required by claim 1 of the patent in suit.

6. The Board cannot follow the appellant's assertion that the skilled person would not regard heating to "above room temperature" as disclosed in D1, column 3, line 17 as "thermoforming" since it does not define a temperature range which lies either in the range between 141 and 163°C as proposed on page 915 of D7 or in the range between 100 and 120°C as proposed in column 5, lines 11 to 12 of the patent in suit, for the following reasons.

6.1 Firstly, the first paragraph on page 915 of D7 states only that the temperature range applied lies usually between 141 and 163°C, but in the same sentence it is stated that the temperature range depends on the material used. This means that D7 teaches the skilled person to select a temperature range in accordance with the material used. Depending on this material the temperature range does not necessarily have to lie in the range of 141 to 163°C.

6.2 Secondly, the temperature range between 100 and 120°C is mentioned only in the description of the patent in suit, not in claim 1 and is not disclosed as an

essential feature. Therefore, it cannot help in distinguishing the subject-matter of claim 1 over D1.

6.3 Thirdly, no basis can be found in D1 for the appellant's interpretation of the expression "the temperature of the films is raised **above** room temperature" (see D1, column 3, line 16) should be read as heating to "**only slightly above** room temperature". If the heating step is to be performed, according to D1, by heating the film to a temperature at which it is appreciably softened so as to form it into a suction cup by the application of vacuum, it is a necessity that the temperature for the material in question must have lain in a temperature range comparable to that of the patent in suit.

7. Further, the appellant's assertion that the reference to "heating" in D1 is only cursory is unfounded, since heating is clearly mentioned at column 3, lines 15 to 21 of D1 as a viable alternative to cold-drawing the films.

8. The appellant further argues that D1 does not disclose the claimed step of "moulding the film into the at least one cavity thereby forming at least one recess in the film".

The Board finds also this argument unfounded for the following reasons:

It is undisputed that D1 discloses that the film is drawn into the at least one cavity thereby forming at least one recess in the film, see column 1, lines 42 and 43. Even if the word "moulding" is not explicitly

used in D1, the Board is, however, of the opinion that the general disclosure of D1 is a moulding process. A process in which a film, which is heated in order to soften it and is drawn into a cavity in order to form a recess, can without doubt be called a moulding process.

9. The subject-matter of claim 1 as granted is consequently not novel over the disclosure of D1, with the consequence that it does not fulfil the requirements of Article 54 EPC.
10. Therefore, the decision under appeal, in which the opposition division came to the same conclusion is to be confirmed.

## **Order**

### **For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:

G. Nachtigall

H. Meinders