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Aktenzeichen / Case Number / N<sup>o</sup> du recours : T 89/87 - 3.2.2

Anmeldenummer / Filing No / N<sup>o</sup> de la demande : 80 200 932.4

Veröffentlichungs-Nr. / Publication No / N<sup>o</sup> de la publication : 26 954

Bezeichnung der Erfindung: Composite unstretched thermo-deformable plastics  
Title of invention: film and deepdrawn container shaped from said  
Titre de l'invention : plastics film

Klassifikation / Classification / Classement : B29C 17/03, B29D 9/00, B65D 1/28,  
B32B 27/08, C08J 7/04

**ENTSCHEIDUNG / DECISION**

vom / of / du 20 December 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet : WAVIN B.V.

Einsprechender / Opponent / Opposant : Unilever N.V.

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Articles 54(1), (2); 56

Schlagwort / Keyword / Mot clé : "Novelty (yes)" - "Inventive step (yes)" -  
"Erroneous disclosure in state of the art"

**Leitsatz / Headnote / Sommaire**

Case Number : T 89/87 - 3.2.2



**D E C I S I O N**  
of the Technical Board of Appeal 3.2.2  
of 30 December 1989

Appellant :  
(Opponent)

Unilever N.V.  
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Decision under appeal :

Decision of the Opposition Division of the European  
Patent Office dated 11 December 1986 rejecting  
the opposition filed against European patent  
No. 26 954 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : G. Szabo

Members : K. Stamm

P. Ford

## Summary of Facts and Submissions

- I. European patent No. 26 954 was granted on 6 July 1983 with 8 claims - relating to composite unstretched thermo-deformable plastics film and deepdrawn container shaped from said plastics film - in response to the European patent application No. 80 200 932.4, filed on 2 October 1980.
- II. An opposition was filed on 22 March 1984 against the granted patent. Revocation of the patent was requested on grounds of lack of novelty and inventive step on the basis of document FR-A-1 232 476 (1). The Opposition Division rejected the opposition in a decision of 11 December 1986.
- III. The Appellant (Opponent) filed a Notice of Appeal received on 7 February 1987 against the decision with the payment of the fee and submitted a Statement of Grounds on 13 April 1987 by telex, confirmed by letter received on 18 April 1987. The Appellant repeated the grounds against novelty and inventive step as presented during the opposition procedure, and referred to the same document (1). In his reply the Respondent (Proprietor of the patent) disagreed with these arguments and relied on the reasoning of the decision under appeal. He emphasized the character of the selection of conditions leading to an improved product.
- IV. Independent claims 1 and 5 read as follows:

"1. Composite unstretched thermo-deformable plastics film consisting of a polyolefin film (1) laminated with a polyvinylidene chloride or a vinylidene chloride copolymer layer (3) by means of an intermediate primer or adhesion layer (2), characterized in that the polyvinylidene chloride or the vinylidene chloride copolymer layer has a

thickness comprised between 5 and 7  $\mu\text{m}$  and the polyolefin film a thickness comprised between 250 and 1800  $\mu\text{m}$ ." (emphasis added)

"5. Deep-drawn shaped container, the said container being obtained by deep-drawing a composite unstretched plastics film consisting of a polyolefin film (1), laminated with a polyvinylidene chloride or vinylidene chloride copolymer layer (3) by means of an intermediate primer or adhesion layer (2), characterized in that the polyvinylidene chloride or the vinylidene chloride copolymer layer has a thickness comprised between 5 and 7  $\mu\text{m}$  and the polyolefin film a thickness comprised between 250 and 1800  $\mu\text{m}$ ."

- V. The Appellant requests that the contested decision be set aside and the patent be revoked. The Respondent requests rejection of the Appeal and that the patent be maintained in its present or, if necessary, in an amended form.

#### Reasons for the Decision

1. The Appeal is admissible.
2. **Interpretation**
  - 2.1 FR-A-1 232 476 (1) apparently mentions as lowest value 5  $\mu\text{m}$  for the thickness of the layer, as well as an overlapping range for the film-thickness of 250 to 1000  $\mu\text{m}$ .  
Were the former statement correct, the combination of these values could have been assessed as anticipated, and should be excluded from Claim 1.

The above value of 5  $\mu\text{m}$  for the layer (i.e. 0.005 mm in "résumé", points 7. and 9) is presented as follows in the document (1): "d'au moins environ 0.005 mm et de préférence

d'au moins environ 0.0025 à 0.050 mm." This is inconsistent in itself: "at least 0.005 mm and between 0.0025 to 0.050 mm" means that the lowest value has to be bigger than the lower end of the preferred additional indicated range. This is a contradiction: 5  $\mu\text{m}$  then is evidently not the lowest value. However the description appears to give the explanation for what is really meant: Page 5, left column, lines 38 ff, reads: ".. ait au moins 0.0005 mm d'épaisseur. Il peut même être encore plus désirable .., que cette couche ait une épaisseur comprise entre environ 0.0025 et 0.05 mm."

This statement in the description is thus fully consistent and does not raise any questions. It appears to resolve the above contradiction, and the inconsistent expressions have therefore to be replaced by the consistent ones. Thus it is to be concluded that "0.005 mm" (= 5  $\mu\text{m}$ ) is a misprint and "0.0005 mm" (=0.5  $\mu\text{m}$ ) is correct. The correction is such that the skilled reader would be expected to make it as a matter of course.

- 2.2 The Appellant expressed in his observations - responding to a Communication of the Board - the opinion that after reversing the crucial expression mentioned above, the value of 5 $\mu\text{m}$  would have the meaning of an advantageous value within the range of 2.5 to 50 $\mu\text{m}$ . The respective text - if such an argumentation is to be followed - would then have to be interpreted in the following way (units in  $\mu\text{m}$ ): "au moins environ 2.5 $\mu\text{m}$  et de préférence environ 5 à 50 $\mu\text{m}$ ". Such an interpretation is, however, still in conflict with the description as cited above where the clear statement is used that the minimal value is 0.5 $\mu\text{m}$  and the preferred range is between 2.5 and 50 $\mu\text{m}$ . The Appellant's observations therefore also accept the existence of an error but in the

Board's view their explanations appear artificial and by far less probable than the conclusions expressed under 2.1 (cf. T 13/83, Polyisocyanurate/ICI, OJ EPO, 1984, 428).

The value of 5 $\mu$ m is therefore not to be construed as disclosed in document (1). This manner of interpretation of the state of the art appears to be supported by the decision in Case T 77/87 - 3.3.1, 16 March 1989 (to be published).

### 3. Novelty

3.1 Document (1) discloses - the above clarification being taken into account - values for the relevant thickness (values of contested Claim 1 in brackets) as follows:

layer: min. 0.5, preferred 2.5 to 50  $\mu$ m (5 to 7)  
film: min. 25, preferred 250 to 1000  $\mu$ m (250 to 1800)  
min. 12, preferred 120 to 500  $\mu$ m.

However, in this document, the effects of these suggested ranges are not especially commented on. It is remarkable that the thickness of the layer is kept at the constant value of 25  $\mu$ m in the examples 1 to 6, whereas the thickness of the film has not been mentioned at all in specific cases. The document emphasizes the chemical aspects (composition, substances) and in the first line the various possibilities for the treatment of the surface of the layer.

3.2 According to the description in the patent, the purposive choice of conditions provides a combination of improved mechanical behaviour on the one hand, i.e. better bond between film and layer, together with improved impermeability on the other. The example illustrates these effects.

Consequently the selected range of 5 to 7  $\mu\text{m}$  for the layer, in combination with the - in itself not novel - range of 250 to 1800  $\mu\text{m}$  for the film, apparently defines embodiments having the particular identifying qualities mentioned above, which is not provided by the former broader range in document (1). (cf. T 198/84, "Thiochlorformiate/HOECHST", OJ 1985,209: "The subrange singled out ... represents a quantitative range which has not yet been individualised ..."). Whilst the mere restriction of the size of the range for the thickness of the layer would not itself be decisive on the question of novelty, as it was apparently assumed by the Opposition Division, the distinction between the properties of the selected set of embodiments and those of the cited art shows that the selected range is not a mere incidental sample of the original set (cf. T 198/84, Point 7).

- 3.3 These considerations are also supported by the fact that the extremity of the claimed range for the layer in the claim (7  $\mu\text{m}$ ) is much closer to the exemplified value than the distance between the same and the nearest example in the prior art (25  $\mu\text{m}$ ). Thus it is credible that all values of the range represent the new quality relied upon (cf. also T 198/84, Point 5).

Claim 1 therefore defines a new combination of copolymer layer and film having specific thicknesses.

#### 4. The problem and the solution

- 4.1 In view of disadvantages experienced with the nearest prior art, i.e. composites according to document (1), the technical problem to be solved was to prevent delamination during sterilization or during deepdrawing for forming a container of a desired shape. This problem was solved by the conditions specified in claim 1, involving a

restriction of the range for the thickness of the copolymer layer. The example in the case demonstrates a composite having the desired properties. Whilst the Appellant has contested the effectiveness of the claimed invention he has failed to substantiate his doubts, either during the opposition procedure or during the appeal.

- 4.2 In the view of the Board, a limitation in the thickness of the layer to a value between 5 and 7  $\mu\text{m}$ , influences the elastic and plastic behaviour of the total composite of film and layer and should affect the shearing stresses between the two elements. It therefore appears plausible that providing a narrowly selected range for the thickness of the layer represents an optimum, in view of the conditions to be complied with, namely low gas permeability and reduction of delaminating tendencies.

Therefore, the Board is of the opinion that the problem is effectively solved by the features of claim 1.

## 5. Inventive step

- 5.1 In document (1), an improved adhesion between layer and film was the basic aim. Certain thickness-ranges had been assumed, but there is no explanation in respect of the contribution of their respective values to the effect looked for. Contrary to the contested patent in suit the emphasis was on effects activating the contacting surface (page 3, lines 15 ff: "... activer la surface ... afin de créer une non-saturation chimique..."). As regards the six examples, the thickness of the layer was kept constant at a value of 25  $\mu\text{m}$  without mentioning the relevance of this or other values to the mechanical properties of the composite, in particular to the strength of the bond.



- 5.2 Therefore the recognition of the problem of delamination under the specified conditions also contributes to the inventive idea, since the risk of this was not fully taken into account or was neglected previously in respect of such composites. The doubts expressed by the Appellant that the problem of delamination did not exist at all, are unconvincing, since it was not unknown in the state of the art to discover that delamination between various layers of a composition might occur because of inadequate adhesion.
- 5.3 As regards the unexpected character of the particular choice, the Respondent referred to experiments showing a high oxygen permeability and delamination during sterilization at high temperatures for a composite film comprising a layer of 3  $\mu\text{m}$  and a film of 800  $\mu\text{m}$ . It was, on the other hand, found that using in such composite a layer with a thickness of 9  $\mu\text{m}$  instead of 3  $\mu\text{m}$ , gas permeability was sufficiently low but delamination still occurred during deepdrawing and also during high temperature sterilization. This demonstrated that the advantageous properties were only provided within the claimed range.
- 5.4 It is also apparent from the earlier statements that finding a technically coordinated relationship between a very narrow range for the thickness of the layer and a wider range for the thickness of the film, and the mentioned advantageous properties were neither suggested in nor were they derivable from document (1), and thus could not have been obvious to the skilled man.
6. Claim 1 complies with Article 56 EPC; its subject-matter involves an inventive step and is patentable in respect of Article 52 EPC. The same applies to independent Claim 5 which relates to a container made from such inventive composites.

No objection can be seen to dependent Claims 2 to 4 and 6 to 8.

Order

For these reasons, it is decided that:

The Appeal is dismissed.

The Registrar:

The Chairman:



S. Fabiani



G. Szabo

18.12.89 *Sm*  
*Pf.*