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File Number: T 603/90 - 3.4.2

Application No.: 83 100 438.7

Publication No.: 0 084 851

Title of invention: Process for preparing an overcoated photopolymer printing  
plate

Classification: G03F 7/16, G03F 7/02

**D E C I S I O N**  
of 19 August 1992

Proprietor of the patent: E.I. Du Pont De Nemours and Company

Opponent: 01 Hoechst Aktiengesellschaft, Frankfurt (Main)  
02 BASF AG, Ludwigshafen

Headword:

EPC Article 56, 83, 123(2) and (3)

Keyword: "Inventive step, sufficiency - Yes"  
"Added subject-matter, extended protection - No"



Case Number : T 603/90 - 3.4.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 19 August 1992

**Appellant :**  
(Opponent 02)

BASF Aktiengesellschaft, Ludwigshafen  
Patentabteilung - C6  
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**Representative :**

**Respondent :**  
(Proprietor of the patent)

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**Representative :**

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**Other party :**  
(Opponent 01)

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**Decision under appeal :**

Interlocutory decision of the Opposition Division  
of the European Patent Office dated 23 May 1990  
concerning maintenance of European patent  
No. 0 084 851 in amended form.

**Composition of the Board :**

**Chairman :** E. Turrini  
**Members :** C. Black  
L.C. Mancini

## Summary of Facts and Submissions

- I. Following opposition by Hoechst AG (Opponent 01) and BASF AG (Opponent 02), European patent No. 0 084 851 (application No. 83 100 438.7) was maintained in amended form. The decision of the Opposition Division was based on the single claim presented at the oral proceedings dated 25 January 1990, which reads as follows:

"A process for preparing flexographic photopolymerizable elements which comprises passing into the nip of a calender by an extruder a mass of a photopolymerizable composition comprising an elastomeric binder, an ethylenically unsaturated compound having at least one terminal ethylenic group, and a photoinitiator or photoinitiator system, and calendaring the photopolymerizable composition between a support and a multilayer cover element to form a photopolymerizable layer therebetween, characterised in that the multilayer cover element consists essentially of a flexible cover film, optionally a flexible polymeric film, and a layer of an elastomeric composition comprising an elastomeric polymeric binder and, in addition, a second polymeric binder which is non-elastomeric and optionally a non-migratory dye or pigment, wherein said elastomeric composition layer is photosensitive or becomes photosensitive during or after calendaring by contact with the photopolymerizable layer."

- II. The gist of the Opposition Division's argumentation was that the combination of the specific calendaring step and the facts that the elastomeric composition comprises a second polymeric binder which is non-elastomeric and that the element contains two different photosensitive layers, was not derivable from any combination of the sixteen documents cited in the opposition proceedings.

III. Opponent 02 appealed against this decision, Opponent 01 remaining silent.

IV. At the end of oral proceedings, the Appellant requested that the decision under appeal be set aside and the patent be revoked.

The Respondent (Patentee) requested that the appeal be dismissed and the patent maintained on the basis of Claims 1 and 2 filed at the oral proceedings. Of these claims, Claim 1 is identical to that quoted in paragraph I above; Claim 2, which is appendant to Claim 1 reads:

"A process according to Claim 1 wherein said elastomeric layer is about 0.013 to 0.51 mm thick."

The Respondent further submitted an amended description to conform to Claim 1.

V. The documents which will be referred to in this decision are identified as follows:

D3: US-A-4 323 637  
D3': DE-A-2 215 090  
D5: DE-A-2 942 183  
D11: DE-A-2 856 282.

VI. The Appellant's written and oral argumentation may be summarised as follows:

As compared with the granted patent, present Claim 1 has been amended in such a way as to infringe Article 123(3) EPC. It now contains as an essential feature the presence of a second polymeric binder in the elastomeric composition, which binder is non-elastomeric. This second

polymeric binder was originally an optional constituent and did not even require to be non-elastomeric. As a result of the introduction into Claim 1, as features essential to the invention, of features taken from the description which were originally disclosed as non-essential, the legal certainty which Article 123(3) EPC is intended to create is not achieved.

Further the requirement of Article 83 EPC is not met. The invention as now claimed cannot be said to have been originally disclosed in a manner sufficiently clear and complete, because features now essential were originally disclosed as being optional. This defect is not rectified by amendment of the description to make it consistent with the claim, in particular the deletion of the list of examples of the second polymeric binder, which examples included elastomeric binders, because the character of the disclosure is completely altered.

The gist of the Appellant's argumentation in respect of inventive step is that D5 discloses a multilayer element having the same structure as that obtained by the process according to Claim 1, and that the process features required by Claim 1 are known or obvious from D5. In particular, contrary to the opinion of the Opposition Division, the two photopolymerisable layers disclosed in D5 may be different, in that the hardness of the layers can be controlled by addition of softeners or the like and that to achieve particular printing properties layers of different hardness and composition can be used. The various layers can be prepared inter alia by extrusion or calendering and page 12 refers to a single process step. While it could be argued that D5 does not suggest passing the composition for the first photopolymerisable layer from an extruder into the nip of a calender, this is a known measure which was proved to be such by the present

Patentee during oral proceedings in opposition procedure on EP-A-0 080 665. The Appellant further argues that it is doubtful if the problem of the "orange peel" effect, which is one of the problems underlying the invention, is solved by the features of Claim 1. The Appellant has repeated the process disclosed in D3/D3', stated in the description of the patent in suit to result in an element showing this effect, and found that it does not occur. The effect can as well be ascribed to the subsequent treatment of the element, e.g. to swelling because of the developing solvent used.

- VII. The Respondent's counter-arguments are that the amendments to Claim 1 have a basis in the description and constitute a limitation in the scope of the claim. The amendments to the description bring this into conformity with the claim.

The problem which is the basis of the present invention is that printing plates prepared as disclosed in D3/D3' show the defects of surface streaks, arising from flaws in the extruder lips, and the orange peel effect (a mottled appearance on the relief surface). D5 and D11 give no indication of these problems and therefore give no suggestion as to a solution. In this respect the additives which lead to one photopolymerisable layer different from the other in D5 are processing additives to control the hardness of the layer in question, not to eliminate the orange peel defect. It is agreed that the combination of extrusion and calendaring is well known. It is however not obvious that the surface streak and orange peel defects can be eliminated by the particular process steps of Claim 1 when the various layers have the constitution specified in Claim 1. The average skilled person, noting

the occurrence of the said defects, might attribute it to the extrusion and calendering steps, and would therefore look to a different process for the solution.

The fact is that the plates made by the process disclosed in D3/D3' show the surface streak and orange peel defects; those made by the process according to Claim 1 do not.

### Reasons for the Decision

1. The appeal is admissible.
2. The Appellant's objections under Article 83 and Article 123 EPC can be dealt with together.
  - 2.1 As compared with Claim 1 as granted, Claim 1 now under consideration includes the features that the photopolymerisable composition is passed into the nip of a calender by an extruder, and that the elastomeric composition which is to provide one layer of the multilayer cover element comprises a second polymeric binder which is non-elastomeric. The feature concerning the extruder was derived from original Claim 2 and no problem arises here. As regards the feature of the non-elastomeric second polymeric binder, in the first place this can be seen as a limitation on the scope of the claim, and therefore as not contravening Article 123(3) EPC because the amendment has not extended the protection conferred. It is true that this feature was not the subject-matter of any dependent claim, and it is also true that in the description it was originally disclosed as an optional feature ("which can be" on page 16, lines 27 and 28 of the original description), as indeed was the second binder (also page 16, line 27 of the original description). Nevertheless the possibility that the

coating composition could include a second binder which was a non-elastomeric polymer was embraced by the original disclosure, so that there is a basis for the amended claim and there is also no infringement against Article 123(2) EPC.

2.2 In respect of the Appellant's objection under Article 123(3) EPC it is observed further that the situation here has to be distinguished from that in which features are taken from the description into a claim in such a way as to create a different invention, in that the scope of the claim has been laterally shifted to embrace matter lying outside the boundary of the original claim. In the present case the amended claim falls wholly within the bounds of the granted claim. A useful test is that amendment is not allowable if as a result, what was before amendment a non-infringing situation becomes after amendment an infringing one. This is clearly not the case here.

2.3 As regards the objection under Article 83 EPC, the invention now claimed was originally disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. It is true that some of the features of present Claim 1 were originally disclosed as optional; this does not alter the fact that the original description included the instructions how to carry out the invention as now claimed.

2.4 The Appellant further objects to the amendments made to the description to bring it into conformity with the amended claims. This is taken by the Board to be an objection under Article 123(2) EPC in that, in effect, the information content of the description has been substantially altered as compared with the original. The Board cannot follow this line of argument. It is perfectly



usual, and indeed necessary, when claims have been amended during opposition procedure, for the description to be amended for conformity, with due regard to the requirement of Article 123(2) EPC. This is all that has happened here.

- 2.5 The said objections under Articles 83 and 123 EPC were raised for the first time during the oral proceedings and therefore constitute facts and evidence not submitted in due time which may be disregarded under Article 114(2) EPC. However, the Board has taken the view that the Appellant's objections could not be so lightly dismissed. In support of its finding that Article 123(2) and (3) EPC is not contravened, the Board would add that the addition to Claim 1 of the feature that the elastomeric composition comprises additionally a second polymeric binder which is non-elastomeric is not just an arbitrary amendment, because the said feature, although originally described as optional on page 16, lines 27 and 28, occurred in all of the Examples, in particular in Examples 1 and 2 which remain in the present description. In this respect the Board is satisfied that the tetrapolymer disclosed in the Examples is non-elastomeric because of the relatively high proportion of methylmethacrylate monomer.
- 2.6 In support of his contention, the Appellant referred to Decision T 133/85 (OJ EPO 1988, 441). However this decision relates to the opposite situation, namely, the non-allowability of amendment of the description by deletion of a feature originally disclosed as being essential in order to support a broad claim lacking this feature.
- 2.7 In summary the Board sees in the amended specification no contravention of Articles 83 and 123 EPC.

3. Novelty of the present Claim 1 is not an issue. In any case novelty can be recognised as will be apparent from the discussion of inventive step.
  
4. The question of inventive step can be approached from two starting points, D3' or D5. D3' is equivalent to D3 which is referred to on page 2 of the description (patent specification in suit) but which is published after the priority date of the patent in suit. The description in D3' does not correspond exactly to that of D3, but it is not disputed that its disclosure corresponds to the prior art portion of Claim 1, and the Board agrees that this applies at least in respect of Example 13 of D3'.
  - 4.1 According to the description in the patent in suit, the printing plates prepared by the process disclosed in D3/D3' suffer from the disadvantages set out on page 2, lines 16 to 32. Firstly imperfections in the extrusion die lip cause scores in the extruded film which are covered but do not disappear on calendering, and reappear as surface streaks on the printing surface after development. Further, during calendering the flexible polymeric layer in contact with the relatively hard photopolymer layer melts or flows causing rough or smudge areas in the photopolymer layer which may appear in the final printing plate. This is described on page 8, line 25 of the patent specification in suit as the "orange peel" defect which is mottle on the relief surface.
  
  - 4.2 Starting from D3/D3' therefore the problem which is the basis of the invention can be seen as providing a method of preparing flexographic photopolymerisable elements which avoids these defects.
  
  - 4.3 In the Board's view both defects will be recognisable by the skilled person when preparing and using the printing

plates according to the teaching of D3/D3'. Therefore no contribution to an inventive step can be seen in the recognition of the problem.

The pertinent teaching of D3/D3', corresponding as indicated above to the prior art portion of Claim 1, is that there is passed into the nip of a calender by an extruder a mass of a polymerisable composition comprising an elastomeric binder, an ethylenically unsaturated compound having at least one terminal ethylenic group, and a photoinitiator or photoinitiator system, and calendering the photopolymerisable composition between a support (A) and a multilayer cover element (C, D) to form a photopolymerisable layer (B) therebetween. (Identification A, B, C, D introduced by the Board.)

- 4.4 The subject-matter of Claim 1 differs in that the process is so carried out that the multilayer cover element consists essentially of a flexible cover film (D), optionally a flexible polymeric film, and a layer (C) of an elastomeric composition comprising an elastomeric polymeric binder and, in addition, a second polymeric binder which is non-elastomeric and optionally a non-migratory dye or pigment, wherein said elastomeric composition layer is photosensitive or becomes photosensitive during or after calendering by contact with the photopolymerisable layer. The result of the process is a basic structure A, B, C, D in which A is a support layer and the surface of C which faces D becomes the printing surface.
- 4.5 Of the said differences, the most significant is that the elastomeric composition providing layer C comprises a second polymeric binder which is non-elastomeric and is either photosensitive or potentially so.

The question arises therefore whether the average skilled person, seeking to avoid the surface streak and orange peel defects, would employ the measures corresponding to these differences and at the same time seek to retain the advantages of the extrusion and calendering process. In the Board's opinion it would be within his competence to establish that the surface streak defect was due to imperfections in the extrusion die; having done so however it seems more than likely that he would attempt to improve the extrusion step or else abandon it altogether.

- 4.6 As regards the orange peel defect it is less certain that the average skilled person will pin-point its source, and in view of what has been said about the surface streak defect, the Board concludes that he would not arrive at the subject-matter of Claim 1 by combining his common general knowledge with the teaching of D3/D3'.
- 4.7 The Appellant starts from D5 in attacking inventive step and the Opposition Division in its decision also took D5 to be the closest prior art. D5 discloses a process for preparing flexographic photopolymerisable elements which can have a similar structure A' B' C' D'. According to Example 2, B' and C' are the same and are photopolymerisable. However according to page 12, lines 2 to 4, layers of different hardness and composition may be employed and page 9, lines 27 to 31 indicates how the hardness of a layer may be increased by employing additives which appear to fall within the scope of the term non-elastomeric polymeric binder. In Example 2, the element is formed by coating B' on A' and C' on D', then A' B' and C' D' are laminated together. However, according to page 12, lines 4 to 6, structures containing two photopolymerisable layers (see page 11, line 32 to page 12, line 1) can also be formed in one process step by inter alia calendering.

4.8 Therefore to arrive at the subject-matter of the claim from the disclosure in D5, the skilled person has to start from Example 2, and modify the described process by applying the teaching of page 12, lines 2 to 4 (layers of different hardness) and further to select layer C' as the one which should incorporate the additives mentioned on page 9, lines 27 to 31. He then has to elect, not only to use calendaring as indicated on page 12, lines 4 to 6, but also to carry this out in a specific way, i.e. first of all coat C' on D' then calender B' directly from an extruder, between A' and C' D'. All this involves a combination which is not disclosed explicitly or implicitly in D5, so that the subject-matter claimed is clearly novel over D5. Moreover, there is no indication to the average skilled person to employ this combination.

It could be argued that since layer C' is to provide the printing surface, it would be obvious to adjust its hardness appropriately, and an indication to do this might be said to be found in D11, which also discloses a printing element with two adjacent photopolymer layers, which layers have different hardnesses. However this is to overcome problems associated with the use of liquid photopolymer layers, and would not lead the average skilled person in any way towards the specific combination of steps required by Claim 1. Therefore the subject-matter of Claim 1 is not obvious from the teaching of D5 alone, or in combination with D11.

4.9 Moreover neither D5 nor D11 discloses or suggests the surface streak or orange peel defects and for the average skilled person there is no reason to select any isolated piece of disclosure from these documents to combine with the teaching of D3/D3' so as to overcome these defects.

- 4.10 It will be noted from the foregoing that the Board does not agree with the finding of the Opposition Division (paragraph bridging pages 5 and 6 of the decision) that D5 does not disclose an arrangement having two photopolymerisable layers of different compositions. However the absence of a difference between the patent in suit and the disclosure in D5 in this respect would not lead to any other conclusion than that the subject-matter of Claim 1 is inventive over D5.
5. During the oral proceedings, the parties presented conflicting evidence as to whether, in reproducing the teaching of D3/D3', the orange peel defect necessarily occurs. This can be resolved in favour of the Respondent, who produced a sample showing this defect. According to page 2 of the description of the patent in suit, page 2, lines 21 and 22, "these rough areas may appear in the final flexographic printed plate". It is therefore not precluded that the process disclosed in D3/D3' can sometimes yield plates which do not show the orange peel defect.
6. Accordingly the grounds for the appeal do not prejudice the maintenance of the patent in amended form.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the patent in amended form, on the basis of Claims 1 and 2 and description as filed at the oral proceedings.

The Registrar:

The Chairman:

P. Martorana

E. Turrini