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Aktenzeichen / Case Number / N<sup>o</sup> du recours : T 214/87 - 3.3.1

Anmeldenummer / Filing No / N<sup>o</sup> de la demande : 81 300 353.0

Veröffentlichungs-Nr. / Publication No / N<sup>o</sup> de la publication : 0 036 702

Bezeichnung der Erfindung: Photographic film bases

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G03C 1/80

### ENTSCHEIDUNG / DECISION

vom / of / du 24 October 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /

Titulaire du brevet :

Imperial Chemical Industries PLC

Einsprechender / Opponent / Opposant :

Hoechst AG

Stichwort / Headword / Référence : Coated film base/ICI

EPO / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step (confirmed)"

Leitsatz / Headnote / Sommaire



Case Number : T 214/87 - 3.3.1

DECISION  
of the Technical Board of Appeal 3.3.1  
of 24 October 1990

**Appellant :** Imperial Chemical Industries PLC  
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**Representative :** Arnold, Graham Donald  
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**Respondent :** Hoechst AG  
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**Representative :**

**Decision under appeal :** Decision of the Opposition Division of the European  
Patent Office of 10 February 1987 posted on  
10 April 1987 revoking European patent No. 0 036 702  
pursuant to Article 102(1) EPC

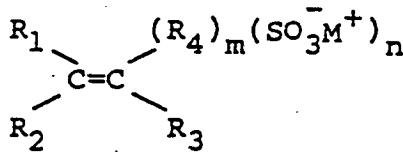
**Composition of the Board :**

**Chairman :** K. Jahn  
**Members :** J. Jonk  
R. Schulte

Summary of Facts and Submissions

I. The grant of European patent 36 702 in respect of European patent application No. 81 300 353.0 was announced on 23 January 1985 (cf. Bulletin 85/04). The patent is based on fourteen claims, Claim 1 reading as follows:

"A coated film base suitable for coating with a light-sensitive photographic emulsion layer, said base comprising a self-supporting film of a synthetic linear polyester and a continuous subbing layer applied to at least one surface of said self-supporting film, wherein the subbing layer comprises a water-insoluble copolymer of a) styrene or a derivative of styrene and b) a comonomer selected from acrylic acid, methacrylic acid or a derivative of acrylic acid or methacrylic acid characterised in that said copolymer additionally comprises c) a copolymerisable sulphonated ethylenically unsaturated comonomer having the general structure:



wherein R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> are the same or different and represent hydrogen, halogen, alkyl, nitrile, amide, amine, ketone, ether or vinyl;

R<sub>4</sub> represents alkylene, carbonyl, naphthylene, substituted naphthylene or vinylene;

M represents hydrogen, ammonium, substituted ammonium or an alkali metal and is preferably lithium, potassium or sodium;

m represents 1 or 0;

n represents an integer 1, 2 or 3 provided that  $n = 1$  when  $m = 0$ , said comonomers a), b) and c) being present in the respective molar percentages in the range a) 33.3 to 90%, b) 5 to 65% and c) 1 to 40%."

II. A Notice of Opposition was filed on 21 October 1985 requesting revocation of the patent on the ground that its subject-matter did not involve an inventive step. The opposition was supported by several documents including

(1) GB-A-1 540 067

(2) GB-A-2 012 777

which are relevant to the present decision.

III. By a decision delivered orally on 10 February 1987, with written reasons posted on 10 April 1987, the Opposition Division revoked the patent. The Opposition Division concluded that, although its subject-matter was novel, neither the claims as granted nor the more restricted alternative sets of claims involved an inventive step in the light of the combined teachings of documents (1) and (2), because, if a skilled person would seek to improve the anti-static properties of the subbing copolymer of the coated film base disclosed in document (1), he would try to find alternative anti-static agents for the subbing copolymers and in looking for such agents he would find them in document (2) which discloses anti-static comonomers for similar copolymers being useful for coating polyester films.

- IV. A Notice of Appeal was filed against this decision on 5 June 1987 and the appeal fee was paid on the same date.

A Statement of Grounds of Appeal was submitted on 5 August 1987.

- V. The Appellant proceeded with claims according to a standing auxiliary request wherein Claim 1 differed from that as granted in that "copolymerisable" was replaced by "copolymerised" and "naphthylene or substituted naphthylene" was deleted from the meaning of R<sub>4</sub> in the formula.

He contended that the subject-matter of the claims involves an inventive step because document (1) leads away from the concept of the present invention in that a superior anti-static effect is only achieved with a non-sulphonated comonomer (example 18 of this citation) in comparison with a sulphonated anti-static agent (example 12). In addition, it was not obvious to replace the anti-static sulphonated aromatic compounds disclosed in document (1) by specific aliphatic sulphonated compounds disclosed in document (2) because these aliphatic sulphonated compounds are apparently less effective than sulphonated aromatic vinyl compounds and vinyl compounds having a quaternary ammonium salt component.

Finally, on 5 October 1990, the Appellant submitted a Test Report which was said to demonstrate a surprising improvement vis-à-vis the subject-matter of document (1).

- VI. The Respondent concurred essentially with the argumentation of the Opposition Division. In particular, it was considered that document (1) discloses in example 12 the use of an anti-static sulphonated compound providing a photographic film base with excellent adhesion properties. In searching for further anti-static agents in

order to improve the insufficient anti-static properties, a skilled person would find document (2) which discloses the use of anti-static vinyl comonomers having a sulphonate or a quaternary ammonium salt component in similar copolymers and he would likely select sulphonated comonomers, because it is already known from document (1) that a quaternary ammonium salt as a comonomer provides a subbing copolymer with insufficient adhesion properties. The further selection of the specific aliphatic sulphonated comonomers by testing them does not involve any inventive skill.

VII. During the oral proceedings held on 24 October 1990 the Respondent did not object to the fact that the belated Test Report would be taken into account. He also admitted on the basis of the results in this report that the subject sulphonated comonomers (component c) provide both an improvement of the adhesion characteristics and an improvement of the anti-static performance in comparison with an essentially aromatic sulphonate (sodium styrene sulphonate) as proposed in document (1). Nevertheless, this effect was considered obvious in the light of document (2) in accordance with his argumentation as summarised above.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the documents filed during the oral proceedings, comprising the claims of the standing auxiliary request and a description brought into conformity with these claims.

The Respondent requested that the appeal be dismissed.

IX. At the conclusion of the oral proceedings, the Board's decision to allow the appeal was announced.

## Reasons for the Decision

1. The appeal complies with Articles 106-108 and Rule 64 EPC and is, therefore, admissible.
2. The only issue to be dealt with is whether the subject-matter of the claims involves an inventive step.
  - 2.1 The Board concurs with the opinion of the first instance that document (1) represents the closest state of the art.

This document discloses a photographic film base suitable for coating with a light-sensitive photographic emulsion, which comprises a self-supporting plastic film and a subbing polymer layer (see Claim 1). The plastic film may be a film of a linear polyester (see page 2, lines 5-21) and the subbing polymer layer may comprise a copolymer of styrene and/or a styrene derivative and a comonomer selected inter alia from acrylic or methacrylic acid and their derivatives (see page 2, lines 111-130). Anti-static agents may be included in the polymeric subbing layer, such as a sulphonated styrene derivative, lithium nitrate, dimethylaminoethylmethacrylate and a naphthalene sulphonic acid/formaldehyde condensate (see page 2, lines 95-101; page 3, lines 3-9; and the examples 2, 5, 8, 12 and 18).

As demonstrated by the Appellant's Test Report and the examples in document (1), the properties of the subbing layer of this prior art photographic film base in relation to both the adhesion and the anti-static effect is not entirely satisfactory.

- 2.2 In the light of this closest state of the art, the technical problem underlying the subject patent may be seen in providing a coated film base suitable for coating with a light-sensitive photographic emulsion layer

comprising a subbing layer having good adherence properties allied with good anti-static properties.

- 2.3 According to Claim 1, this technical problem is solved by the specific selection of comonomers (c) as defined in the characterising part of the claim.

In view of the examples in the patent and the results in the Test Report filed on 5 October 1990, the Board is satisfied that the above technical problem is credibly solved. Also the Respondent accepted the positive effects of the selected comonomers (c).

- 2.4 In the Board's view, the cited prior art does not provide any indication that would lead a skilled person to the solution of the technical problem.

- 2.5 Document (1) discloses the possibility to improve the anti-static properties of the subbing layer by the incorporation in the subbing copolymer of a sulphonated styrene comonomer (see page 2, lines 95-110). However, the Appellant showed in the Test Report that the incorporation of such a sulphonated aromatic comonomer (sodium styrene sulphonate), although conferring good anti-static properties, destroys the dry adhesive characteristics of the product. Document (1) also discloses that the incorporation of the naphthalene sulphonic acid/formaldehyde condensate in the subbing copolymer provides excellent adhesion properties but insufficient anti-static properties (see example 12). Moreover, it is disclosed in this document that the incorporation of neutralised dimethylaminoethylmethacrylate provides better overall properties in comparison with these sulphonated compounds, namely good anti-static properties and satisfactory wet and dry adhesions (see example 18). Therefore, in the Board's view, this document does not give the skilled person an incentive to find the solution of the technical problem in the replacement of the known

anti-static agents by other sulphonated compounds. Regarding the test results of example 18 it would appear more promising to search for better anti-static agents within the group of ammonium salt compounds.

2.6 Document (2) is concerned with coating compositions for forming coatings having heat seal properties and anti-static properties and also possessing transparency, anti-blocking properties, slipping properties and resistance to weather and water (cf. page 1, lines 38-41). The coating compositions are especially useful for coating plastic films, inter alia, polyester films, which are used for wrapping, for example, tobacco, caramels and chocolates by a high-speed automatic packaging machine of the overlap type (cf. page 4, lines 20-49). While the anti-static aspect is common to both the disputed patent and document (2), the Board cannot see any technical link between the other important requirements of the coatings of document (2) to be sealable by heat (cf. page 1, lines 29-37) and the object of the disputed patent to provide good adherence to both the supporting polyester film and the photosensitive layer. In view of the fact that document (2) is concerned with a technical problem which is essentially not comparable with that of the disputed patent, the skilled person faced with the existing problem would likely have disregarded the teaching of document (2).

2.7 However, even in the case that the skilled person would have taken the teaching of document (2) into consideration, the combined teaching of documents (1) and (2) would not provide him with the incentive to use the subject comonomers (c) as defined in Claim 1. Document (2) discloses namely as suitable anti-static agents vinyl monomers having an ammonium salt component, sulphonated styrene derivatives and aliphatic sulphonated vinyl monomers (cf. page 2, lines 3-17). Especially preferable among these comonomers are 2-hydroxy-3-

methacryloxypropyltrimethylammonium chloride and sodium or ammonium p-styrene sulphonate (cf. page 2, lines 18-21 and the examples, particularly Table 1). These preferred comonomers are, however, essentially the same as the anti-static comonomers proposed in document (1) (see under point 2.5 above). Therefore, the skilled person would have regarded the teaching in document (2) as not more relevant than the teaching in document (1) which represents the closest state of the art. In this connection it is observed that the disclosed group of aliphatic sulphonated vinyl compounds which comprises a part of the subject anti-static comonomers (c) is apparently less preferred because document (2) does not disclose any concrete representative of this group. Therefore, in the light of the whole disclosure in document (2), the skilled person would not expect any improvement by using such an aliphatic vinyl comonomer with respect to the aromatic sulphonated comonomers or the ammonium compounds.


- 2.8 Consequently, in the Board's judgement, the proposed solution to the technical problem underlying the patent in suit is inventive. Thus, Claim 1 and also independent Claims 10, 11 and 13, which are based on the same inventive concept, are allowable. Dependent Claims 2-9, 12 and 14, which relate to preferred embodiments claimed in the independent claims, are also acceptable.

Order

For these reasons, it is decided that:

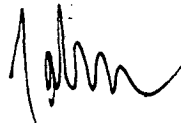
1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to maintain the European patent with Claims 1-4 and description, both submitted during oral proceedings.

The Registrar:



E. Görgmaier

The Chairman:



K.J.A. Jahn