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**Datasheet for the decision
of 4 February 2014**

Case Number: T 0579/12 - 3.3.09
Application Number: 01304187.6
Publication Number: 1153964
IPC: C08J7/04, C08L101/14,
A61M1/14, G02B1/04, A61L29/00
Language of the proceedings: EN

Title of invention:

Surface-treated optical article of plastics material and
method of surface treatment

Patent Proprietor:

Johnson & Johnson Vision Care, Inc.

Opponent:

Novartis AG

Headword:

Relevant legal provisions:

EPC Art. 54, 56, 83, 123(2)
RPBA Art. 12(4)

Keyword:

Late-filed evidence - admitted (no)
Amendments - added subject-matter (no)
Sufficiency of disclosure - (yes)
Novelty - (yes)
Inventive step - (yes)

Decisions cited:

T 0608/07

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 0579/12 - 3.3.09

**D E C I S I O N
of Technical Board of Appeal 3.3.09
of 4 February 2014**

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
15 December 2011 concerning maintenance of the
European Patent No. 1153964 in amended form.**

Composition of the Board:

Chairman: W. Sieber
Members: J. Jardón Álvarez
K. Garnett

Summary of Facts and Submissions

- I. This decision concerns the appeals filed by the patent proprietor (Johnson & Johnson Vision Care, Inc.) and the opponent respectively against the interlocutory decision of the opposition division that European patent EP-B-1 153 964, as amended, meets the requirements of the EPC.
- II. Notice of opposition had been filed by Novartis AG requesting revocation of the patent in its entirety based on the grounds that the claimed subject-matter was neither novel nor inventive (Article 100(a) EPC), that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC) and that the patent contained subject-matter which extended beyond the content of the application as filed (Article 100(c) EPC).

The documents cited during the opposition proceedings included:

- D1: Comparative Experiments relating to EP 1 153 964 B1, (4 pages);
- D3: WO 99/35520 A1;
- D4: US 5 882 687 A;
- D5: US 4 168 112; and
- D6: WO 01/94454 A1.

- III. The interlocutory decision of the opposition division announced orally on 29 November 2011 and issued in

writing on 15 December 2011 was based on a main request and five auxiliary requests all filed with letter dated 27 October 2011.

IV. The opposition division rejected the then pending main request and auxiliary requests 1 to 4 for lack of compliance with the requirements of Article 84 EPC, essentially because the disclaimer introduced into claim 1 of each request was not clearly formulated.

V. On the other hand, the opposition division found that the claims of the then pending auxiliary request 5 fulfilled the requirements of the EPC. Independent claims 1 and 11 of this request read as follows:

"1. A method for surface treatment of a plastic optical article, the method comprising a first step of immersing the plastic optical article in an aqueous solution of a first carboxyl functional polymer having a weight average molecular weight of 200 or more, wherein the aqueous solution has a pH of 4 or less, and a second step of immersing the article in an aqueous solution of a second polymer having a weight average molecular weight of 200 or more, wherein said second polymer is a non-ionic water soluble polymer."

"11. A surface-treated plastic optical article comprising a plastic article of a base material and having, on a surface thereof, a layer of a first polymer complex obtainable by immersing the plastic optical article in an aqueous solution of a first carboxyl functional polymer having a weight average molecular weight of 200 or more, wherein the aqueous solution has a pH of 4 or less, and also a second polymer complex formed with the first polymer and a second polymer which is a non-ionic water soluble

polymer having a weight average molecular weight of 200 or more."

Claims 2 to 10 and 12 to 20 were dependent claims.

The opposition division found that, independently from the properties achieved by the claimed method, (a) claim 1 met the requirements of sufficiency of disclosure; (b) that the subject-matter of claim 1 was novel because D6 did not unambiguously disclose a link between the preferred pH cited in the description and the specific example cited by the opponent; (c) that the subject-matter of claim 11 was also novel over D4 and D5 because in these documents the treatment had been made at a different pH and the opponent had failed to demonstrate that the pH had no influence on the final product; (d) and that the claimed subject-matter involved an inventive step starting from D3 as closest prior art.

VI. Appeals against this decision were filed on 22 February 2012 by the patent proprietor, and on 24 February 2012 by the opponent. The respective appeal fees were paid in due time.

As the patent proprietor and the opponent are both appellant and respondent in these appeal proceedings, for simplicity the board will continue to refer to them as the patent proprietor and the opponent.

VII. In its statement of ground of appeal filed on 24 April 2012 the opponent requested that the decision under appeal be set aside and the patent be revoked. The opponent also filed the following documents and experimental evidence:

- D14: V.V. Khutoryanskiy, "Hydrogen-bonded interpolymer complexes as materials for pharmaceutical applications", *International Journal of Pharmaceutics* 334 (2007), pages 15-26;
- D15: E. Tsuchida *et al.*, "Formation of Interpolymer Complexes", *Journal of Macromolecular Science, Part B: Physics* 17:4 (1980), pages 683-714;
- D16: L. Iliopoulos *et al.*, "Influence of Concentration, Molecular Weight and Degree of Neutralization of Polyacrylic Acid on Interpolymer Complexes with Polyoxyethylene", *Polymer Bulletin* 13 (1985), pages 171-178;
- D17: Y. Osada *et al.*, "Thermal equilibrium of the intermacromolecular complexes of polycarboxylic acids realized by cooperative hydrogen bonding", *Polymer Letters Edition*, vol. 14 (1976), pages 129-134;
- D18: M.J. Krupers *et al.*, "Complexation of poly(ethylene oxide) with poly(acrylic acid-co-hydroxyethylmethacrylate)s", *Eur. Polym. J.*, vol. 32 No. 6 (1996), pages 785-790;
- D19: Y. Osada, "Equilibrium Study of Polymer-Polymer Complexation of Poly(methacrylic Acid) and Poly(acrylic Acid) with Complementary Polymers through Cooperative Hydrogen Bonding", *Journal of Polymer Science: Polymer Chemistry Edition*, vol. 17 (1979), pages 3485-3498;
- D20: M. Fujiwara *et al.*, "Characterization of pH-Dependent Poly(acrylic Acid) Complexation with

Phospholipid Vesicles", Journal of Colloid and Interface Science 185 (1997), pages 210-216; and

D21: Experimental report in the form of a declaration by Y. Matsuzawa dated 20 April 2012 (10 pages).

VIII. In its statement of grounds of appeal filed on 25 April 2012 the patent proprietor requested maintenance of the patent on the basis of the claims of the main request as filed on 27 October 2011 before the opposition division, or on the basis of the newly-filed auxiliary requests 1, 2, 3A, 3B, 3C, 4A, 4B or 4C.

IX. Replies to the appeals were filed by the opponent on 7 September 2012 and by the patent proprietor on 17 September 2012. The patent proprietor filed a further submission on 24 January 2013 including an amended main request, amended auxiliary requests 1 and 2, and new auxiliary requests 5A, 5B and 5C. The following further documents were also filed:

D22: WO 2010/039653 A1; and

D23: Experimental report of Douglas Vanderlaan, (4 pages).

X. In response to the board's communication, issued on 31 October 2013 in preparation for the oral proceedings, the patent proprietor filed further submissions on 3, 4 and 16 January 2014 and the opponent on 3 and 10 January 2014.

XI. On 4 February 2014 oral proceedings were held before the board. After discussing the patentability of the then pending main request, in particular as to whether the patent enjoyed the claimed priority of

JP-2000-136756, the patent proprietor withdrew its main request and auxiliary requests 1 and 2, making auxiliary request 3A its new main request. After discussion of the disclaimer in claim 1 of this new main request, the patent proprietor withdrew its appeal.

As a consequence, the only request of the patent proprietor was that the appeal of the opponent was dismissed. The claims underlying the present decision are therefore the claims maintained by the opposition division (see point V above).

XII. The arguments presented by the opponent in its written submissions and at the oral proceedings insofar as they are relevant for the present decision may be summarised as follows:

- The newly filed documents D14 to D21 should be admitted into the proceedings. They were filed timely, namely with the statement of grounds of appeal, and in order to support arguments already presented before the opposition division.
- The subject-matter of claim 1 extended beyond the content of the application as filed. The application did not provide any basis for combining the feature "an aqueous solution of a first carboxyl functional polymer" with the selected pH range and the selected molecular weight of 200 or more.
- The patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art because (i) it did not give any information of how

to obtain a polymer with an average molecular weight of 200, (ii) it did not provide experimental evidence showing that the claimed subject-matter could be worked within the sweepingly-broad scope of the claims and (iii) the prior art document D6 and the experimental evidence D1 and D21 confirmed that the claimed invention did not work across the whole scope of the claims.

- The subject-matter of claim 1 was not novel over D6, and the subject-matter of claim 11 lacked novelty in view of D4 and/or D5.
- Lastly, the subject-matter of the claims lacked inventive step in view of the teaching of the closest prior art document, D3 (which disclosed a coating with a single layer of a polyelectrolyte such as polyacrylic acid), when combined with the teaching of D4 or D5, which disclosed the use of non-ionic water-soluble polymers.

XIII. The relevant written and oral arguments of the patent proprietor may be summarised as follows:

- Documents D14 to D20 should not be admitted into the proceedings because they were submitted to support an entirely new attack that had not been presented before the opposition division. The experimental evidence D21 should also not be admitted because it lacked the necessary information which would have allowed the patent proprietor to repeat the experiments therein described.

- The subject-matter of claim 1 was based on the disclosure of claim 13 of the application as filed wherein the pH for the first step had been specified as being 4 or less in accordance with the disclosure on page 7, lines 11 to 12 of the application as filed.

- The patent was sufficiently disclosed. The claimed method allowed the preparation of coated optical lenses showing a substantial improvement over uncoated lenses, as could be seen from the improved lenses of example 17 of the patent when compared with those of comparative example 4. The arguments of the opponent concerned the clarity of the claim (Article 84 EPC) rather than sufficiency of disclosure. Moreover, the opponent had the burden of proof and it had failed to show that the requirements of Article 83 EPC were not fulfilled.

- D6 was irrelevant for novelty because it was silent about the pH of the solutions used therein and the process conditions of the treatment with a non-ionic water-soluble polymer. The subject-matter of claim 11 was also novel over D4 and D5. The method of D5 involved treating a contact lens with a carboxyl functional polymer and optionally a non-ionic polymer in the same solution. Similarly, D4 disclosed treating a contact lens with an anionic polymer and optionally a non-ionic polymer in the same solution. The opponent, upon whom the burden of proof lay, had provided no evidence that simultaneous treatment would result in an optical article as claimed in claim 11.

- The subject-matter of the claims was based on an inventive step. Document D3 on which the opponent

mainly relied gave no hint to the claimed method. On the contrary, this document suggested that the first polymer to be used for the coating should be polycationic. There was no hint at all in D3 to the use of a polyanionic polymer for the first coating. The inventive step objection of the opponent was merely speculative and had been made with knowledge of the invention.

- XIV. The opponent requested that the decision under appeal be set aside and the patent be revoked.

The patent proprietor requested that the opponent's appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. *Admissibility of D14 to D21*
 - 2.1 Documents D14 to D21 were filed by the opponent with its statement of grounds of appeal in order to show that the claimed subject-matter could not be worked at the low range of the claimed molecular weight, namely at a weight average molecular weight of 200. Thus, documents D14 to D20 were intended to show that there existed a critical chain length for the carboxyl functional polymers and the non-ionic polymers to form polymer-polymer complexes. D21 was an experimental report which was intended to show that the claimed invention did not work within the whole scope of the claims.

- 2.2 Although insufficiency of disclosure was a ground of opposition raised with the notice of opposition, the argument that the molecular weight specified in the patent was too low for the formation of complexes was an entirely new argument apparently mentioned for the first time during the oral proceedings before the opposition division (see point 8 of the minutes of the oral proceedings before the opposition division). It did not arise from any amendment made to the claims during opposition proceedings (see granted claim 1, which defined a weight average molecular weight of 200 or more) and in its notice of opposition the opponent had relied only on the comparative test carried in document D1 for its objection of insufficient disclosure (see discussion on this issue in point 5 below).
- 2.3 The objection that low molecular weight polymers would not work as raised for the first time during the oral proceedings before the opposition division was concerned with different arguments, namely that polymers with such low molecular weight did not exist and, even if they did, that they would penetrate into the lens rather than form a coating on the surface (see again point 8 of the minutes of the oral proceedings before the opposition division).
- 2.4 In summary, the new documents D14 to D21 were filed by the opponent to start a new line of attack of insufficiency of disclosure that should have had been substantiated before the opposition division. Their filing at the appeal stage of the proceedings to support such a new line was not justified.

2.5 Thus the board, exercising its discretion under Article 12(4) RPBA, did not admit D14 to D21 into the appeal proceedings.

3. *Interpretation of claim 1*

3.1 Claim 1 found allowable by the opposition division (see point V above) is directed to a method for surface treatment of a plastic optical article comprising:

(a) a first step of immersing the plastic optical article in an aqueous solution of a first carboxyl functional polymer having a weight average molecular weight of 200 or more, wherein the aqueous solution has a pH of 4 or less, and

(b) a second step of immersing the article in an aqueous solution of a non-ionic water soluble polymer having a weight-average molecular weight of 200 or more.

3.2 The claim thus requires the mandatory surface treatment of the article first by a carboxyl functional polymer and then by a non-ionic polymer. By these surface treatment steps coating layers composed of a polymer complex are formed on the surface of the plastic article.

3.3 By the use of the word "comprising" further steps are not excluded from the scope of the claim. However, if these further steps are also surface treatment steps they cannot be carried out before the "first" step of immersing in a first carboxyl functional polymer and the "second" step of immersing the article in a non-ionic water-soluble polymer.

3.4 On the other hand, other steps which are not surface treatment steps, such as washing the article with water and/or isopropyl alcohol for removing impurities of its surface are not excluded from the scope of the claim. These washing steps can therefore be carried out before or after the "first" surface treatment.

4. *Amendments*

4.1 Claim 1 is based on claim 2 as filed (immersion in an aqueous solution of a first and a second polymer, each having a weight average molecular weight of 200 or more), including the further embodiments of claim 9 as filed (the first polymer being a carboxyl functional polymer) and claim 13 as filed (the second polymer being a non-ionic water-soluble polymer).

4.2 Claim 1 has been further amended to specify that in the first step a "pH of 4 or less" is used and that the plastic article is an "optical" article in accordance with the disclosures of page 7, lines 11 to 13 and page 8, line 28 or page 9, line 5, respectively.

4.3 The opponent does not dispute that the specific features of claim 1 are disclosed in the application as filed, but argues that claim 1 contains subject-matter extending beyond the content of the application as filed because the application does not provide any basis for combining the feature of "an aqueous solution of a first carboxylic functional polymer" with the selected "molecular weight of 200 or more" and the selected "pH of 4 or less".

4.4 Concerning the molecular weight, there is explicit disclosure in claim 9 of the application as filed for its combination with a carboxyl functional polymer.

4.5 Concerning the pH value, it is correct that a pH of 4 or less is not explicitly disclosed in combination with the use of a carboxyl functional polymer, but it is, in the board's judgement, implicitly disclosed for the following reasons:

- The application as filed is broadly directed to the treatment of a plastic article with a material selected from high molecular weight acids, high molecular weight bases, and water-soluble polymers (page 6, line 26 to page 7, line 1).
- In order to effectively improve the hydrophilicity and to maintain the effect for a long term, an aqueous polymer solution having a pH of 4 or less or of 8 or more is preferably used (page 7, lines 11 to 13). Claims 11 and 12 as filed make clear that the polymer is preferably a polyethyleneimine (a high molecular weight base) when the solution is basic (cf. claim 11, using a pH of 8 or higher).
- Moreover, in all working examples using carboxyl functional polymers a pH of less than 4 is used (cf. examples 1 to 4, and 6 to 19) and a pH of more than 8 is used for high molecular weight bases (cf. example 5). The skilled person understands from this information in the application as filed that the pH of 4 or less disclosed on page 7, line 12 is used for high molecular weight acids and specially for carboxyl functional polymers and that a pH of 8 or more is used for high molecular weight bases.

This combination of features is therefore implicitly disclosed in the application as filed.

4.6 The requirements of Article 123(2) EPC are thus met for claim 1.

4.7 The opponent did not raise any further objections under Article 123(2) EPC against the remaining claims and the board is satisfied that Article 123(2) EPC does not prejudice the maintenance of the opposed patent as amended before the opposition division.

4.8 The amendments made indisputedly restrict the scope of the granted claims. They also fulfil the requirements of Article 123(3) EPC.

5. *Sufficiency of disclosure*

5.1 The patent specification discloses in paragraphs [0023] to [0033] in detail how to carry out the claimed surface treatment of the plastic optical article. The patent specification also includes several examples of the treatment of a plastic article by immersing it in an aqueous solution of a polymer of a carboxylic acid (see examples 1 to 4 and 6 to 19) and one example including the further step of immersion in a non-ionic water-soluble polymer (example 17).

5.2 Notwithstanding the above, the opponent maintained that the invention was insufficiently disclosed essentially because:

- (i) the patent did not give any information of how to obtain a carboxyl functional polymer or a non-ionic water-soluble having a weight average molecular weight of 200, and the patent did not

provide any experimental evidence proving that the claimed subject-matter worked within the extremely broad scope of the claims; and

(ii) the invention embraced embodiments which did not result in a hydrophilic coating, as confirmed by the disclosures of document D6 and the experiments presented in D1.

5.3 Concerning (i), it is correct that there is a certain contradiction in the claim, which requires the use of a "polymer" but further requires that the polymer has a "molecular weight of 200 or more", the value of 200 being more appropriate to define dimers or trimers rather than polymers. This is, however, an objection concerning an ambiguity of the scope of the claim and thus relating to Article 84 EPC rather than to Article 83 EPC. At the very most the opponent has shown the existence of an ambiguity at the edge of the claim but has not gone further into the relevance of this ambiguity for the whole scope of the claim (see e.g. T 608/07 of 27 April 2009, not published in the OJ EPO, point 2.5.2 of the reasons). The skilled person when reading the claim would have to interpret the claim and give it a broad meaning, such that, in the present case, the wording polymer embraced compounds having the molecular weight of "200 or more" as indicated in the claim.

Concerning the argument that there is no experimental evidence proving that the claimed subject-matter could be worked within the broad scope of the claim, the mere fact that a claim is broad does not automatically give rise to an objection of insufficiency of disclosure.

5.4 Concerning (ii) it is certainly the case that the lens material of table 4, line 9 of D6 when treated with polyacrylic acid [P(AA)] followed by a treatment with polyvinylpyrrolidone (PVP, 1%, Mw 1.3M) shows no wetting and no lubricity. However, there is no evidence on file showing that the surface treatment of D6 is in fact a treatment falling within the scope of the present invention as explained in detail below in relation with novelty (see point 6.2). Consequently, D6 does not bring into question the sufficiency of disclosure of the present invention.

The experimental report D1 likewise does not bring into question the sufficiency of disclosure essentially because it only refers to monolayers whereas the claims now under consideration require the surface treatment with two polymers resulting in a bilayer product.

Moreover, insofar as D1 is concerned with the first step of the method of claim 1, the treatment has been carried out under very mild conditions (concentration of 0.1% of polymer for one hour at room temperature) quite different from those used in the working examples of the patent (concentration of 15% at 40°C for 8 hours). It would be therefore clear for the skilled person from comparing the results in D1 with the embodiments in the patent what measures to apply in order to transform the failure of the experiments in D1 into success without exercise of inventive effort. In other words, the skilled person would know how to modify the surface treatment, that is to say the immersing conditions of the failure examples of D1, for instance by increasing the polymer concentration and/or the duration of the treatment, in order to arrive at examples as claimed. Thus, an initial failure can be easily transformed into success. The experiments in D1

do not therefore bring into question the sufficiency of disclosure of the claimed method.

5.5 For these reasons the board is satisfied that the requirements of sufficiency of disclosure are satisfied.

6. *Novelty*

6.1 The opponent contested the novelty of the subject-matter of claim 1 in view of the disclosure of D6, and the novelty of the subject-matter of claim 11 in view of the disclosures of D4 and D5.

6.2 Novelty - claim 1

6.2.1 As set out in point 3.1 above, claim 1 is directed to a two-step method for surface treatment of a plastic optical article comprising a first step of immersing the article in an aqueous solution of a carboxyl functional polymer at a pH of 4 or less and a second step of immersing the article in an aqueous solution of a non-ionic water soluble polymer.

6.2.2 Document D6 discloses in claim 1 a method for improving the wettability of a medical device, comprising the steps of: (i) providing a medical device and (ii) contacting a surface of the medical device with a solution comprising a proton-donating wetting agent, whereby the wetting agent forms a complex with the hydrophilic monomer on the surface of the medical device in the absence of a surface oxidation treatment step and without the addition of a coupling agent. The medical device is preferably an ophthalmic lens (claim 15) and the wetting agent preferably comprises at least one polymer containing carboxylic acid

functionality (claim 2). Further, the surface treatment solution is preferably acidified before the contact step, and the pH of the solution is suitably less than 7, preferably about 3.5 (page 13, lines 1 to 3).

According to the opponent the coating process comprising coating of a lens material, first with polyacrylic acid (PAA), followed by polyvinylpyrrolidone (PVP) as disclosed on table 4, page 20, line 9, anticipates the subject-matter of claim 1. Although the example is silent about the pH of the PAA solution used, the opponent maintains that a pH of less than 4 is inherent in a 0.1% PAA solution. In its view the pH of a 0.1% PAA solution would have a pH of 3.2, as calculated using an acid dissociation constant pKa of ca. 4.5.

6.2.3 The board disagrees. Firstly, there is no indication in D6 of the pH of the 0.1% PAA solution therein used. Secondly, the opponent based its calculation on a monobasic acid although polyacrylic acid is a polybasic acid. D6 is silent about the pKa of the polycarboxylic acid used and consequently there is no disclosure of the pH used.

Moreover, D6 does not provide any details about the PVP treatment. It is neither disclosed that the lens was immersed in a solution of PVP nor that the solution would be an aqueous solution.

6.2.4 For these reasons document D6 does not anticipate the subject-matter of claim 1.

- 6.3 Novelty - claim 11
- 6.4 Claim 11 is drafted as a product-by-process claim and directed to a surface-treated plastic optical article comprising a plastic article of a base material and having on a surface thereof two polymer complexes obtainable by the method of claim 1.
- 6.5 Document D5 discloses a hard or soft synthetic polymer contact lens whose surface carries a thin layer of polyelectrolyte complex coating the lens surface and electrostatically bound thereto. This is done by immersing the lens in a solution of an oppositely charged ionic polymer to form a thin polyelectrolite complex (column 1, lines 52 to 65). Suitable polymers include homo- and copolymers of acrylic and methacrylic acids (column 5, lines 10 to 11) and the solution can also contain non-ionic water-soluble polymers such as polyvinylalcohol, hydroxypropylmethyl cellulose or methylcellulose (column 5, lines 27 to 38).
- 6.6 There is, however, a fundamental difference between the method of D5, which involves treating the contact lens with a carboxyl functional polymer and optionally a non-ionic polymer in the same solution, and the two step method used in the patent in suit. In the absence of evidence that the simultaneous treatment of D5 yields a layer of a first polymer complex and also a layer of a second polymer complex, as required by claim 11, the disclosure of D5 is not novelty destroying for the subject-matter of claim 11.
- 6.7 Similar considerations apply to the disclosure of D4, which discloses compositions for storing contact lenses, such compositions including a liquid medium containing a water soluble polyanionic component

derived from acrylic acid or from methacrylic acid (see abstract and column 2, lines 42 to 48) and which can also contain viscosity builders such as polyvinylpyrrolidone (column 5, lines 56 to 58). As in D5, in D4 the treatment with an anionic polymer and optionally with a non-ionic polymer is carried out in the same solution. The subject-matter of claim 11 is therefore not anticipated by D4 for the same reasons as given above for D5.

6.8 In summary none of D6, D5 or D4 anticipates the subject-matter of the claims.

7. *Inventive step*

7.1 The invention relates to a method for surface treatment of a plastic optical article. The invention aims to provide such an article with good and stable wettability, while retaining the good inherent properties of the plastic (paragraph [0006]).

7.2 Both parties agreed on document D3 as representing the closest prior art. It relates to the surface coating of polymers, in particular to the coating of ophthalmic lenses which are plastic optical articles (see abstract). The coating includes the steps of contacting the core lens with a first polyionic material, thereby bonding it to form a coated lens and contacting the coated lens with a second polyionic material having charges opposite to the charges of the first polyionic material, thereby forming a contact lens having a polyelectrolyte bilayer (page 5, first paragraph). The coating can be made by immersing the lens in the polyionic material (page 5, third paragraph).

The preferred first polyionic material is a polycationic material (page 7, last paragraph), and the preferred second polyionic material is a polyanionic material, such as polyacrylic acid (page 9, third and last paragraphs).

Although the preferred embodiments of D3 are those wherein the surface coating includes at least one bilayer (see claim 2 and all working examples), the teaching of D3 is not limited to such embodiments and also includes embodiments with one layer of polyelectrolytes (page 16, last paragraph; see also claim 1).

7.3 According to the patent proprietor, the problem underlying the patent in the light of D3 is to provide a method for surface treatment of a plastic optical article to produce lenses having superior wettability and superior deposition resistance. The patent proprietor relied essentially on the coated lens according to example 17 of the patent in suit as showing a substantial improvement over the uncoated lens of comparative example 4.

7.4 There is, however, no direct comparison between the lens obtained according to the claimed method and the coated lenses according to D3. Under these circumstances, no improvement can be recognised and the problem underlying the present invention has to be reformulated in a less ambitious manner that does not include any improvement over D3, *i.e.* as being to provide an alternative method for surface treatment of plastic optical articles to produce lenses exhibiting good wettability (that is, hydrophilicity) and maintaining the good inherent properties of the plastics.

7.5 This problem is solved by the claimed method, which differs from the coating method of D3 essentially by:
(i) selecting a carboxyl functional polymer (that is a polyanionic material) for the first coating, and
(ii) replacing the polycationic material by a non-ionic water soluble polymer.

7.6 The board is satisfied that this less ambitious problem has been credibly solved by the claimed method. Example 17 of the patent shows the preparation of surface coated plastic article by first immersing it in an aqueous solution of a carboxyl functional polymer having a pH of 2.3 and then in an aqueous solution containing polyacrylicamide. The obtained lens has a dynamic contact angle of 34° indicating a hydrophilic surface.

In this context the board cannot accept the objections of the opponent that no information about the claimed method can be obtained from the examples in the patent because they were not carried out according to the invention as now claimed.

While it is correct that the optical articles in the examples are washed several times with water and/or isopropyl alcohol, these washing steps are not a surface treatment of the optical lenses as required by the claim as explained above under point 3.4.

7.7 It remains to be decided whether, in view of the available prior art documents, it would have been obvious for the skilled person to solve this problem by the means claimed. The relevant question is whether the skilled person would have used in the first coating

step of the method of D3 a polyanionic polymer, namely a carboxyl functional polymer.

7.8 In order to arrive at such embodiment it would be necessary to combine:

- the implied disclosure on page 16 of D3 of a coating which is not a bilayer;
- the disclosure on pages 9 and 10 of carboxylic functional polymers as "preferred second polyionic materials" and
- the disclosure on page 19 of a pH less than 4.

The disclosure on page 19 on which the opponent relied reads: "in order to maintain the polyionic material in a highly charged state, the pH of the dilute polyionic solution should be maintained at about 2 to 5, more preferably about 2.5 to about 4.5".

The required use of an acidic pH will maintain a polyionic material in a "highly charged state" only if it is polycationic. On the other hand, if it is a carboxylic functional polymer, the use of a pH of 2.5 to 4.5 will have exactly the opposite effect - it will minimize the charge on the polymer.

As explained by the patent proprietor during the oral proceedings, this explains why in all the working examples in D3, first a polycationic material is used and then a polyanionic one. The reasons for such preference are further explained in the paragraph bridging pages 17 and 18 of D3. According to this paragraph, "the core lens material has a low density of transitory negative charges on its surface, while the polycationic material (bound on said surface) has a

high density of permanent positive ions along the polymer backbone."

There would therefore be no motivation for the skilled person to replace the polycationic material by a polyanionic material. On the contrary, the skilled person would expect that no coating would be formed with a polyanionic material due to the presence of negative charges on the surface of the lens.

- 7.9 For these reasons, D3 gives no hint to the use of a polyanionic material for the first coating step in order to provide an alternative coating method. Under these circumstances, a combination of D3 with D4 or D5 using non-ionic water soluble polymers would not result in a method as claimed. It appears that the opponent's arguments in this context have been made *a posteriori*, in the knowledge of the invention.
- 7.10 In view of the above, the board concludes that the person skilled in the art would not have arrived in an obvious manner at the subject-matter of claim 1. The same reasoning applies to the subject-matter of claim 11, which relates to a surface-treated plastic optical article obtainable by the method of D3 and having a first coating of said polyanionic polymer. The subject-matter of dependent claims 2 to 10 and 12 to 20 involves also an inventive step.

Order

For these reasons it is decided that:

The opponent's appeal is dismissed

The Registrar:

The Chairman:



R. Schumacher

W. Sieber

Decision electronically authenticated