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D E C I S I O N
of 18 November 2003

Case Number: T 0332/99 - 3.3.2

Application Number: 92103837.8

Publication Number: 0494083

IPC: A61L 15/07

Language of the proceedings: EN

Title of invention:

Curable resin coated sheet having reduced tack

Patentee:

MINNESOTA MINING AND MANUFACTURING COMPANY

Opponent:

Smith & Nephew plc

Headword:

Curable resin/MINNESOTA MINING AND MANUFACTURING COMPANY

Relevant legal provisions:

EPC Art. 123(2)(3)

Keyword:

"Main request and third auxiliary request - added matter - yes:
features not directly and unambiguously derivable"

"First and second auxiliary request - extension of the scope
of protection - yes: modified claim encompassed new means"

Decisions cited:

-

Catchword:

-



Case Number: T 0332/99 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 18 November 2003

Appellant: MINNESOTA MINING AND MANUFACTURING COMPANY
(Proprietor of the patent) 3M Center
P.O. Box 33427
St. Paul
Minnesota 55133-3427 (US)

Representative: Weinberger, Rudolf, Dr.
VOSSIUS & PARTNER
Siebertstrasse 4
D-81675 München (DE)

Respondent: Smith & Nephew plc
(Opponent) 2 Temple Place
Victoria Embankment
London WC2R 3BP (GB)

Representative: Lawrence, Peter Robin Broughton
GILL JENNINGS & EVERY
Broadgate House
7 Eldon Street
London EC2M 7LH (GB)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 10 March 1999
revoking European patent No. 0494083 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: U. Oswald
Members: J. Riolo
C. Smith-Rennie

Summary of Facts and Submissions

I. European patent number 0 494 083 based on application number 92 103 837.8 was granted on the basis of 32 claims.

Independent claim 1 as granted read as follows:

"1. An orthopedic article comprising a prelubricated, flexible, casting material, which casting material is immersible in water prior to its application and which casting material exhibits reduced tack during cure of the prepolymer, said article comprising:

- 1) a porous sheet,
- 2) a water curable resin coated on said porous sheet, said resin being selected from isocyanate-functional prepolymers formed by the reaction of an aromatic isocyanate with a polyol, and
- 3) a tack reducing agent or lubricant comprising hydrophilic groups covalently bonded to the curable resin, said tack reducing agent or lubricant reducing the tack of the water curable resin to render the resin substantially nontacky during application and molding;

wherein said lubricated resin has sufficiently low hydrophilic group functionality such that said lubricated resin is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times; and wherein the mean kinetic coefficient of friction of a major surface of the coated sheet is less than 1.2."

II. Notice of opposition was filed against the granted patent by the respondent.

The patent was opposed under Article 100 EPC on the grounds of lack of novelty and inventive step, insufficient disclosure and added subject-matter.

III. The Opposition Division took the view that the set of claims of the patent as granted and the set of claims of the auxiliary request did not meet the requirements of Article 123 EPC and revoked the patent under Article 102(1) EPC by its decision pronounced on 23 February 1999.

Claim 1 of the set of claims as originally filed read:

"1. A flexible sheet material coated with a curable resin characterized in that said resin contains a lubricant which is comprised of:
a) hydrophilic groups which are covalently bonded to the curable resin, or
b) an additive to the resin which is incompatible with the resin, or
c) a combination of a) and b); and wherein said lubricant is present in an amount such that the kinetic coefficient of friction of the coated surface of the sheet material is less than about 1.2."

The Opposition Division considered that, **at least**, the expressions "**substantially** nontacky during application and molding" and "when said coated **sheet** is immersed in water and squeezed several times" as well as the deletion of the expression "wherein said lubricant is present in an amount such" in claim 1 of the set of

claims as granted contravened Article 123(2) EPC as they had no basis in the original disclosure. In its view, the same objection applied to the term "reactive" introduced in the description in relation to two groups of lubricants.

As to the auxiliary request, in which claim 1 as granted was amended by deleting the term "substantially" and by introducing the words "a roll of" before the expression "said coated sheet", the Opposition Division held that those amendments contravened Article 123(3) EPC as the scope of claim 1 thereby encompassed new embodiments.

IV. The appellant (patentee) lodged an appeal against the said decision.

V. Oral proceedings were held before the Board on 18 November 2003. During the Oral proceedings the appellant filed auxiliary requests 1 to 3.

Claim 1 of auxiliary request 1 corresponds to claim 1 as granted save that the expression "sufficiently low hydrophilic group functionality such" has been replaced by the expression "such a hydrophilicity".

Claim 1 of auxiliary request 2 corresponds to claim 1 of auxiliary request 1 with the addition of the adjective "low" before the word "hydrophilicity".

Claim 1 of auxiliary request 3 corresponds to claim 1 as granted but with its last passage reading:

"wherein said **prepolymer forming reactants** of the lubricated resin have sufficiently low hydrophilic group functionality such that said lubricated resin **has a hydrophilicity such that it** is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times; and wherein the mean kinetic coefficient of friction of a major surface of the coated sheet is less than 1.2." (Emphasis added).

VI. The appellant argued mainly that, although the terms objected to by the Opposition Division had no literal support in the originally filed application, the skilled person could directly and unambiguously derive these terms from the original disclosure as a whole so that the requirements of Article 123(2) were fulfilled.

With its letter dated 4 September 2003, it filed comparative experiments to show that the dispersibility of the lubricated resin coated on the orthopedic sheet in water was the same in the case of both a roll of sheet and a sheet. It also filed three more documents relating to general knowledge.

VII. The respondent contented that the Opposition Division was right in its findings. In addition, it raised a further objection under Article 123 (2) with respect to the feature "low hydrophilic group functionality" of claim 1.

VIII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the

patent as granted (main request), or of one of the sets of claims of the first, second and third auxiliary requests filed during oral proceedings.

The respondent requested that the appeal be dismissed (main request) or, if the appeal should not be dismissed, that the case be remitted to the first instance for further prosecution.

Reasons for the Decision

1. The appeal is admissible.
2. Admissibility of the auxiliary requests 1 to 3 and of late filed documents and evidence.
 - 2.1 The Board observes that auxiliary requests 1 to 3 were filed in reply to objections raised for the first time during the oral proceedings, namely the lack of basis for the feature "said lubricated resin has sufficiently low hydrophilic group functionality" in claim 1 as granted.

The respondent did not object to the admissibility of these requests and the Board sees no reason to differ.

- 2.2 However, the experimental evidence and documents filed less than two months before the oral proceedings (see paragraph VI above) related to objections which were raised during the Opposition proceedings.

As no explanation, except the fact that the appellant had recently changed its representative, was provided

for the late filing of this evidence and documents, they are not admitted in the proceedings.

3. *Main request*

3.1 Article 123(2)

3.1.1 The subject-matter of claim 1 of the main request differs, *inter alia*, from that of the original application in that the following text has been added:

"wherein said lubricated resin has sufficiently low hydrophilic group functionality such that said lubricated resin is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times".

It must thus be decided whether the features "lubricated resin has sufficiently low hydrophilic group functionality" and "said lubricated resin is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times" have a basis in the application as originally filed.

It also appears that a technical relationship now exists between the fact that the lubricated resin "is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times" and the fact it "has sufficiently low hydrophilic group functionality".

As there is neither a verbatim basis for these two features nor for this technical relationship, it must be decided whether the skilled person could nevertheless derive such a relationship directly and unambiguously from the whole teaching of the application as originally filed.

The passage in the application as originally filed dealing with these aspects reads (page 12, line 36 to page 13, line 33):

"The curing of an isocyanate-functional prepolymer coated sheet is generally initiated by immersion of the sheet in water. Accordingly, the hydrophilicity of the water-curable isocyanate-functional prepolymer should not be so great that the resin composition is very dispersible in water which would allow the resin composition to leach out into the water bath in which the sheet is immersed. Therefore the hydrophilicity of the prepolymer should be such that the prepolymer is not appreciably dispersible, if at all, in water at ambient temperatures. By not appreciably dispersible, it is meant that a roll of curable resin coated sheet when immersed in water and squeezed several times while immersed will retain at least about 70%, more preferably at least about 85%, and most preferably at least about 95% by weight of the resin composition on the sheet.

Further, water retained in or absorbed into the cured resin may adversely affect the rigidity of the cured resin and thereby, reduce its wet strength. Accordingly, the hydrophilic functionality of the cured

resin should be controlled such that excess amounts of water are not retained in, or absorbed into the cured resin.

The hydrophilicity of the resin composition can be controlled by choosing prepolymer-forming reactants having sufficiently low hydrophilic group functionality that the reactants are not appreciably dispersible in water or by using amounts of dispersible reactants that are minor compared to the amounts of reactants that are not appreciably dispersible in water. For example, when the prepolymer is prepared from a mixture of an aromatic isocyanate, e.g. 2,2-diphenylmethane diisocyanate (MDI) and one or more polyether polyols having only polyethylene oxide as a hydrophilic group, the amount of polyethylene oxide by weight of the prepolymer should be less than about 15 percent, preferably less than about 10 percent, most preferably less than 6 percent, e.g. 3-4 percent."

From this passage, it is apparent that the feature "said lubricated resin is not appreciably dispersible in water in that at least 70% by weight of said lubricated resin is retained on said sheet when said coated sheet is immersed in water and squeezed several times" can be derived from the two sentences "Therefore the hydrophilicity of the prepolymer should be such that the prepolymer is not appreciably dispersible, if at all, in water at ambient temperatures. By not appreciably dispersible, it is meant that a roll of curable resin coated sheet when immersed in water and squeezed several times while immersed will retain at least about 70%, more preferably at least about 85%,

and most preferably at least about 95% by weight of the resin composition on the sheet."

Although, in the description, the term lubricated resin is expressed as "the resin composition" and the coated sheet is disclosed as being "a roll of curable resin coated sheet", the skilled person reading these sentences would in fact understand and realise that an important feature of the claimed embodiment is that at least 70% of the curable resin must remain available on the orthopedic article in order to benefit from the desirable properties of the claimed article **independently of the form it is provided.**

Moreover in the context of claim 1, ie an orthopedic article comprising a porous sheet coated with a water curable resin having covalently bonded lubricant, the "prelubricated resin" can only be understood as being a synonym of the term "curable resin composition".

The Board notes, however, that the part of the passage relating to low hydrophilic group functionality is disclosed in the context of "prepolymer-forming reactants" and not in relation to the "lubricated resin" **and moreover** the low hydrophilic group functionality is not just any low hydrophilic group functionality but one in which the reactants are **not appreciably dispersible in water.**

Indeed the passage reads: "The hydrophilicity of the resin composition can be controlled by choosing **prepolymer-forming reactants having sufficiently low hydrophilic group functionality that the reactants are not appreciably dispersible in water** or by using

amounts of dispersible reactants that are minor compared to the amounts of reactants that are not appreciably dispersible in water."

Moreover as regards the technical relationship between the low hydrophilic group functionality and the specific dispersibility of the lubricated resin in water under certain conditions, the Board notes that such a technical link is not directly and unambiguously disclosed in the quoted passage of the application as originally filed.

As a matter of fact, this passage recites that two different problems have to be solved due to the fact the resin is cured with water. Firstly, the **hydrophilicity** of the prepolymer must be such that at least 70% remains on the sheet under certain conditions and, secondly, the **hydrophilic functionality** of the cured resin must be such that an excess amount of water is not retained in, or absorbed into the cured resin.

There is, a priori, no reason to believe that the two problems are solved by the same means since different parts of different products (ie, the prepolymer and the cured resin) are involved in each case.

Thus, whereas the hydrophilicity at the surface of the prepolymer is of importance for the first aspect, it is the hydrophilicity within the resin which would play an important role as required the water absorption.

The application in the quoted passage states that "The hydrophilicity of the resin composition can be controlled by choosing prepolymer-forming reactants

having sufficiently low hydrophilic group functionality that the reactants are not appreciably dispersible in water or by using amounts of dispersible reactants that are minor compared to the amounts of reactants that are not appreciably dispersible in water".

This does not indicate whether the first of the two possible solutions (ie "choosing prepolymer-forming reactants having sufficiently low hydrophilic group functionality that the reactants are not appreciably dispersible in water") applies to the first aspect, ie that it is the required means for preparing a lubricated resin having sufficiently low hydrophilic group functionality such that at least 70% by weight is retained on the sheet.

Accordingly, the Board considers that the skilled person could not infer this technical relationship directly and unambiguously from the teaching of the application as originally filed.

In view of the above, the Board sees no basis either for the feature "lubricated resin [having] sufficiently low hydrophilic group functionality" or for the technical relationship between the low hydrophilic group functionality of the lubricated resin and its particular dispersibility introduced in independent claim 1, which contravenes Article 123(2) EPC.

- 3.1.2 Accordingly, contrary to the appellant's opinion and as discussed above, it is not accepted that the skilled person can derive the terms at issue directly and unambiguously from the original disclosure as a whole.

In particular, whereas the Board agrees that a lubricated resin having a sufficiently low hydrophilic group functionality will necessarily have a low hydrophilicity, it does not agree with the appellant's contention that "low hydrophilic group functionality" and "low hydrophilicity" have the same meaning.

In fact, as appears from the quoted passage of the original disclosure of the application itself, there are various ways of achieving "low hydrophilicity" since at least two alternatives are mentioned therein, ie either to have prepolymer-forming reactants having sufficiently low hydrophilic group functionality so that the reactants are not appreciably dispersible in water or to use amounts of dispersible reactants that are minor compared to the amounts of reactants that are not appreciably dispersible in water.

3.1.3 Under these circumstances, there is no need to discuss either the other features of claim 1 or the other claims.

4. *Auxiliary request 1*

Article 123(2)

Having regard to the conclusions of the Board as to the replacement of the expression "sufficiently low hydrophile group functionality such" by the wording "such a hydrophilicity" with respect to Article 123(3), there is no need to discuss the other amendments of claim 1 as granted with respect to Article 123(2).

Article 123(3)

As discussed under point 3.1.2, the Board does not agree with the appellant's contention that "low hydrophilic group functionality" and "low hydrophilicity" have the identical meaning.

In that respect, it indeed appears from the quoted passage of the original disclosure of the application itself, there are various means to achieve "low hydrophilicity".

Accordingly, the subject-matter of claim 1 of the first auxiliary request encompasses embodiments which were not previously encompassed by the subject-matter as granted contrary to the requirements of Article 123(3) EPC.

5. *Auxiliary request 2*

As claim 1 of this request contains the same amendments as claim 1 of the first auxiliary request, the conclusions under point 4 apply equally to this set of claims.

6. *Auxiliary request 3*

Article 123(2)

The Board notes that the amendments introduced in claim 1 of this request do not solve all the objections raised under point 3.1.1.

The Board notes indeed that the part of the passage relating to low hydrophilic group functionality does not disclose any low hydrophilic group functionality such that the reactants **are not appreciably dispersible in water.**

There is accordingly no basis for the generalisation to any low hydrophilic group functionality as it is the case in claim 1 of the present request.

Moreover, as discussed under 3.1.1 above the technical relationship between the low hydrophilic group functionality and the specific dispersibility of the lubricated resin in water under certain condition is not directly and unambiguously disclosed in the quoted passage of the application as originally filed.

Accordingly, this set of claims is also not allowable under Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar

The Chairman

A. Townend

U. Oswald