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D E C I S I O N
of 1 October 1997

Case Number: T 0316/93 - 3.3.3

Application Number: 86907169.6

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Title of invention:
Hydrophilic silicones

Applicant:
Minnesota mining and manufacturing company

Opponent:
-

Headword:
-

Relevant legal provisions:
EPC Art. 52(4), 84

Keyword:
"Lack of clarity (no) - reasoning does not support objection"

Decisions cited:
T 0435/91

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0316/93 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 1 October 1997

Appellant: MINNESOTA MINING AND MANUFACTURING COMPANY
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Decision under appeal: **Decision of the Examining Division of the European Patent Office dated 9 November 1992 refusing European patent application No. 86 907 169.6 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: C. Gérardin
Members: R. Young
J. A. Stephens-Ofner

Summary of Facts and Submissions

I. The appeal lies from the decision of the Examining Division, dated 9 November 1992, to refuse European patent application No. 86 907 169.6, corresponding to International application No. PCT/US86/02442, filed on 12 November 1986, claiming a US priority of 15 November 1985 (US 798737) and published on 21 May 1987, under publication No. 0 244 478 (WO 87/03001). The Notice of Appeal was received on 8 January 1993, the fee being paid on 11 January 1993.

II. The decision was based on two sets of Claims, both filed on 25 May 1992, at oral proceedings held before the Examining Division, and forming a main request (Claims 1 to 17) and an auxiliary request (Claims 1 to 14) respectively. A second auxiliary request, based on a set of claims proposed by the Examining Division, and filed, by the Applicant, at the same oral proceedings, was subsequently withdrawn by the Applicant (letter filed on 13 October 1992).

(i) Main request.

Claim 10, which was the broadest claim, read as follows:

"A curable room temperature vulcanizing silicone dental impression material composition comprising a mixture of

(a) curable silicone prepolymer selected from the group consisting of

(i) addition cure silicones

(ii) condensation cure silicones

(iii) one-part silicones

and

(b) surfactant selected from the group consisting of (i) ethoxylated nonionic surface active agents containing one or more siloxane or perfluoroalkyl solubilizing groups and (ii) cationic or amphoteric fluorochemical surface active agents, said surfactant being present in sufficient amount and said ethoxylated nonionic surface active agent, if present, containing sufficient ethyleneoxy groups so that said composition, when cured, has a three minute water contact angle below 65° and said surfactant being capable of migration throughout the cured silicone composition and into adjacent fluids."

Claims 1 to 8 were directed to the use of such a composition in dental treatment. Claims 11 to 16 were directed to elaborations of the composition according to Claim 11. Claims 9 and 17 were directed to the use, in dental treatment, of a cured silicone polymer of the curable silicone composition and to the cured silicone polymer itself respectively, comprising a negative mould of oral tissue, and having semi-permanent hydrophilicity.

(ii) Auxiliary request

Claim 8, which was the broadest claim, was directed, like Claim 10 of the main request, to a curable room temperature vulcanizing silicone dental impression material composition, but in which the ethoxylated surfactant of component (b) was defined in further detail.

Claims 1 to 6 were directed to the use of such a composition in dental treatment. Claims 9 to 13 were directed to elaborations of the composition according to Claim 8. Claims 7 and 14 were directed to the use, in dental treatment, of a cured silicone polymer of the curable silicone composition and to the cured silicone polymer itself respectively, comprising a negative mould of oral tissue, and having semi-permanent hydrophilicity.

III. According to the decision, the "water contact angle" was an unusual parameter which could only be allowed if clear guidance were given as to how to ensure that products having this parameter were obtained. As regards the main request, the feature that component (b), in the case that it was an ethoxylated compound, contained "sufficient ethyleneoxy groups so that the composition when cured has a three minute water contact angle below 65°" was a definition by the result to be achieved. This had been stated to be dependent on several parameters, in particular the number of ethylenoxy and propylenoxy groups present, but none of these features was present in the relevant claim (Summary of Facts and Submissions, point. 2). The further feature, that the surfactant was capable of migration, was a functional definition which merely described an alleged effect of the compounds without any evidence in any examples that it actually happened, or that it did not happen in the prior art (Reasons for the decision, point 4, first paragraph). As regards the auxiliary request, although independent Claim 8 defined general formulae for component (b), the criteria for achieving the contact angle were still inadequately defined (Reasons for the decision, point 4, last paragraph). Consequently, both requests lacked clarity.

IV. In the Statement of Grounds of Appeal, filed on 18 March 1993, the Appellant argued substantially as follows:

(a) The objection that the "three minute contact angle" was an "unusual" parameter was badly taken, firstly because this was not the sole feature characterising the relevant compounds (Guidelines C III 4.7a), and secondly because it was closely related to the "equilibrium contact angle", which had already been shown to be a well known parameter in the field of silicones (submission dated 4 March 1991);

(b) As to the parameters upon which the contact angle was dependent, it was the function of the description, and not of the claim, to provide guidance as to how the desired result was to be achieved; this was not an appropriate test for the clarity of a claim;

(c) The desired water contact angle was furthermore a result which could be directly and positively verified by tests or procedures adequately specified in the description involving nothing but trial and error; it was thus comparable to the ashtray given in the EPO Guidelines as an example of an acceptable functional claim (Guidelines C III, 4.7);

(d) The measurement of a "three minute contact angle" was furthermore relatively easy and did not place an undue burden on the public.

(e) As regards the feature that the surfactant be "capable of migration throughout the cured silicone composition and into adjacent fluids", this resulted from the unbound nature of the

surfactant, for which the relevant passages in the description indeed provided supporting experimental evidence. The objection concerning the state of the art was irrelevant to the issue of clarity.

V. Following the issue, on 21 August 1996, of a communication by the Board, in which certain objections under Articles 52(4), 84 and 123(2) EPC were raised in respect of the main and auxiliary requests, the Appellant filed a further set of Claims 1 to 18, which were replaced, following the recognition of an error, by a set of Claims 1 to 17. This set of claims, which was filed on 15 September 1997, formed the sole request of the Appellant. Claim 10, the broadest claim of this set, reads as follows:

"A curable room temperature vulcanizing silicone dental impression material composition comprising a mixture of

(a) curable silicone prepolymer comprising a two-part addition cure or condensation cure polysiloxane

and

(b) surfactant selected from the group consisting of (i) ethoxylated nonionic surface active agents containing one or more siloxane or perfluoroalkyl solubilizing groups and (ii) cationic or amphoteric fluorochemical surface active agents, in which, when the surfactant is a cationic surfactant, it contains at least one cationogenic group which is the radical of a base having an ionization constant in water at 25°C of at least about 10^{-6}, and, when it is an amphoteric surfactant, it contains at least one such cationogenic group and also at least one anionogenic group which is the radical of an acid having an ionization constant in water at 25°C of

at least about 10^{-6}, said surfactant being present in sufficient amount and said ethoxylated nonionic surface active agent, if present, containing sufficient ethyleneoxy groups so that said composition, when cured, has a three minute water contact angle below 65° and said surfactant being capable of migration throughout the cured silicone composition and into adjacent fluids".

Claims 1 to 8 are directed to the use of such a composition as a dental impression material. Claims 11 to 16 are directed to elaborations of the composition according to Claim 11. Claims 9 and 17 are directed to the use, as a dental impression material, of a cured silicone polymer of the curable silicone composition and to the cured silicone polymer itself respectively, comprising a negative mould of oral tissue, and having semi-permanent hydrophilicity.

VI. The Appellant requested that the decision under appeal be set aside, and that the application be remitted to the Examination Division "to pass to grant in the normal way" (Submission filed on 15 September 1997, page 2, penultimate paragraph).

Reasons for the Decision

1. The appeal is admissible.

2. The present decision is based on the following text of the application in suit:

Claims: 1 to 17 filed on 15 September 1997 (letter dated 10 September 1997);

Description: pages 1, 2, 4, 5, 8 to 26 as originally filed;
pages 6, 7 filed on 5 December 1991 (letter dated 4 December 1991);
pages 3, 3a filed on 15 September 1997 (letter dated 10 September 1997).

3. *Amendments; Article 123(2) EPC*

Claims 1 to 17 differ from previous Claims 1 to 17 of the main request underlying the decision under appeal in the following respects:

3.1 The phrase "Use....in dental treatment to make dental impressions" in previous Claim 1 has been replaced by "Use, as a dental impression material". This is supported by the description on page 1 at lines 11, 12.

3.2 The references to "said dental treatment" in previous Claims 2 to 9 have been deleted. This is in conformity with the amendment in Claim 1.

3.3 The reference to "one-part silicones" has been deleted from previous Claim 10. This is the simple deletion of one independent option.

3.4 The features of the ionisation constants of the cationic and amphoteric surfactants have been inserted in Claims 1 and 10. This is supported by the originally filed description on page 10, lines 28 to 35.

3.5 The wording of Claims 9 and 17 has been amended to render them fully consistent with the relevant antecedent claims.

3.6 The corresponding passages of description have been adapted to the revised claims. No objection under Article 123(2) EPC was raised in respect of the claims of the main request underlying the decision under appeal or to the corresponding description. The Board sees no reason to raise an objection of its own under this heading. Nor do the amendments effected subsequently (sections 3.1 to 3.5, above) comprise added matter.

3.7 Consequently, the amendments to Claims 1 to 17 and to the description are acceptable under Article 123(2) EPC.

4. *Amendments; Article 52(4) EPC*

The use, as a dental impression material, of a room temperature vulcanizing silicone composition as defined in Claims 1 to 9 does not amount to a process leading to the amelioration or elimination of a medical deficiency or disease. On the contrary, it is rather to be seen as a process of using the relevant part of a human body, i.e. the dentition, as a moulding tool, to obtain a moulded impression, which is itself a product having commercial value. It is not, therefore, a treatment of the human or animal body in the sense of the exception to patentability set out in Article 52(4) EPC.

Consequently, the amended claims are acceptable under Article 52(4) EPC.

5. *Clarity*

The issue in this appeal is whether the objections in the decision under appeal to the clarity of the features (A) "three minute water contact angle" and (B) "the surfactant being capable of migration throughout the cured silicone composition and into adjacent fluids" are justified in law.

5.1 Feature (A)

Closer examination of the decision under appeal (section III., above) shows that, whereas the feature found to lack clarity is an overall characteristic of the cured silicone composition ("three minute water contact angle"), the deficiency alleged in its definition resides exclusively in features of the surfactant (the number of ethylenoxy and propylenoxy groups as well as the remaining substituent groups present). The surfactant, however, is merely a sub-component of the still curable composition. Whilst the nature of the surfactant may affect the value of the three minute water contact angle, it cannot affect the clarity of the definition itself, since the latter is independent of the surfactant used. Consequently, the reasoning does not support the objection.

5.1.1 On the contrary, the definition of the three minute water contact angle itself is, in the Board's view, extremely precise; more precise, even, than the closely related parameter "equilibrium water contact angle", since it specifies with mathematical precision the time after wetting at which the measurement must be taken.

5.1.2 Yet the "equilibrium contact angle" has itself been convincingly shown, by reference to a standard treatise: Walter Noll, "Chemistry and Technology of Silicones", Academic Press, 1968, pages 447 to 452, to have been a term well-known in the art at the filing date (submission filed on 6 March 1991). Even if this had not been the case, the reference is itself specifically cited in the application in suit (page 5). Thus the term "three minute contact angle", which differs only in the point in time at which the measurement is taken, cannot be regarded as "unusual" in the sense of rendering the claim unclear.

5.1.3 Nor has any contradiction or uncertainty in the method of measuring the relevant contact angle been alleged. On the contrary, the method of measurement is set out in the reference (section 5.1.2, above).

5.1.4 The question of whether or not such a form of definition is justified in the present case is not an issue of clarity, or even of support, but of sufficiency (see decision T 0435/91, OJ EPO 1995, 188; Reasons for the decision, points 2.2.1 to 2.2.3).

5.1.5 Consequently, the Board is unable to support the objection of lack of clarity raised against feature (A).

5.2 Feature (B)

The objection to the insertion of the feature of "the surfactant being capable of migration throughout the cured silicone composition and into adjacent fluids", according to the decision under appeal, is based primarily on an allegation that it is not credible that the effect referred to is actually produced (Reasons

for the decision, paragraph 4). Even if such an allegation were justified, it does not amount to a demonstration that the feature is unclear. Thus, the reasoning does not support the objection.

5.2.1 It is, however, clear from the explanation given in the description, that the surfactant is believed to be capable of migration (page 6, lines 6 to 9). It goes without saying, in this connection, that an Applicant or Patentee is under the greatest obligation of good faith in the presentation of his invention.

5.2.2 Furthermore, this belief is evidently not subjective, but based on objective data, in particular the scientific observations that:

(a) the measured water contact angle increases if a cured composition is immersed in running water for a period of time (page 6, lines 3 to 5); and

(b) the measured water contact angle slowly changes after the drop is placed on the surface of the cured silicone; if the drop is observed using an optical comparator, schlieren patterns become visible at the interface between the drop and the silicone within a few seconds after the drop is applied; after this, the schlieren patterns diffuse through the drop and the drop slowly collapses and spreads out on the surface of the silicone (page 6, lines 15 to 25).

Such observations are considered to amount to experimental data, the veracity of which has not been challenged, and which the Board has no reason to doubt.

5.2.3 The finding in the decision under appeal, that there is no evidence for the alleged effect in the examples, cannot be regarded as conclusive, since the criterion to be applied in the assessment of evidence is its objective credibility, rather than whether it appears in one or another part of the description.

5.2.4 In the present case, however, the Board cannot concur even with the factual basis of the finding, since there is indeed relevant evidence in the examples. In particular, the results of the eleven runs of Example 1 (Table I) and the fifteen runs of Comparative Example 1 (Table II) each give two different values of the contact angle, showing a reduction with the passage of time.

5.2.5 In any case, no reason is given in the decision under appeal which would amount to a rational basis for doubting the existence of the effect in the first place. In particular, the unbound nature of the surfactants, i.e. that they are not disclosed as being reactive with the curable silicone so as to become immobilised as part of the cured silicone structure, renders the disclosure of such a capability, in the Board's view, entirely credible.

5.2.6 As to the question of whether the same effect occurs in the prior art, this is irrelevant to the question of clarity of the feature claimed.

5.2.7 In summary, all the indications in the application in suit, whether from the description on page 6 or from the examples themselves, as well as general considerations relating to the unbound nature of the

surfactants, point to the credibility of the effect associated with feature (B). Consequently, the Board cannot support the allegation, in the decision under appeal, upon which the objection of lack of clarity was primarily based.

5.2.8 The second aspect of the objection to feature (B), namely that it is functional in character does not itself render the term unclear. Since, furthermore, it has not been alleged that the definition of feature (B) is otherwise obscure in itself, its presence cannot contribute to any lack of clarity in the claims.

5.2.9 As regards the cumulative effect of the functional feature (A), the latter has already found to be free of the deficiency alleged in the decision under appeal (section 5.1.4, above).

5.2.10 Consequently, the Board cannot support the finding, in the decision under appeal, of lack of clarity in the sense of Article 84 EPC, in relation to feature (B).

6. Lack of clarity (Article 84 EPC) was, however, the sole ground of refusal of the application. Consequently, the appeal must succeed.

7. To order the grant of a patent would, however, be premature, since it is evident that the substantive examination of the application, in particular with regard to novelty and inventive step, has not been completed. Consequently, the Board intends to make use of its powers under Article 111(1) EPC, to remit the case to the Examining Division, for further examination.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Examining Division for further prosecution.

The Registrar: The Chairman:

P. Martorana C. Gérardin