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Datasheet for the decision of 22 January 2009

Case Number: T 1734/06 - 3.3.03

Application Number: 97100641.6

Publication Number: 0785236

IPC: C08L 83/04

Language of the proceedings: EN

Title of invention:
Curable silicone compositions

Patentee:
Dow Corning Corporation

Opponent:
Momentive Performance Materials GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Novelty (yes)"
"Inventive step (no) - main and auxiliary request"

Decisions cited:
T 0453/87, T 0012/90, T 0653/93

Catchword:
-

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Case Number: T 1734/06 **-** 3.3.03

D E C I S I O N
of the Technical Board of Appeal 3.3.03
of 22 January 2009

Appellant: (Patent proprietor)	Dow Corning Corporation P.O. Box 994 Midland Michigan 48686-0994 (US)
Representative:	Spott, Gottfried Spott, Weinmiller & Böhm Patentanwälte Sendlinger-Tor-Platz 11 D-80336 München (DE)
Respondent: (Opponent)	Momentive Performance Materials GmbH Building V 7 D-51368 Leverkusen (DE)
Representative:	-
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office dated 25 July 2006 and posted 15 September 2006 concerning maintenance of European patent No. 0785236 in amended form.**

Composition of the Board:

Chairman: R. Young
Members: W. Sieber
E. Dufrasne

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 785 236, in respect of European patent application no. 97100641.6, in the name of Dow Corning Corporation, filed on 16 January 1997 and claiming a priority date of 17 January 1996 from US 587625, was published on 15 October 2003 (Bulletin 2003/42). The granted patent contained six claims whereby Claims 1 and 4 read as follows:

"1. A curable silicone composition comprising

A) a diorganopolysiloxane base polymer system in which the polymers contain at least two vinyl groups per molecule which is a combination of:

(i) siloxane polymers with a molecular weight range of 30,000 to 1,000,000 grams/mole containing vinyl groups only at the terminals thereof having vinyl content in the range of 0.01 to 0.16 weight percent,

(ii) second siloxane polymers containing vinyl groups selected from the group consisting of:

a. siloxane polymers with a molecular weight range of 272 to 40,000 grams/mole containing vinyl groups which are located in only pendant positions having vinyl content in the range of 0.2 to 55.1 weight percent,

b. siloxane polymers with a molecular weight range of 272 to 40,000 grams/mole containing vinyl groups which are located at both pendant positions and

terminal positions thereof having vinyl content in the range of 0.2 to 55.1 weight percent,

c. siloxane polymers with a molecular weight range of 40,000 to 1,000,000 grams/mole containing vinyl groups which are located at only pendant positions thereof having vinyl content in the range of 0.01 to 55.1 weight percent,

d. siloxane polymers with a molecular weight of 40,000 to 1,000,000 grams/mole containing vinyl groups which are located at both pendant positions and terminals thereof having vinyl content in the range of 0.01 to 55.1 weight percent,

where the weight ratio of A(i) to A(ii)a or A(ii)b is from 99.7:0.3 to 5:95, the weight ratio of A(i) to A(ii)c or A(ii)d is from 95:5 to 5:95,

B) a silicon-containing crosslinker for the silicone base polymer system, said crosslinker containing at least two -SiH groups per molecule, the relative amounts of each of the components A and B having a weight ratio of from 20:1 to 1:10; and

C) a platinum group metal catalyst for curing the silicone composition at a concentration of from 0.1 to 500 parts by weight of platinum metal per million parts (ppm) based on the combined weight of ingredients A and B.

4. A composition as claimed in claim 1 wherein there is additionally present at least one blowing agent to generate a foam."

Claims 2, 3, 5 and 6 were further dependent claims directed to elaborations of the composition of Claim 1.

II. Notice of opposition was filed by GE Bayer Silicones GmbH & Co. KG (now Momentive Performance Materials GmbH) on 12 July 2004 on the grounds that the subject-matter of the European patent opposed was not new and did not involve an inventive step (Article 100(a) EPC).

The following documents were - ***inter alia*** - cited during the opposition procedure:

D1: DE 2 040 386 A;

D3: US 4 061 609 A;

D4: US 4 753 978 A; and

D5: US 4 879 317 A.

III. During prosecution of the case before the opposition division, the proprietor filed on 26 May 2006 amended sets of claims, ***inter alia*** 1st and 2nd auxiliary requests.

(a) The 1st auxiliary request contained five claims whereby Claim 1 corresponded to Claim 1 as granted except that at the end of the passage directed to component B) the word "and" had been deleted and at the end of the claim the following further restriction had been added:

"… ; and
D) at least one blowing agent to generate a foam."

New dependent Claim 4 of the 1st auxiliary request read as follows:

"A composition as claimed in claim 1 wherein the at least one blowing agent comprises benzyl alcohol."

(b) The 2nd auxiliary request contained four claims whereby Claim 1 corresponded to Claim 1 of the 1st auxiliary request except that component D) was defined as follows:

"D) at least one blowing agent to generate a foam, whereby the at least one blowing agent comprises benzyl alcohol."

IV. By an interlocutory decision which was announced orally on 25 July 2006 and issued in writing on 15 September 2006, the opposition division refused the main request and the 1st auxiliary request of the proprietor for lack of inventive step. The claimed subject-matter was considered obvious over D3 or D4 (main request) and over a combination of D3 and D5 or D4 and D5 (1st auxiliary request). The claims of the 2nd auxiliary request complied, according to the opposition division, with the requirements of the EPC, in particular Articles 123(2) and (3), 84, 54 and 56 EPC.

V. On 14 November 2006, the appellant (proprietor) lodged an appeal against the decision of the opposition division with simultaneous payment of the prescribed fee and requested that the decision under appeal be set aside and the patent be maintained as granted.

A statement setting out the grounds of appeal was filed on 15 January 2007. The arguments of the appellant may be summarized as follows:

The opposition division's decision was wrong because it did not apply the problem-solution approach correctly. In particular, the opposition division found that D3 or D4 could be regarded as closest prior art without giving any reason for its consectary in this respect. When applying the principles applied in the case law correctly, D5 was the closest prior art because D5 was in fact the only cited prior art document which was concerned with the same purpose as the invention, namely the provision of a silicone foam or silicone foam composition. Neither D1 nor D3 nor D4 related to the provision of a silicone foam or a silicone foam composition so that the person skilled in the art had no incentive to consider one of these documents as closest prior art when confronted with the objective to further develop a silicone foam or a silicone foam composition. D5 did not disclose a second siloxane polymer as defined by feature A(ii)a-d in Claim 1 as granted. Further, the person skilled in the art had no motivation to employ any of the ingredients disclosed in D1, D3 or D4 due to the differences between the applications and purposes of D1, D3 and D4 when compared with D5. Particularly, the person skilled in the art could not derive any hint from the cited prior art for modifying any siloxane and crosslinker ingredient of D5. There was no hint in any cited prior art that the ingredients A(i) and A(ii)a-d as defined in Claim 1 as granted should be selected.

Even if D3 were to be regarded as the closest prior art, a series of steps (selection of A(i), A(ii) and A/B ratio) needed to be taken in order to arrive at the claimed subject-matter. This could be considered as an indicator of the presence of inventiveness, particularly in a case where the last decisive step (the ratio of 20:1 to 1:10) had neither been proven to be known from the prior art or to be derivable therefrom although this last step might at first sight seem to be a very simple one.

The same argumentation applied when starting from D4 as the closest prior art.

As an auxiliary motion, the appellant requested that the patent be maintained in amended form based on the 1st auxiliary request filed before the opposition division with letter of 26 May 2006.

VI. In its reply dated 31 May 2007, the respondent (opponent) maintained the novelty objection already submitted in its notice of opposition, namely that the subject-matter of Claim 1 as granted was not novel over the disclosure of D1, D3 and D4. Basically, novelty over these documents could not be acknowledged due to the great overlap between the subject-matter generically defined in Claim 1 as granted and the generic disclosure of these documents. In this context, reference was made to T 12/90.

Further, the respondent disagreed with the appellant's opinion that D5 had to be considered as the closest prior art. It was evident from various passages in the patent in suit that the patent was not only concerned

with the provision of silicone foams but also to the provision of silicon elastomers which were of major commercial relevance. Thus, D1, D3 and D4 equally qualified as the closest prior art although D3 appeared to be particularly suitable as the starting point for the assessment of inventive step because this document already disclosed the principle of adding to a vinyl-terminated basic polysiloxane another polysiloxane containing vinyl groups in pendant positions in order to give the final composition good physical strength. The objective problem had to be seen in the provision of further curable silicone compositions. Since the generically defined subject-matter of Claim 1 as granted overlapped with the disclosure of D1, D3 and D4, it was obvious to modify the components within the general disclosure of these documents, in particular within the general disclosure of D3. Thus, the subject-matter of Claim 1 as granted was obvious from these documents.

As regards the 1st auxiliary request, D5 was considered to represent the closest prior art. The problem to be solved had to be seen in the provision of a further foamable composition. Trying to solve this problem, the person skilled in the art would turn to the composition of D3 which taught the guiding principle of combining a vinyl-terminated polysiloxane and a polysiloxane containing vinyl groups in pendant positions in order to give the final composition good physical strength. Thus, the subject-matter of Claim 1 of the auxiliary request was not inventive in view of a combination of D5 with D3.

Apart from that, Claim 4 of the 1st auxiliary request contravened Rule 80 EPC. It was not the purpose of the opposition procedure to give the patent proprietor the possibility to file new dependent claims.

VII. In a letter dated 25 October 2007 the appellant argued that the subject-matter of Claim 1 as granted was novel over D1, D3 and D4 as laid down in the decision of the opposition division since none of the cited documents disclosed the specific combinations of components A(i) and A(ii), B and C employed in the specific weight ratios A(i)/A(ii) and A/B as defined in Claim 1. Further, the appellant stressed that D5 was the closest prior art as it was the only cited prior art document which was concerned with the same purpose of providing a silicone foam and foam compositions.

VIII. On 22 January 2009, oral proceedings were held before the board.

As regards novelty and inventive step of the subject-matter of the main request, both parties basically relied on their written submissions whereby the respondent did not elaborate on its novelty objection based on D4 but merely referred to its written submissions.

Since the respondent maintained its objection that Claim 4 of the 1st auxiliary request contravened Rule 80 EPC and even questioned as to whether or not the subject-matter of new dependent Claim 4 had a proper basis in the application as filed, the appellant withdrew the 1st auxiliary request and filed a new request headed "Auxiliary Request". The new auxiliary

request differed from the withdrawn 1st auxiliary request in that the objected Claim 4 had been deleted and the erroneously amended dependency in Claim 4 (Claim 5 of the 1st auxiliary request) had been corrected. The respondent raised no objection against the filing of this amended auxiliary request.

As regards inventive step of the subject-matter of the auxiliary request, both parties considered D5 as the appropriate starting point and basically elaborated on their written submissions. The respondent emphasised that there was a hint in D3 to use a vinyl-terminated polysiloxane in combination with a polysiloxane containing vinyl groups in pendant positions in order to give the final composition good physical strength. Thus, there was an incentive for the person skilled in the art to modify the closest prior art by using the compositions of D3 when looking for alternative foamable compositions with high strength.

IX. The Appellant requested that the decision under appeal be set aside and the patent be maintained as granted (main request),or, in the alternative, that the patent be maintained on the basis of the auxiliary request filed at the oral proceedings on 22 January 2009.

The Respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

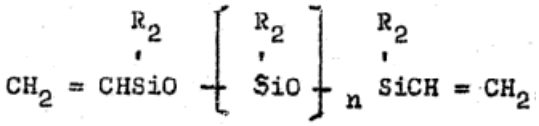
2. *Main request (claims as granted)*

2.1 Novelty (main request)

The respondent maintained its novelty objection already submitted in its notice of opposition, namely that the subject-matter of Claim 1 as granted was not novel over the disclosure of D1, D3 and D4.

2.1.1 D1 relates to organopolysiloxane compositions curable at ambient temperature containing a mixture of two organopolysiloxanes. Such compositions have excellent processability, because they can be cured in a desired time and are therefore very useful as injection moulding or moulding materials as well as coating materials on substrates (page 2).

The compositions of D1 contain (Claim 1) 100 parts by weight of a component 1) which is a vinyl-end capped organopolysiloxane having a viscosity of from 10 to 300000 cs at 25°C and is represented by the general formula:



whereby n is an integer of from 8 to 1500. In case of a polydimethylsiloxane (R = CH_3) which is explicitly disclosed on page 6, the polymerisation degree of n = 8 to 1500 for the above formula corresponds to a molecular weight of from 778 to 111186 and a vinyl content of from 0.0486 to 6.94% by weight. Thus, component 1) of D1 corresponds to component A(i) of the patent in suit whereby the definitions with respect to

the molecular weight range and the vinyl content overlap with the respective ranges required in Claim 1 as granted.

The compositions of D1 also contain a component 2) in an amount of from 0.01 to 200 parts by weight which is an organopolysiloxane whose main chain is composed of either d) RR'SiO units alone or d) RR'SiO units and e) $R'SiO_{1.5}$ units in a molar ratio with $e/(d+e) \leq 0.5$, and is terminated with organosiloxy units selected from $R"(R_2)SiO_{0.5}$ units, $R"OSi(R_2)O_{0.5}$ units and $HOSi(R_2)O_{0.5}$ units, where R is as previously defined, and at least 1 mole percent of the R' groups are vinyl radicals, the remainder of R' being similar or dissimilar monovalent hydrocarbon radicals which are free of aliphatic unsaturation, and R" is a saturated or unsaturated monovalent hydrocarbon radical. The component 2) of D1 corresponds in all aspects to component A(ii) of Claim 1 as granted.

Further, the compositions of D1 contain as component 3) an organohydrogen polysiloxane in which the total number of Si-H bonds is from 50 to 500% of that of vinyl radicals contained in components 1) and 2) and which contains at least three Si-H bonds in one molecule. Component 3) of D1 corresponds to component B in Claim 1 as granted. However, a concrete amount for component 3), eg a defined range, is not given in the general disclosure of D1. The respondent even admitted that such a range could not be derived from D1. Thus, there is no general disclosure in D1 equivalent to the weight ratio A/B in the patent in suit. The only specific disclosure in this context can be found in the examples of D1. Thus, the respondent pointed to

Example 1 of D1 where an amount of organohydrogen polysiloxane was used which corresponds to an A/B ratio of 13.7 which falls within the range defined in Claim 1 as granted (20-0.1).

Finally, the compositions of D1 contain as component 5) a catalytic amount of a platinum compound whereby the amount of platinum compound required is generally from 0.5 to 20 ppm (in terms of elementary platinum), based on total weight of the organopolysiloxane components contained in the composition (page 11). Thus, component 5) of D1 meets the requirements for component C in Claim 1 as granted.

2.1.2 The above detailed analysis of D1 shows that D1 describes some of the components/features of the composition of Claim 1 as granted but some of the components/features merely overlap with those required in Claim 1 as granted, in particular, there is an overlap between D1 and Claim 1 as granted as regards the molecular weight and the vinyl content of component A(i). Further, there is merely the isolated disclosure of the A/B ratio in the examples of D1, eg Example 1.

Thus, in order to arrive at something falling within the scope of Claim 1 as granted one would have to select from the disclosure of D1 an appropriate molecular weight and vinyl content of component 1) and an appropriate amount of component 3) (ie in order to arrive at an appropriate A/B ratio). However, such an approach cannot succeed because the combination is the result of a multiple selection from the disclosure of D1 which does not emerge from D1 as being explicitly or implicitly disclosed for the skilled person. As set out

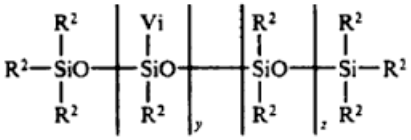
in, for example, T 453/87 of 18 May 1989 (not published in the OJ EPO; point 7.2 of the reasons) and T 653/93 of 21 October 1996 (not published in the OJ EPO, point 3.2 of the reasons), in case of a "multiple selection", one would have to show that the "combined selection" emerges from the prior art. In the present case, a person skilled in the art had no reason, when applying the teaching of D1, to concentrate on the combination of features set out in Claim 1 as granted. Such a combined selection is neither explicitly disclosed in nor clearly and unambiguously derivable from D1.

Consequently, the subject-matter of Claim 1 as granted and, by the same token, the subject-matter of dependent Claims 2-6 is novel over D1.

2.1.3 D3 relates to platinum catalyzed silicone rubber compositions with an improved work life having as an inhibitor additive a compound with at least one hydroperoxy radical. In a preferred embodiment (Claim 3), the silicon rubber composition contains a blend of vinyl-containing polymer comprised of a first polysiloxane of the formula

and having a viscosity that varies from 1,000 to 300,000,000 centipoise at 25°C, where Vi is vinyl and R^1 is selected from the class consisting of vinyl, phenyl, alkyl radicals of 1 to 8 carbon atoms, fluoroalkyl radicals of 3 to 10 carbon atoms and mixtures thereof and where x varies from 330 to 11,000,

and of 1 to 50 parts by weight of a second vinyl-containing polysiloxane of the formula



where Vi is vinyl and R^2 is selected from the class consisting of alkyl radicals of 1 to 8 carbon atoms, phenyl, fluoroalkyl radicals of 3 to 10 carbon atoms and mixtures thereof, y varies from 1 to 4,000 and z varies from 1 to 4,000, which have a viscosity that varies from 1,000 to 1,000,000 centipoise at 25°C.

If the first polysiloxane of the above mentioned blend is a polydimethylsiloxane (R = CH_3), the polymerisation degree of n = 330-11,000 corresponds to a molecular weight of from 26,604 to 814,186 and a vinyl content of from 0.0066 to 0.2195% by weight. Such a vinyl-terminated polydimethylsiloxane corresponds to component A(i) of the patent in suit whereby the definition with respect to the molecular weight range overlaps with the range required in Claim 1 as granted and the range for the vinyl content is broader than the range required in Claim 1 as granted.

The second polysiloxane of the blend disclosed in Claim 3 of D3 is a polysiloxane containing vinyl groups which are located only in pendant positions and therefore corresponds to component A(ii)a or A(ii)c of Claim 1 as granted. For R^2 = CH_3 in the above formula, the vinyl content of the polymer is from 0.009% by weight (y = 1 and z = 4000) to 31.37 (y = 4000 and z = 1) which overlaps to a great extent with the range required in Claim 1 as granted.

The amount of the second polysiloxane of the blend disclosed in D3 is 1 to 50 parts per 100 parts of the basic vinyl-containing polymer, ie the first polysiloxane of the blend (column 11, lines 30-42). Thus, the ratio of the first to the second polysiloxane overlaps with the ratio A(i)/A(ii) defined in Claim 1 as granted. For example, the ratio of 100:1 is covered by the disclosure of D3 whereas it is outside the definition of Claim 1 as granted. Further, as to whether or not a ratio of 100:2 would be covered by Claim 1 as granted depends on the molecular weight of the second polysiloxane of D3.

Further, the silicone rubber compositions of D3 contain 1 to 50 parts by weight of a hydrogen-containing polysiloxane (Claim 1 of D3) which corresponds to component B of Claim 1 as granted. The amount of a hydrogen-containing polysiloxane in D3 equates to a ratio of A/B as required in Claim 1 as granted of from 100:1 to 100:50 (100-2) which overlaps with the ratio required in Claim 1 as granted (ie 20-0.1). As admitted by the respondent, Example 1 of D3 uses an A/B ratio which is outside the scope of Claim 1 as granted, namely 31.25.

Finally, the composition of D3 contains at least 0.1 ppm of a platinum catalyst in terms of parts of platinum metal.

2.1.4 Thus, the above analysis of D3 shows that the circumstances of D3 resemble the circumstances of D1. In other words, in order to arrive at something falling within the scope of Claim 1 as granted one would have to make several selections from the disclosure of D3.

Thus, one would have to select: a polydimethylsiloxane as the first component of the blend of D3, the appropriate molecular weight and vinyl content of that component, a polysiloxane with an appropriate vinyl content as the second polysiloxane and the appropriate amount thereof, an appropriate amount of a hydrogen-containing polysiloxane. Again, such a combined selection is neither explicitly disclosed in nor clearly and unambiguously derivable from D3.

Consequently, the subject-matter of Claim 1 as granted and, by the same token, the subject-matter of dependent Claims 2-6 is novel over D3.

2.1.5 D4 relates to curable organosiloxane compositions that can be transported by pumping and cured by a platinum-catalyzed hydrosilation reaction to form elastomers exhibiting superior physical properties, particularly tensile strength and tear strength, without sacrificing other desirable properties, such as hardness of the cured elastomer or processability of the curable composition (column 1, lines 6-14). The compositions comprise according to Claim 1 the product obtained by mixing to homogeneity
(A) from 70 to 95 weight percent, based on the total weight of (A) and (B), of a first diorganovinylsiloxy terminated polydiorganosiloxane exhibiting a viscosity of from 20 to 200 Pa.s at 25°C and containing essentially no ethylenically unsaturated hydrocarbon radicals bonded to non-terminal silicon atoms,
(B) from 5 to 30 weight percent, based on the total weight of (A) and (B), of a second diorganovinylsiloxy terminated polydiorganosiloxane that is miscible with said first polydiorganosiloxane and exhibits a

viscosity of from 0.1 to 200 Pa.s at 25°C, where from 1 to 5 percent of the non-terminal repeating units of said second diorganovinylsiloxy-terminated polydiorganosiloxane contain a vinyl radical,
(C) an amount sufficient to cure said composition of an organohydrogensiloxane that is miscible with (A) and (B), and contains an average of more than two silicon bonded hydrogen atoms per molecule,
(D) a platinum hydrosilation catalyst in an amount sufficient to promote curing of said composition at a temperature of from ambient to 250°C, and
(E) from 10 to 60 weight percent, based on the weight of said composition, of a treated reinforcing silica filler.

It is evident from the above, that components (A), (B), (C) and (D) of D4 corresponds to components A(i), A(ii), B and C of the patent in suit. Even if one admits that components (A) to (D) as such meet the definitions set out in Claim 1 as granted or at least overlap with those definitions, the claimed subject-matter is novel over D4. As pointed out in the decision under appeal (point 3), D4 does not disclose the weight ratio corresponding to the required A/B ratio of Claim 1 as granted. There is no general disclosure in this respect and all the examples of D4 use a A/B ratio which is from 66:1 to 29:1 (*cf* Table 1, Samples 2 and 4), ie well above the upper limit of 20:1 required in Claim 1 as granted.

Consequently, the subject-matter of Claim 1 as granted and, by the same token, the subject-matter of dependent Claims 2-6 is novel over D4.

2.1.6 For its novelty objections the appellant basically relied upon T 12/90 of 23 August 1990 (not published in the OJ EPO). In that decision, the board decided that the disclosure in a document likely to affect the novelty of a claim was not necessarily limited to the specific working examples but also comprised any reproducible teaching described in the document. In particular, the information provided in the interfering document disclosed a group of compounds encompassing the two representative novelty-destroying examples (point 2.5 of the reasons of the decision). Thus, a simple disclaimer of these two examples was insufficient to restore novelty. However, the situation in the present case differs from T 12/90 (*supra*) in that neither D1 nor D3 or D4 clearly and unambiguously disclose the group of compositions having the requirements set out in Claim 1 as granted. In contrast to 12/90 (*supra*), none of the examples of these documents points to the now claimed group of compositions. Furthermore, the respondent has not shown that D1 and D4 disclose a generality with respect to the A/B ratio that would overlap with the ratio defined in Claim 1 as granted. With respect to D3, the A/B ratio overlaps to a some extent with the ratio required in Claim 1 as granted (100-0.2 *versus* 20-0.1), but there is no hint in D3 for a group of compositions having a A/B ratio in the area of overlap.

Hence, in the board's view the decisive question with regard to novelty is rather as to whether or not the claimed subject-matter is clearly and unambiguously derivable from the prior art. However, as shown above, this question cannot be answered in the affirmative for the present case.

2.1.7 In summary, the subject-matter of Claim 1 as granted and, by the same token, the subject-matter of dependent Claims 2-6 is novel over D1, D3 and D4.

2.2 Inventive step (main request)

2.2.1 An integral part of the appeal was the appellant's criticism that the opposition division had not applied the problem-solution-approach correctly. According to the appellant the opposition division had erroneously found that D3 or D4 could be regarded as closest prior art whereas in fact, D5 was the closest prior art because it was the only cited document which was concerned with the same purpose of providing a silicone foam and foam compositions.

2.2.2 However, the board cannot accept the appellant's criticism in this respect for the following reasons. Firstly, Claim 1 as granted is neither directed to a silicone foam nor a foam composition. Secondly, the patent specification itself emphasises in various passages that the invention relates also to elastomers. For example, the first two sentences of the patent specification state: "This invention relates to curable silicon compositions which provide high strength elastomers. These elastomers have high strength properties which are provided by a combination of organopolysiloxanes as the base polymer." Similar statements can be found in paragraph [0006] ("The elastomer forming compositions claimed herein provide high strength elastomers as shown by increased tensile strength, durometer and modulus, while also holding the tear strength relatively constant.") and in

paragraph [0010] ("This invention introduces curable silicone compositions which provide high strength foams and elastomers."). Only upon addition of a blowing agent, which is not a requirement of Claim 1 as granted, are the compositions also useful in the preparation of high strength foams (last sentence of paragraph [0001] of the patent specification).

Hence, D1, D3 and D4 qualify as closest prior art because they are all in the technical field envisaged by Claim 1 and the patent specification, and the appellant's assessment of inventive step starting from D5 is flawed from the beginning.

2.2.3 It appears, however, that D3 is particularly suitable as the starting point for the assessment of inventive step. D3 discloses in column 11, lines 29 *ff* and in Claim 3 the guiding principle of adding to the vinyl-terminated basic polysiloxane another polysiloxane containing vinyl groups in pendant positions in order to give the final composition good physical strength. Further, it is stated in column 11, line 67 to column 12, line 1 that the polysiloxanes containing vinyl groups in pendant positions are basically for the purpose of reinforcing the strength of the basic composition in the absence of a filler. Thus, D3 already discloses the guiding principle which also the patent in suit claims to be "the essence of the invention". Paragraph [0012] of the patent specification states: "The essence of this invention is the combination of polymers to form the base polymer system, selected from (A)(i) and any of the polymers from (A)(ii)a-d to provide enhanced physical properties." It may be appropriate to recall at this

juncture that the patent in suit wants to provide "high strength" (see the above cited passages in paragraphs [0001], [0006] and [0010] of the patent specification). Hence, D3 not only has the greatest number of technical features in common with the claimed subject-matter, but also discloses technical effects and intended use most similar to the claimed subject-matter. Consequently, the board agrees with the respondent that D3 is indeed the closest prior art.

2.2.4 The next step in the "problem and solution approach" is an objective assessment of the technical results achieved by the claimed subject-matter compared with the results according to the closest state of the art in order to define the objective technical problem.

The board notes that a direct comparison between a composition according to Claim 1 as granted and a composition according to the closest prior art, eg Example 1 of D3, is not available, in particular because it turned out that all the elastomer samples presented in Example 2 of the patent specification do not meet the requirements of Claim 1 (ie the A/B ratio is too high). Thus, the objective technical problem vis-à-vis the closest prior art can only be seen in the provision of alternative high strength curable silicon compositions.

2.2.5 It remains to be decided whether the proposed solution, ie a curable composition as defined in Claim 1 as granted, is obvious from the prior art.

Starting from D3, the person skilled in the art would be aware of the guiding principle disclosed in D3,

namely the combined use of a vinyl-terminated basic polysiloxane and a polysiloxane containing vinyl groups in pendant positions in order to give the final composition good physical strength. Faced with the problem of providing alternative high strength curable silicone compositions, the person skilled in the art would of course not only consider the exemplified combinations of a vinyl-terminated basic polysiloxane and a polysiloxane containing vinyl groups in pendant positions but also other combinations falling within the general teaching of D3. Since, as demonstrated above, the general teaching of D3 overlaps with the claimed subject-matter of Claim 1 as granted, the person skilled in the art would inevitably arrive at something falling within the scope of Claim 1 as granted. Thus, the subject-matter of Claim 1 as granted is obvious from D3 alone.

The appellant's argument that in particular the ratio of A/B (20:1 to 1:10 being equal to 20-0.1) would not be derivable from the prior art is not convincing. As pointed out in point 2.1.3, above, D3 envisages a ratio of 100-2 which overlaps to a certain extent with the ratio required in Claim 1 as granted. Thus, the person skilled in the art would learn from D3 that it was possible to work with ratios lower than the ratio of 31.25 exemplified in Example 1 and would therefore inevitably arrive at a ratio falling within the range defined in Claim 1 as granted.

2.3 Since Claim 1 as granted is not based on an inventive step with respect to D3, the main request (ie claims as granted) has to be refused.

3. *Auxiliary request*

3.1 At the oral proceedings, the appellant filed a new auxiliary request which replaced the auxiliary request filed on 26 May 2006 headed "1st Auxiliary Request". Since the new auxiliary request differed from the previous auxiliary request merely by the deletion of a dependent claim and the correction of a dependency, the board was satisfied that the other party could properly deal with the late filed auxiliary request. Nor did the respondent raise an objection in this connection. Consequently, the new auxiliary request was admitted into the proceedings for consideration.

3.2 Amendments (auxiliary request)

Claim 1 of the new auxiliary request is a combination of Claims 1 and 4 as granted, ie Claim 1 requires now the presence of "D) at least one blowing agent to generate a foam". Dependent Claims 2-4 corresponded to Claims 2, 3 and 5 as granted. Thus, no objections under Articles 123 and/or 84 EPC arise out of the amendment. Nor was any objection raised by the respondent in this respect.

3.3 Novelty (auxiliary request)

The subject-matter of Claim 1 of the main request has been found to be novel over the cited prior art. Since the subject-matter of Claim 1 of the auxiliary request has been further restricted it goes without saying that the subject-matter of Claim 1 of the auxiliary request (and of dependent Claims 2-4) is also novel. Nor was novelty questioned by the respondent.

3.4 Inventive step (auxiliary request)

3.4.1 The board agrees with the parties that in view of the amendment of Claim 1 of the auxiliary request to curable silicone compositions comprising at least one blowing agent, ie to foamable compositions, D5 becomes the closest prior art. D5 is the only cited prior art dealing with foams. In particular, D5 discloses a foamable composition comprising a vinyl-terminated polydiorganosiloxane, a hydride polysiloxane in the form of a mixture of a linear hydride polysiloxane and a cyclic hydride polysiloxane, a hydroxylated material (preferably aqueous methanol) and an effective amount of a platinum catalyst.

3.4.2 It is evident from the patent in suit that the foamable compositions are useful in the preparation of high strength foams (page 2, lines 6-7 of the patent specification). However, as pointed out by the respondent, there is no evidence on file that the claimed foamable compositions provide an improvement over the foamable compositions of the closest prior art, ie D5. Thus, the objective technical problem vis-à-vis D5 can only be seen in the provision of alternative foamable silicon compositions yielding high strength foams.

3.4.3 Starting from D5 and faced with the problem of providing curable silicone compositions that yield high strength foams, the person skilled in the art would of course consult all documents dealing with high strength silicone elastomers in general and not only with foamed silicone elastomers. As pointed out by the respondent,

the person skilled in the art would be fully aware of the fact that it is the polysiloxane material that mainly determines the properties of the final foam. This is common general knowledge and also apparent from two passages of D5 itself, namely column 1, lines 46-50 and column 4, lines 24-27. When looking for curable silicone compositions that provide high strength, the person skilled in the art would find in D3 the disclosure that the combination of a vinyl-terminated polysiloxane and a polysiloxane containing vinyl groups in pendant positions provides good physical strength to the final composition (see point 2.2.3 above). It may be worth repeating at this juncture that D3 explicitly states that the polysiloxanes containing vinyl groups in pendant positions "are basically for the purpose of reinforcing the strength of the basic composition in the absence of a filler" (column 11, line 67 to column 12, line 1). Thus, the person skilled in the art had a motivation to modify the closest prior art by using the silicone compositions of D3. Since, furthermore, as set out above, the general definitions of the components disclosed in D3 overlap with the silicone components as defined in Claim 1 as granted (and Claim 1 of the auxiliary request, respectively), the person skilled in the art would inevitably arrive at something falling within the scope of Claim 1 of the auxiliary request. Thus, the subject-matter of Claim 1 of the auxiliary request is obvious from D5 in combination with D3.

3.5 Since Claim 1 of the auxiliary request is not based on an inventive step with respect to a combination of D5 with D3, the auxiliary request has to be refused.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

E. Görgmaier R. Young