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**Datasheet for the decision  
of 07 April 2011**

**Case Number:** T 1400/07 - 3.3.07

**Application Number:** 01992556.9

**Publication Number:** 1355615

**IPC:** A61K 7/00

**Language of the proceedings:** EN

**Title of invention:**

Transparent aqueous compositions comprising hydrophobic  
silicone oils

**Patent Proprietors:**

Kao Corporation

**Opponents:**

- I. Henkel Kommanditgesellschaft auf Aktien
- II. The Procter & Gamble Company
- III. Sasol German GmbH
- IV. L'OREAL

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56

**Relevant legal provisions (EPC 1973):**

-

**Keyword:**

"Inventive step (no)"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 1400/07 - 3.3.07

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.07  
of 07 April 2011

**Appellants:**  
(Opponents II)

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(Patent Proprietors)

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**Decision under appeal:**

Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
21 June 2007 concerning maintenance of European  
patent No. 1355615 in amended form.

**Composition of the Board:**

**Chairman:** J. Riolo  
**Members:** F. Rousseau  
P. Schmitz

## Summary of Facts and Submissions

I. The Appellants (Opponents II) lodged an appeal on 23 August 2007 against the interlocutory decision of the opposition division posted on 21 June 2007 which found that European patent No. 1 355 615 as amended according to the documents of the main request submitted during the oral proceedings on 03 May 2007 met the requirements of the EPC. Claim 1 according to that request read as follows (the deletions made in claim 1 as granted being indicated by the Board in strikethrough and the additions made, in bold and underlined) :

"1. ~~An~~ Optically transparent aqueous composition comprising

(a) a hydrophobic silicone oil in an amount of 1-3 wt.-% with respect to the total weight of the composition **wherein the hydrophobic silicone oil is volatile;**

(b) a solubilizer for the silicone oil; ~~and~~

(c) an anionic surfactant; **and**

**(d) a vegetable oil such that the weight ratio of vegetable oil to silicone oil is 1:3 to 3:1;**

wherein the weight ratio of component (b) to component (a) is in the range of 1:1 to 12:1; and wherein the total amount of the components (b) and (c) is in the range of 10-25 wt.-% with respect to the total weight of the composition."

II. Notice of Opposition had been filed by the Appellants and the Parties as of right (Opponents I, III and IV) requesting revocation of the patent as granted in its entirety on the grounds *inter alia* of lack of novelty

and inventive step (Article 100(a) EPC). The following documents were *inter alia* submitted in the opposition proceedings:

- D6 H. Denzer, J. Jansen, M. Reininghaus,  
Parfümerie und Kosmetik, "Clear results,  
transparent hair care shampoos with solubilized  
silicone oil or vegetable oils", 80. Jahrgang,  
Nr. 6/1999, pages 18-20
- D17 US-A-5 180 584
- D30 Experimental data submitted by the Patent  
Proprietors with letter of 04 May 2006
- D33 Experimental data submitted by the Patent  
Proprietors with letter of 03 April 2007.

III. The decision under appeal held that the patent in its amended form met the requirements of Article 123(2), 123(3), 83 and 54 EPC. As concerns inventive step, an appropriate starting point for assessing inventive step was represented by the disclosure of document D6 from which the claimed subject-matter differed in the combined use of a volatile hydrophobic silicone oil in an amount of 1-3 wt.-% and vegetable oil. Based on the experimental report D30, which was held to demonstrate the existence of a synergetic hair gloss effect between the jojoba oil and the decamethylcyclopentasiloxane, the problem solved over the closest prior art was seen in the provision of transparent hair care compositions having improved hair gloss. Although the skilled person would have combined silicone oil and vegetable oil in order to arrive at transparent hair care compositions, he would not have done so in the expectation of a synergetic hair gloss effect, that was not derivable

from the prior art. The claimed subject-matter was therefore inventive.

IV. The statement setting out the grounds of appeal was submitted on 1 November 2007.

V. The Respondents (Patent Proprietors) submitted with their response to the grounds of appeal dated 14 May 2008 a further experimental report, hereafter referred to as D34.

VI. On 7 April 2011 oral proceedings took place before the Board.

VII. The arguments of the Appellants, who only relied on a lack of inventive step of the claimed subject-matter, can be summarised as follows:

(a) Document D17, in particular in view of its examples 6 and 7, was considered at the oral proceedings before the Board as a suitable starting point for analysing inventive step. The claimed subject-matter as amended was held to differ from the disclosure of D17 only in that a vegetable oil in an amount as defined in present claim 1 was also employed.

(b) The application as filed and the patent as granted did not mention any enhancement in respect of gloss that originated in the use of a vegetable oil. In the patent in suit no effect was attributed to the vegetable oil, said component being only optionally present in the claimed composition. Even if vegetable oils were known to

provide enhanced gloss properties as indicated in D6, the skilled person would simply assume on reading the application as filed, in particular paragraph [0002], that the gloss properties addressed to in the patent in suit, were meant to originate from the use of a high amount of silicone oil that was mandatory. Hence, the assessment of inventive step could not take the alleged synergism between the volatile silicone oil and the vegetable oil into account, as this effect went beyond the teaching of the application as filed. The test reports of documents D30 and D33 that offered a comparison with the compositions of D6, but not with those of D17, were therefore not relevant for assessing which problem was solved over the closest prior art. The test report of D34 did not allow to determine the influence of the addition of a vegetable oil on the gloss properties. Furthermore, no effect had been shown to be associated with the selection of the relative amounts of volatile silicone oil and vegetable oil, which selection was therefore arbitrary. The problem solved over the closest prior art was thus the provision of further transparent hair gloss compositions.

- (c) The use of a vegetable oil in combination with the volatile silicone oil in order to solve this problem was obvious in view of D6, as the solubilizers used in D6 for providing transparent compositions that contained solubilized vegetable oils were the same as those used in D17 for solubilizing the volatile silicone oil. The



claimed subject-matter lacked therefore an inventive step.

VIII. The counter-arguments of the Respondents can be summarised as follows:

- (a) At the oral proceedings before the Board the Respondents used D17 as starting point for analysing inventive step, although D6 had been considered in their written submissions to represent the closest prior art.
  
- (b) In their opinion the patent in suit sought to provide a composition that simultaneously improved hair shine and was highly optically transparent, while containing increased amount of silicone oil. The objective to obtain an improved hair gloss was implicit in the original application documents. Paragraph [0057] of the patent in suit indicated that the claimed compositions were particularly useful as hair gloss shampoos and compositions according to examples 2 and 3 of the patent in suit were labelled "hair gloss shampoos". In addition, paragraph [0002] of the opposed patent explicitly stated that silicone oils were used in personal care product to enhance hair gloss and gloss was one of the key properties checked when developing a new shampoo. According to paragraph [0045] of the patent, the compositions preferably contained a vegetable oil, in which case the silicone oil was preferably volatile according to [0047].

- (c) The problem of providing a composition that simultaneously improved hair shine and was highly optically transparent was successfully solved as evidenced by experimental data D30, D33 and D34. With a view to demonstrate the benefits of the claimed compositions over those disclosed in D17, it was referred to D30 which was considered to show that a combination of vegetable oil and volatile silicone oil lead to a higher gloss value and simultaneously to a highly optically transparent solution. D33 was held to show that the replacement of 2% by weight of a volatile silicone oil with a mixture of 1% by weight of jojoba oil and 1% of the same volatile silicone oil resulted in an improvement of the optical transmission. Moreover, it could be deduced from D34 that the composition using the two oils in combination had high gloss values and the highest transparency.
- (d) When considering the teaching of documents D6 and D17, it should be acknowledged that neither one of these two documents contained any incentive that the combination of the two types of oils lead to these two effects simultaneously. Document D6 only described either the use of the vegetable oil or the use of the silicone oil as the sole oily component, the amount of oil being at most 0,5% by weight for the silicone oil and 1% for the vegetable oil. Document D17 described higher amounts of silicone oil, but was silent in respect to any gloss effect.

(e) Even, if the problem solved over D17 were to be seen in the mere provision of a further shampoo composition that is optically clear and brings about hair gloss, it would not have been obvious for the skilled person to use a vegetable oil in the context of the compositions of D17, as vegetable oils were not mentioned as possible adjuvants of the composition of D17 and because it would not have been predictable for the skilled person whether or not the composition then obtained would show the required optical transparency.

(f) The subject-matter of the claims as amended met therefore the requirements of Article 56 EPC.

IX. The Parties as of right did not submit any arguments.

X. The Appellants requested that the decision under appeal be set aside and that the patent be revoked.

XI. The Respondents requested that the appeal be dismissed.

XII. The decision was announced at the oral proceedings.

### **Reasons for the Decision**

1. The appeal is admissible.

2. The only issue arising from these appeal proceedings is inventive step.

*Closest state of the art*

3. The closest prior art for the purpose of assessing inventive step is generally that which corresponds to a purpose or effect similar to that of the invention and requiring the minimum of structural and functional modifications (Case Law of the Boards of Appeal of the European Patent Office, 6<sup>th</sup> edition, 2010, I.D.3.1). According to paragraph [0007] of the patent in suit, the objective underlying the present invention is to provide an easily preparable, optically transparent aqueous composition, that is suitable as hair shampoo and contains compared to the prior art cited in paragraph [0006] of the patent in suit (which corresponds to document D6 in the present proceedings) an increased amount of hydrophobic silicone oil, *i.e.* higher than 0,5 wt%.
  
4. D17 relates to washing compositions for cosmetic or dermatological use that comprise an aqueous medium and are in the form of opaque or clear products (claim 1, column 10, lines 14-16). They comprise based on the total weight of the composition, 0,2 to 30 wt.-% of a silicone insoluble in said medium and not reactive with the latter and at least 7 wt.-% of a polyoxyalkylenated carboxylic ether acid or one of its salts as detergent and dispersing agent for the insoluble silicone (claims 1 and 8, column 1, lines 1-26 and column 6, lines 33-45). Examples 6 and 7 of D17 (Table 2) relate in particular to clear, *i.e.* optically transparent, aqueous shampoo compositions that comprise 2,5 wt.-% of a volatile hydrophobic silicone oil (either decamethylcyclopentasiloxane or decamethyltetrasiloxane ; see column 10, lines 33-50),

9 wt.-% of a dispersing agent for the silicone oil (Akypo NP 70) and 10 wt.-% of an anionic surfactant (sodium C<sub>12</sub>-C<sub>14</sub> alkyl ether sulphate oxyethylenated with 2,2 moles of ethylene oxide). Thus, the shampoos according to examples 6 and 7 of D17 solve the technical problem defined in the patent as granted. Moreover, the compositions according to claim 1 of the present request differ structurally from those of examples 6 and 7 of document D17 only in that they contain a vegetable oil in a weight ratio of vegetable oil to silicone oil of 1:3 to 3:1. Document D6 considered as closest prior art in the decision under appeal does not however solve the technical problem defined in the patent in suit and the compositions disclosed therein are structurally more remote than those of D17 as they neither contain the silicone oil in the amount presently claimed, nor a mixture of silicone oil and vegetable oil. Consequently, the optically clear shampoo compositions of D17, especially those according to its examples 6 and 7, are considered to represent the closest prior art and therefore the starting point for assessing inventive step.

*Problem and solution*

5. According to the Case Law (*supra*, I.D.4.3.2) the definition of the technical problem to be solved should normally start from the technical problem actually described in the patent in suit in relation to the closest state of the art indicated there. If it turns out that an incorrect state of the art was used, it is however appropriate to consider another problem, provided that the skilled person would deduce it from the application as filed when considered in the light

of the closest prior art (Case Law, *supra*, I.D.4.4). Having regard to the clear aqueous shampoo compositions of D17, in particular those of examples 6 and 7, it was undisputed that the claimed compositions were also optically clear and provided hair gloss. The opinions of the Appellants and the Respondents, however, diverged on the question whether the claimed compositions exhibited in comparison to those disclosed in document D17 an improved hair gloss, and whether this effect could be deduced from the application as filed when considered in the light of that document.

6. As indicated in the application as filed (page 1, lines 8-12), it is common general knowledge in the field of cosmetic to use silicone oils as they bring about hair gloss and provide to hair and skin a smooth feeling. According to the first paragraph on page 15 of the application as filed and in line with this common general knowledge, the compositions of the present invention are described to show a number of beneficial properties in view of their high silicone content, the compositions being particularly useful among others as hair gloss shampoos. The application as filed, however, does not indicate that hair gloss shampoos according to the present invention should necessarily contain a vegetable oil, which according to the application as filed is only an optional ingredient. In fact, the application as filed fails to attribute any specific function to the use of vegetable oils, which for the skilled person in the field of cosmetic are not necessarily used to provide enhanced shine, but for example also to provide soft feel, to benefit to sensitive scalp or for smoothing damaged hair (D6, page 18, middle-column, lines 11-13 and page 19, right-

hand column, lines 5-8). The only two compositions exemplified in the application as filed that contain a vegetable oil, namely jojoba oil, in addition to the volatile silicone oil, do not allow to determine the function of the jojoba oil, as those shampoos are either indicated as a hair and scalp shampoo for elderly people (example 1) or as a hair gloss shampoo (example 3), whereas the only other exemplified composition of example 2 that is entitled "hair gloss shampoo" does not contain any vegetable oil. In other words, no link can be made in the application as filed between the denomination "hair gloss shampoo" and the use of a vegetable oil.

7. The Respondents argued that the skilled person would understand that the hair gloss effect obtained with composition of example 3 was due to the presence of the vegetable oil as the volatile silicone employed evaporated, leaving behind only the vegetable oil. In other words, the application as filed would teach that in order to provide hair gloss, it would be necessary to add a vegetable oil if a volatile silicone were used. The application as filed, however, teaches the use of both volatile and non-volatile silicone oils, whereas the use of a volatile oil alone without any vegetable oil is also encompassed by the application as filed. Furthermore, the application as filed teaches to preferably select a volatile silicone oil, if a vegetable oil is used, but not the converse, as was argued by the Respondents. The Respondents' argument also would contradict the common general knowledge represented for example by Document D6 according to which volatile silicones provide sheen on hair. Thus, the Respondents' argument that it was implicit from the

application as filed that the purpose of using a vegetable oil in the composition of example 3 was to compensate the poor hair gloss resulting from the evaporation of the volatile silicone fails to convince. The Respondents' argument that gloss is one of the key properties that is checked when developing a new shampoo does not allow to conclude in the present case, that the use of a vegetable oil was designed to improve the gloss properties provided by the claimed compositions, as the claimed compositions according to the application as filed are not used only for providing hair gloss shampoos, but also for making detangling shampoos, silky hair shampoos, fast drying shampoos, elderly people shampoos, colour care shampoos and special care shampoos.

8. Concerning the shampoos' optical properties, the patent in suit does not provide the slightest hint, even implicitly, that the combined use of a vegetable oil and a volatile silicone might lead to a higher transparency of the shampoo compositions.
  
9. Consequently, it cannot be inferred from the application as filed and on the basis of the general knowledge of the skilled person that the purpose of using a vegetable oil was to improve the hair gloss and/or the optical clarity of the composition. Hence, independently on the question whether any improvement in respect of those effects could be considered to have been convincingly demonstrated in view of evidence D30, D33 and D34, such an improvement cannot be retained in the definition of the technical problem, as it cannot be deduced from the application as filed when considered in the light of the closest prior art.



10. The selection of the claimed weight ratio of vegetable oil to silicone oil of 1:3 to 3:1 has neither been indicated, nor shown to be critical, in order to achieve any particular technical effect, so that it must be considered as a mere arbitrary restriction of no technical significance. Having regard to the disclosure of D17, especially to the compositions of examples 6 and 7, the problem underlying the patent in suit in its amended form, may be therefore regarded in view of example 1 of the patent in suit and exemplified compositions 5 and 6 of test report D34, as the mere provision of a further shampoo composition that is optically clear and brings about hair gloss. The Appellants did not dispute that this problem was successfully solved by the claimed compositions. As the solution to this problem, the patent in suit in its present form proposes the use of vegetable oil in an amount such that the weight ratio of vegetable oil to silicone oil is 1:3 to 3:1.

*Obviousness*

11. It remains to be decided whether or not the skilled person, starting from document D17, in particular from the composition of example 6 or 7, and wishing to solve the above defined problem would have been guided by the available prior art to the claimed solution.
12. D6 relates to transparent hair care shampoos with solubilized silicone oil or vegetable oils (see title; exemplified compositions on page 20 ; last paragraph of the right-hand column on page 18), those additives being known according to D6 to bring about shine and

soft feel (page 18, middle column, lines 11-13). Examples of vegetable oils are macadamia nut oil, avocado oil, sesame oil or jojoba oil as indicated in Figure 2. The silicone oil used in the exemplified compositions, *i.e.* cyclomethicone, is hydrophobic and volatile (see figure 5 and last paragraph of the right-hand column on page 19). The exemplified clear shampoo compositions indicated in figures 3 and 4, which illustrate the solubilization of 1 wt.-% of a vegetable oil, comprise an anionic surfactant (sodium laureth sulfate), a solubilizer for the vegetable oil of the same type as those used in D17 (Akyo series ; see D6, figure 1 on page 18 and figures 3 to 5 on page 20). Hence, D6 teaches that vegetable oils, which are known to be used in shampoo compositions for bringing about shine, can be solubilized using the same solubilizers as in D17 when preparing clear shampoo compositions based on anionic surfactants. Therefore, in the Board's opinion the skilled person starting from the optically clear shampoo compositions of examples 6 and 7 of D17 and with a view to provide further shampoo compositions that are optically clear and bring about hair gloss, would have been prompted by D6 to replace a part of the volatile silicone oil additive used in the examples 6 and 7 of D17 by an additive which according to D6 can be solubilized in the same manner and has a similar function such as a vegetable oil, for example in the arbitrary range of amounts defined in present claim 1.

13. The Respondents' argument that the claimed composition was not obvious, because D17 was silent in regard to any gloss effect, fails to convince, as it is common ground as outlined in paragraph [0002] of the patent in suit that silicone oils were used in the field of hair

care products for their smoothing and hair gloss enhancing properties. The Respondents also argued that the skilled person would not have used a vegetable oil in the context of document D17, as vegetable oils were not mentioned in the passage starting at column 12, line 8, that listed the adjuvants which may be employed for that invention. This argument is not persuasive as D17 does not exclude the use of other additives not explicitly disclosed in that list of adjuvants. D17 in particular indicates in column 11, lines 48-52 that the compositions may optionally contain additional agents which have the effect of improving the cosmetic properties of hair and/or the skin provided that they do not alter the stability of the composition. Thus, a skilled person would not be deterred to incorporate into the compositions of D17 agents such as specific vegetable oils known for their beneficial cosmetic properties, if there existed any possibility to do so without detriment to the composition's stability. Such a possibility is in fact taught in D6 according to which vegetable oils can be effectively solubilized in a stable manner in transparent hair care shampoos in the same way as in D17 (see in particular page 19, right-hand column, lines 28-31).

14. The Respondents also contended that the skilled person would not have replaced a part of the silicone oil used in D17 by a vegetable oil, because it would not have been predictable whether or not the composition then obtained would show optical transparency. The criteria for judging obviousness of a measure is not absolute predictability of the result expected, but rather whether the skilled person would have been prompted to take the claimed measure with a reasonable expectation

of success. In the present case, the person skilled in the art had plausible reasons to expect in the context of D17 to obtain with the combined use of a vegetable oil and a volatile silicone oil optically transparent solutions, as D6 teaches that vegetable oils such as jojoba oil can be solubilized in the same manner as volatile silicone oils are solubilized in D17 when wishing to provide clear shampoo compositions based on anionic surfactants. Therefore, the fact that the shampoo compositions according to example 1 of the patent or exemplified compositions 5 and 6 of test report D34 are optically clear is not surprising, but only a confirmation of these expectations.

15. For these reasons, the solution proposed in amended claim 1 is obvious in the light of the prior art. As a result, the Respondents' sole request is not allowable for lack of inventive step pursuant to Article 56 EPC.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar

The Chairman

S. Fabiani

J. Riolo