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Datasheet for the decision of 24 February 2026

Case Number: T 0601/24 - 3.3.07

Application Number: 16812731.4

Publication Number: 3389604

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Language of the proceedings: EN

Title of invention:

COMPOSITION COMPRISING A COMBINATION OF PARTICULAR ALKOXYSILANES AND A FATTY SUBSTANCE

Patent Proprietor:

L'OREAL

Opponent:

Henkel AG & Co. KGaA

Headword:

Combination alkoxysilanes and a fatty substance / L'OREAL

Relevant legal provisions:

EPC Art. 123(2), 84, 56

Keyword:

Amendments - added subject-matter (no)
Claims - clarity after amendment (yes)
Inventive step - (yes)

Decisions cited:

G 0003/14

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Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0

Case Number: T 0601/24 - 3.3.07

D E C I S I O N
of Technical Board of Appeal 3.3.07
of 24 February 2026

Appellant: (Opponent)	Henkel AG & Co. KGaA Henkelstrasse 67 40589 Düsseldorf (DE)
Representative:	Henkel AG & Co. KGaA CLI Patente 40191 Düsseldorf (DE)
Respondent: (Patent Proprietor)	L'OREAL 14 rue Royale 75008 Paris (FR)
Representative:	Casalonga, Axel Casalonga & Partners Bayerstrasse 73 80335 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted/ electronically transmitted on 1 March 2024 concerning maintenance of the European Patent No. 3389604 in amended fo rm.**

Composition of the Board:

Chairman	A. Usuelli
Members:	J. Lécaillon
	Y. Podbielski

Summary of Facts and Submissions

I. European patent 3 389 604 (hereinafter "the patent") was granted on the basis of 16 claims. The independent claim 1 of the patent as granted related to a composition comprising (a) one or more alkoxysilanes bearing solubilizing functions of a formula (I), (b) one or more alkoxysilanes of a formula (III) and (c) one or more fatty substances wherein the compounds (a) and (b) were present in an (a)/(b) weight ratio ranging from 0.5 to 10.

II. An opposition was filed against the patent on the grounds that its subject-matter lacked novelty and inventive step.

III. The opposition division took the decision that, on the basis of auxiliary request 1 filed on 17 November 2023, the patent met the requirements of the EPC. The decision was based on an amended main request filed on 13 July 2022 and this auxiliary request 1.

IV. The decision of the opposition division, posted on 1 March 2024, cited *inter alia* the following documents:

D1: WO 2013/068979 A2
D5: US 3 876 459 A
D8: WO 2015/011258 A1
D13: Experimental report dated 13 July 2022

V. The opposition division decided in particular as follows:

(a) The subject-matter of claim 1 of the main request was not novel over D1 and D5.

(b) Claim 1 of auxiliary request 1 met the requirements of Articles 123(2) and 54 EPC.

(c) The claims of auxiliary request 1 were clear (Article 84 EPC) and the amendments performed did not introduce any ambiguity compared to the granted claims.

(d) The subject-matter of claim 1 of auxiliary request 1 involved an inventive step starting from D8 as closest prior art.

VI. The opponent (appellant) lodged an appeal against the above decision of the opposition division.

VII. With its reply to the appellant's statement setting out the grounds of appeal the patent proprietor (respondent) defended its case on the basis of the auxiliary request 1 filed during the opposition proceedings on 17 November 2023 and maintained by the opposition division as the main request, and on the basis of auxiliary requests 1 to 8 filed therewith.

The content of the claim upon which the present decision is based can be illustrated as follows:

Claim 1 of the main request read as follows:

"1. Composition comprising:

(a) one or more alkoxysilanes bearing solubilizing function(s) of formula (I) below, and/or hydrolysis products thereof and/or oligomers thereof:

$$R_1Si(OR_2)_z(R_3)_x(OH)_y \quad (I)$$

in which:

R_1 is a linear or branched, saturated or unsaturated, cyclic or acyclic C_1-C_6 hydrocarbon-based chain substituted with one or more groups chosen from the following groups:
- amine NH_2 or NHR, R being:
  - o a C_1-C_{20} and preferably C_1-C_6 alkyl group optionally substituted with a group comprising a silicon atom,
  - o a C_3-C_{40} cycloalkyl group or
  - o a C_6-C_{30} aromatic group,
- hydroxyl,
- thiol,
- aryl or aryloxy substituted with an amino group or with a C_1-C_4 aminoalkyl group,

R_1 possibly being interrupted with a heteroatom such as O, S or NH, or a carbonyl group (CO),
R_2 and R_3, which may be identical or different, represent a linear or branched alkyl group comprising from 1 to 6 carbon atoms,
y denotes an integer ranging from 0 to 3,
z denotes an integer ranging from 0 to 3, and
x denotes an integer ranging from 0 to 2,
with z + x + y = 3,

(b) one or more alkylalkoxysilanes of formula (III) below, and/or hydrolysis products thereof and/or oligomers thereof:

$$(R_4)mSi(OR_5)_n \quad (III)$$

in which:
R_4 and R_5 each represent, independently of each other, a C_{1-6}, better still C_{1-4}, alkyl group such

as methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl and tert-butyl, preferably methyl, ethyl or n-propyl,

n ranges from 1 to 3,

m ranges from 1 to 3,

on condition that m+n=4,

and

(c) one or more fatty substances, the fatty substance(s) being liquid or solid, the liquid fatty substance(s) being chosen from hydrocarbons, fatty alcohols, fatty esters, volatile silicones, and mixtures thereof,

the hydrocarbons being chosen from linear or branched C_6-C_{16} alkanes and linear or branched hydrocarbons of mineral, animal or synthetic origin with more than 16 carbon atoms,

the fatty esters being esters of saturated or unsaturated and linear or branched C_1-C_{26} aliphatic mono- or polyacids and of saturated or unsaturated and linear or branched C_1-C_{26} aliphatic mono- or polyalcohols, the total number of carbon atoms in the esters being greater than or equal to 10, and

the volatile silicones being chosen from:

(i) cyclic silicones comprising from 3 to 7 silicon atoms, and

(ii) linear volatile silicones containing 2 to 9 silicon atoms and having a viscosity of less than or equal to 5×10^{-6} m^2/s at 25°C,

wherein the compounds (a) and (b) are present in an (a)/(b) weight ratio ranging from 0.5 to 7."

VIII. The following items of evidence was filed by the appellant with their statement setting out the grounds of appeal:

D14: SciFinder Abstract of CAS entry for Eicosamethylnonasiloxane

IX. Oral proceedings were held before the Board on 24 February 2026.

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

XI. The respondent requested that the appeal be dismissed, *i.e.* that the patent be maintained in the version held by the opposition division to comply with the requirements of the Convention (main request), or that the patent be maintained on the basis of one of auxiliary requests 1 to 8 submitted with the reply to the statement setting out the grounds of appeal.

XII. The arguments of the appellant, as far as relevant for the present decision, can be summarised as follows:

(a) Claim 1 of the main request infringed Article 123(2) EPC. The features introduced in claim 1 of the main request were selected from unrelated passages in the original description and represented a combination of features which was not originally disclosed. Furthermore, the omission of the boiling point of the volatile silicones in claim 1 of the main request resulted in subject-matter being encompassed by present claim 1 while it was not encompassed by the original disclosure. D14 further substantiated this argument.

(b) Claim 1 of the main request was unclear. The absence of the specification of the temperature at which the physical state of the fatty substances was to be considered rendered it impossible to

determine whether a given fatty substance was solid or liquid according to claim 1. This issue became only relevant through the amendment of present claim 1 defining only the liquid fatty substances in structural terms but not the solid fatty substances. The patent did indeed primarily distinguish between liquid and non-liquid fatty substances, solid ones representing only part of the latter.

(c) The main request did not meet the requirements of Article 56 EPC. D8 represented the closest prior art. The claimed subject-matter differed from the one of D8 in the concomitant use of two alkoxysilanes as disclosed in present claim 1. D13 did not appropriately substantiate a technical effect over the closest prior art D8. The objective technical problem resided therefore in the provision of an alternative composition. Nevertheless, even if the problem was formulated as the provision of a composition with improved resistance to humidity, the claimed solution would be obvious in light of D8 alone or in combination with D1. D8 already generally suggested to use a mixture of alkoxysilanes and a ratio of 1 would be an obvious option for the skilled person. Furthermore, D1 disclosed the use of a combination of two alkoxysilanes according to claim 1 in the claimed ratio in compositions forming films, which resisted to washing with water. The skilled person would have recognised that since the same alkoxysilanes were used in D1 and D8, the same process of film formation would occur in D8. The skilled person would therefore have combined the teachings of D1 and D8 and by doing so have arrived at the present solution.

XIII. The arguments of the respondent, as far as relevant for the present decision, can be summarised as follows:

(a) Claim 1 of the main request complied with Article 123(2) EPC. The subject-matter of present claim 1 was disclosed in the original claims 1 and 10 and the original description. Furthermore, the definition of the volatile silicones in claim 1 of the main request was restricted to the more preferred definition provided in the original description. D14 was not to be admitted into the appeal proceedings because it was not *prima facie* relevant. In particular, D14 did not substantiate whether the disclosed compound fulfilled the claimed viscosity parameter.

(b) The lack of clarity alleged by the appellant did not result from the amendment made to present claim 1 and was therefore not to be considered in the present appeal proceedings (G 3/14). In any case, the original description provided information on the conditions (temperature and pressure) at which a physical state was defined (see original page 8 lines 9 to 10 corresponding to paragraph [0045] of the patent). There was hence no clarity issue.

(c) The main request met the requirements of Article 56 EPC. D8 represented the closest prior art. The claimed subject-matter differed from the one of D8 in the concomitant use of two alkoxysilanes as disclosed in present claim 1 in the specific claimed ratio. D13 substantiated that the claimed weight ratio of both alkoxysilanes resulted in an improvement of the resistance to humidity of the control of volume. The objective technical problem

resided therefore in the provision of a composition resulting in styling effects resisting to humidity. None of the cited prior art documents suggested to use a combination of the two claimed alkoxysilanes in the claimed ratio to increase resistance of styling to humidity.

Reasons for the Decision

Main request

1. Amendments

1.1 Claim 1 of the main request was based on original claim 1 wherein:

(i) the weight ratio of the compounds (a)/(b) was specified based on original claim 10 by combining the lower end-point of the broadest range with the upper end-point of the most preferred range,

(ii) the fatty substances were further defined

- as "being liquid or solid", based on original page 8 line 8,

- and the liquid fatty substances as "being chosen from hydrocarbons, fatty alcohols, fatty esters, volatile silicones, and mixtures thereof" based on the preferred definition thereof on original page 8 lines 19 to 20, wherein:

  - the hydrocarbons were further limited to the more particular definition thereof provided on original page 8 lines 25 to 30,

- the fatty esters were further limited to the preferred definition thereof provided on original page 9 lines 27 to 30, and

- the volatile silicones were further limited to the even more particular definition thereof provided on page 13 line 15 and page 14 lines 1 to 2.

1.2 The appellant did not dispute that each of these modifications was individually originally disclosed (see passages cited above). However the appellant considered that these modifications represented a 6-fold combination of features which was not originally disclosed. In particular, the specific combination resulting from numerous choices for the fatty substances from unrelated passages of the original description would not be originally disclosed.

1.3 The Board disagrees.

The Board observes that the product of original claim 1 required the combination of compounds defined under (a), (b) and (c), wherein (c) represents "one or more fatty substances". Present claim 1 still defines the same combination of generally defined components (a), (b) and (c). Merely the "fatty substances" (c) were further restricted based on the definition thereof in the original description, *i.e.* as being either solid or liquid and wherein the liquid fatty substances were themselves further restricted based on successive preferred lists of definitions. These definitions merely provide a more restricted definition of one and the same originally claimed feature (c) fatty substances.

Furthermore, these definitions were provided in a general manner and not in connection with any other particular embodiment. The skilled person would therefore understand these definitions as applying to each and every composition of the invention. The combination of these definitions with any other feature of present claim 1 (substance (a) or (b)) does hence not result in subject-matter not originally disclosed in the original application.

1.4 The appellant also argued that only the liquid fatty substances (and not the solid ones) and, among these, only the hydrocarbons, fatty esters and volatile silicones (and not the fatty alcohols) were further defined in a more restricted manner. These choices would result in a combination not originally disclosed.

This argument is not convincing. As already stated above, the fatty substances (c) were defined in the description by means of the successively more detailed lists of generic definitions. Whether each definition in the claim is more or less detailed does not result in any combination not originally disclosed but merely in a more or less detailed definition of one and the same feature.

1.5 Finally, the appellant considered that the omission of the "more particular" definition of the volatile silicones as "those with a boiling point of between 60°C and 260°C" from the definition of volatile silicones in present claim 1 (based on the "even more particular" definition thereof) resulted in subject-matter being encompassed by present claim 1 while it was not encompassed by the original disclosure of pages 13-14. As an example, the appellant mentioned Eicosamethylnonasiloxane disclosed in D14. This

compound is indeed a linear volatile silicone containing 9 silicon atoms so that, according to the appellant, it would fall under present claim 1. However, this compound has a boiling point of 308 °C according to D14, so that it would not fall under the original definition on page 13.

In this context, the respondent requested that D14 not be admitted into the appeal proceedings because it was late filed, post-published and not *prima facie* relevant.

The Board however notes that, as argued by the respondent in the context of the admittance of D14, present claim 1 specifies that volatile silicones being linear volatile silicones containing 2 to 9 silicon atoms such as Eicosamethylnonasiloxane must also have "a viscosity of less than or equal to 5 x 10-6 m2/s at 25°C". Since, as argued by the respondent, D14 does not provide any indication regarding the viscosity of Eicosamethylnonasiloxane, it cannot be concluded that this compound indeed falls under present claim 1.

It follows that, independently of the issue of admittance of D14, the objection of the appellant, that claim 1 would cover compounds not originally encompassed by the definition on pages 13-14 remains unconvincing.

1.6 Accordingly, claim 1 of the main request complies with Article 123(2) EPC.

2. Clarity

2.1 The appellant considered that the subject-matter of claim 1 of the amended main request was not clear (Article 84 EPC).

According to the appellant, since the physical state of fatty substances depended on the temperature, the absence of this feature in present claim 1 rendered it impossible to determine whether a given fatty substance was solid or liquid. The appellant considered that this issue became only relevant through the amendment of present claim 1 defining only the liquid fatty substances in structural terms but not the solid fatty substances.

During the oral proceedings, the appellant further explained that the patent as granted did not distinguish merely between liquid and solid fatty substances but considered "non-liquid fatty substances". According to paragraph [0099], "non-liquid fatty substances" were either solid compounds or compounds having a viscosity of more than 2Pa.s at a temperature of 25 °C at a shear rate of 1 s^{-1}.

2.2 According to the respondent, the compliance with the requirements of Article 84 EPC could not be examined since the amendment did not introduce the alleged non-compliance. The granted claims already defined liquid fatty substances (see granted claim 11), and by way of consequence implicitly distinguished between liquid and solid fatty substances. The issue of determining whether any given fatty substance would be solid or liquid without a temperature being specified in the claims was therefore already present in the granted claims.

2.3 The Board agrees with the appellant that the patent distinguishes between liquid and non-liquid fatty substances wherein solid fatty substances are a subgroup of non-liquid ones (see paragraphs [0099] to [0100]). Hence, the fact that granted claim 11 already related to liquid fatty substances, did not imply that the remaining substances were necessarily solid. It follows that this issue of clarity of the definition of solid fatty substances was not already present in the granted claims and arose indeed from the performed amendments. As a result, this issue of compliance with the requirements of Article 84 EPC can be examined according to G 3/14.

2.4 The relevant question is hence the clarity of the term "solid" in the feature "solid fatty substances" in claim 1 of the main request. This term is not further defined in the granted patent. In this context, the viscosity provided in paragraph [0099] undoubtedly refers to those non-liquid substances which are not solid. In the absence of any specific definition thereof, the term "solid" is therefore to be understood according to common general knowledge which would consider the physical state at room temperature and at atmospheric pressure. As indicated by the respondent, this is further confirmed by the indication in paragraph [0045] of the patent that liquid fatty substances are liquid at room temperature and at atmospheric pressure. Hence, the lack of definition of a temperature in claim 1 of the main request for the definition of solid fatty substances does not result in a lack of clarity.

2.5 As a result, claim 1 of the main request complies with Article 84 EPC.

3. Novelty

The appellant did not raise any objection of lack of novelty with respect to the subject-matter of the claims of the present main request. The Board is satisfied that, as indicated by the opposition division in the impugned decision (see point 15.5), the present main request (then auxiliary request 1) meets the requirements of Article 54 EPC.

4. Inventive step

4.1 The main request relates to a hairstyling composition comprising at least two structurally defined alkoxysilanes (see (a) and (b) of claim 1) and one or more fatty substances (see (c) of claim 1) having long-lasting shaping effects, in particular curl definition for curly hair and manageability for straight hair, being especially resistant to moisture without having to overload with fatty substance or tack (see paragraph [0011] of the patent).

4.2 Both parties considered that D8 represented the closest prior art document. The Board sees no reason to differ.

D8 discloses a hair treatment process for giving the hair the desired shape in a long-lasting manner, while at the same time having very good cosmetic properties, especially in terms of softness, sheen and absence of tacky feel (see D8, page 2 lines 13-15). This treatment involves applying to the hair (i) one or more polymers containing silicone units and bearing alkoxy-(aminomethyl)-silyl functional groups and (ii) one or more alkoxysilanes of a specific formula (II) (see D8,

page 2 lines 17-27). These components can be applied as one or more compositions.

Example 1 of D8, used by both parties as the starting point, describes a composition comprising:
- 5 wt% of polymer (Iaa) as component (i) above,
- 1 wt% of methyltriethoxysilane (MTES) as component (ii) above and falling under Formula (III) of component b) of present claim 1, and
- 94 wt% of cyclopentadecamethylsiloxane which is a fatty substance according to the patent.

Example 21 of D8, cited in the impugned decision, describes a composition comprising:
- 5 wt% of polymer (Iaa) as component (i) above,
- 1 wt% of aminopropyltriethoxysilane (APTES) as component (ii) above and falling under Formula (I) of component a) of present claim 1, and
- 94 wt% of undecane/tridecane which are fatty substances according to the patent.

4.3 As stated in the impugned decision, the distinguishing feature over the examples of D8 resides therefore in the concomitant use of present alkoxysilanes (a) and (b) in a specific weight ratio.

4.4 The respondent argued that this distinguishing feature resulted in an improved resistance to humidity of the volume control as substantiated by D13.

It was undisputed that this technical effect can be taken into account in the assessment of inventive step. However, the appellant contested that the results of the comparative examples of D13 were suitable to substantiate an effect over D8 because the total amount of alkoxysilanes used in D13 (10 wt%) was much higher

than in D8 (1 wt%). According to the appellant, a variation of the ratio of present alkoxysilanes (a) to (b) would have a much lower impact when the total amount thereof was low, so that the effect observed in D13 could not be extrapolated to the amounts used in D8.

The Board observes that D13 substantiates that compositions (see compositions A1 and A2) containing:
- a polymer according to (i) of D8 (polymer Ic),
- a fatty substance as in D8 (cyclopentadecamethylsiloxane), and
- two alkoxysilanes used in D8 (APTES and MTES) and corresponding to present components (a) and (b) in a ratio a/b according to present claim 1 (1 and 6.14) exhibit better resistance to humidity of the volume control than compositions (see compositions B1 and B2) containing the same agents but in a ratio a/b just below or just above the presently claimed range.

Hence, D13 appropriately substantiates that the claimed weight ratio of (a) to (b) results in an improvement of the resistance to humidity of the control of volume for compositions otherwise identical. The allegation of the appellant that this effect would not be seen for compositions having a lower total amount of alkoxysilanes as in D8 has not been experimentally substantiated. Thus, in the absence of evidence of the contrary, it can be expected that the technical effect experimentally substantiated in D13 as directly linked to the distinguishing feature will occur, at least at some level, over the whole claimed range.

4.5 The Board therefore considers that the objective technical problem resides in the provision of a hair

styling composition providing volume control with increased resistance to humidity.

4.6 The appellant considers that D8 either alone, or in combination with D1, renders the claimed subject-matter obvious.

The Board observes that D8 indeed generally mentions the possibility of using mixtures of alkoxysilanes, in particular MTES and APTES (see page 2 lines 17-27 and claim 8). However, as brought forward by the respondent and the opposition division, D8 does not provide any teaching regarding the proportions of each of the alkoxysilanes to be applied, let alone the influence thereof on resistance to humidity of the hair styling. Even if, as argued by the appellant during the oral proceedings, the skilled person could have *e.g.* used a ratio of 1, there is no incentive in D8 to do so with the aim of improving resistance to humidity.

D1 discloses sol/gel type compositions for caring for keratin materials. As argued by the appellant, the compositions are not limited to the treatment of nails and include hair styling compositions. The compositions of D1 contain at least one alkoxysilane monomer or oligomer and a specific amount of water. In particular, the compositions of examples 1-2 contain APTES and MTES in a weight ratio of 0.62, *i.e.* within the presently claimed range.

However, D1 does not disclose a fatty substance according to present claim 1 and the compositions are meant to form films on the keratin materials. As stated in the impugned decision, while the persistence to washing with water is mentioned, D1 does not identify the weight ratio of alkoxysilanes (a) to (b) as being

responsible therefor. Rather the nature of the alkoxysilanes and the amount of water used are identified as providing the advantages mentioned in D1 (see D1, page 2 lines 8-11). Moreover, the Board observes that persistence to washing with water of a film does not necessarily equate with resistance to humidity of volume control.

During the oral proceedings the appellant brought forward that the skilled person would realise that, since the same alkoxysilanes are used in the examples of D8 and D1 (namely APTES and MTES), also the compositions of D8 would form films. It would therefore have appeared obvious to the skilled person to combine the teaching of both documents and hence to use a combination of APTES and MTES in the ratio of the examples of D1 in the compositions of D8. This argument is not convincing because the compositions of D1 and D8 each contain further different components (water in D1 and polymer and fatty substance in D8) which may influence the formation or not of a film. This is particularly the case with water in the compositions of D1, which amount is described as critical for the film formation (see D1, page 2 lines 8-11).

The Board considers therefore that the skilled person would not have combined the teachings of D8 and D1 with the aim of solving the problem posed, in particular not in such a way as to arrive at the claimed compositions.

4.7 As a consequence, the subject-matter of claim 1 of the main request involves an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

B. Atienza Vivancos A. Usuelli

Decision electronically authenticated