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**Datasheet for the decision
of 29 June 2018**

Case Number: T 0681/15 - 3.3.06

Application Number: 09170174.8

Publication Number: 2295530

IPC: C11D1/22, C11D3/30

Language of the proceedings: EN

Title of invention:
Detergent composition

Patent Proprietor:
The Procter & Gamble Company

Opponents:
Henkel AG & Co. KGaA
UNILEVER PLC / UNILEVER NV

Headword:
Detergent composition/P&G

Relevant legal provisions:
EPC Art. 52(1), 56, 123(3)
RPBA Art. 12(4), 13(1)

Keyword:

Inventive step - (no) - Main Request and Auxiliary Requests 1, 3, 3A, 7, 7A, 8, 8A, 10, 10A and 11

Late-filed auxiliary requests - admitted (no) Auxiliary Requests 2 and 2A

Amendments - Shifting, extension, of the protection conferred (yes) - Auxiliary Requests 4, 4A, 5, 5A, 6, 6A, 9 and 9A

Decisions cited:

T 0352/04

Catchword:



Beschwerdekammern

Boards of Appeal

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Case Number: T 0681/15 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 29 June 2018

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
15 January 2015 concerning maintenance of the
European Patent No. 2295530 in amended form.**

Composition of the Board:

Chairman L. Li Voti
Members: G. Santavicca
 J. Hoppe

Summary of Facts and Submissions

- I. The appeal by the Patent Proprietor (Appellant) lies from the Interlocutory decision of the Opposition Division concerning maintenance of **European Patent No. 2 295 530** in amended form, according to the claims of the Fifth Auxiliary Request filed at the oral proceedings held on 12 December 2014.
- II. Claim 1 according to the upheld claim request reads as follows (amendments to Claim 1 as granted made apparent by the Board):
- "1. A liquid detergent comprising less than 40% total water or non-amino functional solvent, alkyl benzene sulphonate surfactant comprising greater than 20% of the 2 phenyl isomer and a gel breaker selected from the group consisting of amino alcohol compounds having a molecular weight above ~~61~~ 117 g/mol, **wherein the gel breaker is triiso propanolamine, and** wherein the composition has a ratio of total surfactant to total solvent of greater than 1:1, **and wherein the gel breaker is present at a level of less than 6%.**"*
- III. Two oppositions were filed against the patent, on the grounds of lack of novelty and inventive step (Article 100(a) EPC) as well as on the ground of insufficiency of the disclosure (Article 100(b) EPC).

The following items of evidence were *inter alia* relied upon:

D3: WO 01/55287 A1;

D16: GB 1 429 164 A; and

D22: Trade literature - Calsoft LAS-99 (Pilot).

- IV. In the decision under appeal, the Opposition Division found that:
- (1) The invention was sufficiently disclosed.
 - (2) The subject-matter of Claim 1 according to the Main Request and the subject-matter of Claim 1 according to each of the First to Fourth Auxiliary Requests lacked an inventive step over the disclosure of D16/Example I, taken as the closest prior art, in combination with common general knowledge provided in D22 and D3.
 - (4) The Fifth Auxiliary Request filed at the oral proceedings was admissible, and its claimed subject-matter was formally allowable, novel and inventive over D3/Example 16 as the closest prior art.
- V. With its statement setting out the grounds of appeal, the Patent Proprietor/Appellant contested the decision under appeal, in particular the choice of D16 as the closest prior art, and filed five sets of claims as its Main Request and First to Fourth Auxiliary Requests, on the basis of which the patent should be maintained.
- VI. Claim 1 according to the main request reads as follows (amendments to Claim 1 as granted made apparent by the Board):
- "1. A liquid detergent comprising less than 40% total water or non-amino functional solvent, alkyl benzene sulphonate surfactant comprising greater than 20% of the 2 phenyl isomer and a gel breaker ~~selected from the group consisting of amino alcohol compounds having a molecular weight above 61 g/mol, wherein the composition has a ratio of total surfactant to total solvent of greater than 1:1, and wherein the gel breaker is selected from the group consisting of triethanolamine, diisopropanolamine, triisopropanolamine, Monoamino hexanol, 2-[(2~~*

methoxyethyl)methylamino]- ethanol, Propanolamine, N-Methylethanolamine, diethanolamine, Monobutanol amine, Isobutanolamine, Monopentanol amine, 1 Amino-3-(2-methoxyethoxy)- 2-propanol, 2-Methyl-4-(methylamino)- 2-butanol, 6-amino-1-hexanol, Heptaminol, Isoetarine, Norepinephrine, Sphingosine, Phenylpropanolamine and mixtures thereof, and wherein the gel breaker is present at a level of less than 6%."

- VII. In their responses to the statement of grounds, the Respondents raised objections against all claim requests under Articles 56, 83, 84 and/or 123(2) EPC.
- VIII. In response to the objections maintained/raised by the Respondents, the Appellant/Patent Proprietor maintained its Main Request and Auxiliary Request 1 (AR1), filed new Auxiliary Requests 2 to 11 (AR2-AR11), and submitted a new Technical Report (in the following **TR1**).
- IX. With a further letter, Respondent/Opponent 2 took stance on the latest submission by the Appellant.
- X. In a communication in preparation for the oral proceedings, the Board gave its provisional opinion on the issues to be dealt with and, inter alia, expressed its view that the claim requests, Claim 1 of which was directed to a packaged composition, appeared not to meet the requirements of Article 123(3) EPC.
- XI. In reaction to the Board's communication:
- (a) Respondent/Opponent 1 took stance on the admissibility of the latest claim requests.

(b) The Appellant, with its letter dated 25 June 2018, withdrew Auxiliary Requests 1 and 11 on file and filed new Auxiliary Requests 1, 2A to 10A and 11. It inter alia countered the objection under Article 123(3) raised by the Board, and maintained that the claimed subject-matter involved an inventive step whatever document was taken as the closest prior art.

XII. Claim 1 according to Auxiliary Request 1, compared to Claim 1 according to the Main Request, comprises the following additional features:

"1. A liquid detergent comprising ... and a gel breaker **selected from the group consisting of amino alcohol compounds having a molecular weight above 61 g/mol, ...** and wherein the gel breaker is selected from the group consisting of ..., and wherein the gel breaker is present at a level of less than 6%."

Claim 1 according to Auxiliary Request 2, compared to Claim 1 according to the Main request comprises the following additional features:

"1. A liquid detergent comprising ... and wherein the gel breaker is present at a level of less than 6%, **and wherein the composition comprises from 5% to 50% by weight of surfactant.**"

Claim 1 according to Auxiliary Request 3, compared to Claim 1 according to the Main request, comprises the following additional features:

"1. A liquid detergent comprising ..., and wherein the gel breaker is present at a level of less than 6%, **and wherein the composition comprises greater than 8% high 2 phenyl isomer LAS by weight of the composition.**"

Claim 1 according to each of Auxiliary Requests 4 to 6, compared to Claim 1 according to the Main Request, comprises inter alia the following additional features:
"1. A liquid detergent comprising ..., and wherein the gel breaker is present at a level of less than 6%, **and wherein the composition is packaged in a water-soluble material forming a unitized dose of the composition, and wherein the composition comprises less than 20% water**". (total water in Auxiliary Request 5).

Claim 1 according to Auxiliary Request 7, compared to Claim 1 according to the Main Request, comprises the following restriction in the list of gel breakers:
"1. A liquid detergent comprising ..., and wherein the gel breaker is selected **from the group consisting of triethanolamine, triisopropanolamine, 6-amino-1-hexanol and mixtures thereof**, and wherein the gel breaker is present at a level of less than 6%."

Claim 1 according to Auxiliary Request 8, compared to Claim 1 according to the Main Request, comprises a further restriction in the list of gel breakers:
"1. A liquid detergent comprising ..., and wherein the gel breaker is selected **from the group consisting of triethanolamine, triisopropanolamine and mixtures thereof**, and wherein the gel breaker is present at a level of less than 6%."

Claim 1 according to Auxiliary Request 9, compared to Claim 1 according to the Main Request, comprises the further restriction in the list of gel breakers and the following additional features:
"1. A liquid detergent comprising ..., and wherein the gel breaker is selected **from the group consisting of triethanolamine, triisopropanolamine, 6-amino-1-hexanol and mixtures thereof**, and wherein the gel breaker is

present at a level of less than 6%, and wherein the composition is packaged in a water-soluble material forming a unitized dose of the composition, and wherein the composition comprises less than 20% water."

Claim 1 according to Auxiliary Request 10, compared to Claim 1 according to the Main Request, comprises the following additional features:

*"1. A liquid detergent comprising ..., and wherein the gel breaker is present at a level of **greater than 1 % and less than 4%.**"*

Claim 1 according to Auxiliary Request 11, compared to Claim 1 according to the Main Request, comprises the following additional features and restrictions:

*"1. A liquid detergent comprising ...and a gel breaker, **selected from the group consisting of amino alcohol compounds having a molecular weight above 61 g/mol, ...** wherein the gel breaker is selected **from the group consisting of triethanolamine, triiso propanolamine and mixtures thereof,** wherein the gel breaker is present at a level of **greater than 1% and less than 4%.**"*

Claim 1 according to each of additional Auxiliary Requests 2A, 3A, 4A, 5A, 6A, 7A, 8A, 9A and 10A differs from Claim 1 according to each auxiliary request of same numbering only in the additional feature "1. A liquid detergent comprising ...and a gel breaker **selected from the group consisting of amino alcohol compounds having a molecular weight above 61 g/mol, ...** wherein the gel breaker is selected from ...".

XIII. Oral proceedings took place on 29 June 2018.

XIV. The Appellant (Patent Proprietor) finally requested that the decision under appeal be set aside and that

the patent be maintained on the basis of the claims according to main request filed with the statement setting out the grounds of appeal, dated 22 May 2015, auxiliarily,
on the basis of the claims according to auxiliary requests 1, 2, 2A, 3, 3A, 4, 4A, 5, 5A, 6, 6A, 7, 7A, 8, 8A, 9, 9A, 10, 10A, 11 in the given order whereby auxiliary requests 1, 2A to 10A, and 11 were filed with letter dated 25 June 2018 and auxiliary requests 2 to 10 were filed with letter dated 29 January 2018.

The Respondents (Opponents) finally requested that the appeal be dismissed.

- XV. The arguments of the Appellant (Patent Proprietor) of relevance for the present decision can be summarised as follows:

Admittance of new item of evidence TR1

The filing of new Technical Report TR1 was in reaction to the objections raised by the opponents against the examples of the patent in suit. In TR1, the ability of the three preferred gel breakers of the invention was tested again. Thus, TR1 was admissible.

These data proved that the claimed amino alcohol compounds effectively acted as gel breakers.

No counter data had been provided by the Respondents/Opponents to contradict these facts.

Main Request

Claim 1 - Construction

The total content of amino alcohol gel breakers in the claimed composition was to be less than 6%. In other

words, this limit also encompassed amino alcohols which for any reasons neutralised the free acid form of alkyl benzene sulphonate surfactant (LAS), if any. This construction was important when considering the composition of Example I of D16, in order to ascertain the distinctions thereof.

Inventive step

The decision under appeal was contested in particular to the extent that D16 was considered to be a suitable closest prior art in the same way as D3 and to the extent that the decision found the claims of the then pending Main Request to lack an inventive step over D16.

The patent in suit (paragraphs [0007], [0008] and [0010]) addressed the problem of the formulation of highly concentrated liquid detergent compositions comprising a good surfactant such as a high 2-phenyl LAS and not being prone to early freezing, which was a disadvantage caused by the high 2-phenyl LAS.

The patent proposed as a solution thereof a highly concentrated liquid detergent composition including in addition to the high 2-phenyl LAS a low level of an amino alcohol selected from a list, as a gel breaker.

The gel breaking effect was mentioned in paragraph [0019] of the patent, disclosing that the higher the molecular weight of the gel breaker, the better the gel breaking effect.

The examples of the patent in suit showed that the most preferred gel breakers effectively worked as such.

It was acknowledged that also D16 concerned highly concentrated liquid detergent compositions and that its compositions already used triethanolamine (TEA) in order to neutralise the free acid form of the LAS, or as a buffering agent, or in order to contribute to the detergency.

However, D16, e.g. its example I, did not comprise a high 2-phenyl LAS, nor did it deal with the problem of early freezing, which was a particular stability problem. D16 instead only addressed general stability problems, even when it mentioned freeze-thaw stability and no gel formation upon dilution with water. More importantly, D16 never associated improved stability with the presence of specific alkanolamines. Indeed, the passages of D16 invoked by the opponents (page 4, lines 88-92 and 115 ff) did teach away from using such alkanolamines as gel breakers, in so far as the use of an electrolyte salt was suggested.

Moreover, example I of D16 admittedly disclosed less than 40% water/solvent, but contained a total amount of TEA of higher than 6%, if the TEA associated to the LAS was considered. Instead, the patent showed that a low level of total amino alcohol as defined, some of which would become associated with the LAS, was necessary for preventing early freezing. More particularly, Claim 1 required that the total level of TEA be less than 6%. Even the general level of TEA mentioned by D16 on page 4, lines 68-70, invoked by the Respondents, was not the total level thereof.

The lower total level of the amino alcohols of the invention permitted more formulation flexibility.

Thus, the claimed subject-matter was not obvious over D16.

Auxiliary Requests - Admissibility

All of the auxiliary requests were admissible, as they had been already pending in the opposition proceedings or were filed in reaction to objections raised by the Respondents or the Board.

Auxiliary Requests 1, 3, 3A, 7, 7A, 8, 8A, 10, 10A, 11

The claimed subject-matters of these auxiliary claim requests were (*a fortiori*) also inventive, for the reasons given in relation to the Main Request.

Auxiliary Requests 2 and 2A

These auxiliary claim requests did not raise new problems. The amended feature of claim 1 was based on page 6, lines 3-4, of the application as filed, which clearly referred to the total amount of surfactants in the composition. All amendments made to the claims of these auxiliary claim requests were fairly based on the application as filed and complied with Article 123(2) EPC. Moreover, it was clear that the term "surfactant" in the amended wording of claim 1 meant the total amount thereof. Example I of D16 contained more than 50% surfactant. Although some other examples of D16 contained less than 50% surfactant, they still contained too much TEA.

Auxiliary Requests 4, 4A, 5, 5A, 6, 6A, 9 and 9A

The amended claims of these claim requests were formally allowable. In particular, the claims also

contained a restriction of the amount of the total water over Example I of D16 and over the general disclosure of D16 (disclosing a minimum of 25%). Thus, these claim requests advanced the case and were a reaction to the decision of the Opposition Division with regard to the relevance of D16 as closest prior art, which was emphasized only at the day of the oral proceedings before the Opposition Division. Article 13(1) RPBA was not applicable, as these claim requests had been filed with the statement in reaction to the decision under appeal. Also, the amendments in AR4 and in the other requests were also clear to the extent that the skilled person could infer the restriction of the scope of the protection for the first entity (detergent composition) by reference to the second entity (packaged composition, unitized dose). Thus, the claim requests complied with Article 123(2) EPC, and, in view of the further restriction, also with Article 123(3) EPC. No liquid composition which did not fall under the scope of the claim as granted now fell under the scope of the amended claim. These claim requests imparted a clear distinction over D16.

XVI. The arguments of the Respondents (Opponents) of relevance for the present decision can be summarised as follows:

Admittance of new item of evidence TR1

Technical Report TR1 was relevant only over D3. As TR1 did not concern a comparison over the composition of D16, it was irrelevant and non admissible.

Main Request

Claim 1 - Construction

Claim 1 of the Main Request was so broad to encompass compositions for which the actual content of high 2-phenyl LAS was vanishingly small and for which the alleged problem of "early freezing" could not exist. Moreover, Claim 1 only defined a limit for amino alcohols gel breakers, i.e. for free amino alcohols, but not for the total content of the defined amino alcohols in the composition, since also the patent (paragraph [0018]) disclosed that the LAS might be neutralised with alkanolamines, like in D16. Otherwise it would be unclear how the essential ratio of total surfactant to total solvent should be calculated.

Inventive step

As to inventive step, D16 dealt with compositions that were intended to avoid gelling/clouding during low temperature storage (an ambitious goal), in addition to their satisfactory use after repeated freeze-thaw cycles, and therefore represented a promising starting point.

D16, in particular, in its description (page 4, lines 118-120), specifically addressed the gel formation occurring with alkanolamine-neutralized surfactants.

It also proposed to solve the problem with *inter alia* TEA-citrate (page 5, lines 6-7 and 46), which, as also shown by the examples in the patent, was the effective gel breaker. Thus, the example of the patent in suit showed nothing more than what was known from D16. No technical effect across the whole breadth of the claim was consequently achieved.

The technical problem over D16 was thus simply the provision of liquid detergent compositions being stable at low temperature and providing high cleansing strength.

The argument, presented for the first time at the oral proceedings, that Example I of D16 contained too much total TEA was not convincing, as Claim 1 did not define any total level of e.g. TEA, and D16 made clear that the content of the free-MEA was 3.7%. In any case, even if the amount of TEA in Example I were too high, D16 nevertheless taught that the TEA amount could be lowered down to 2%, as apparent from page 4, lines 68-70. Hence, D16 also disclosed or hinted at a total TEA content of less than 6%.

As D16 hinted at *inter alia* using as alkyl benzene sulphonate the commercial product Calsoft LAS 99, which according to D22 was a high 2-phenyl LAS, D16 alone would have led the skilled person to the claimed subject-matter.

The claimed subject-matter of the Main Request was obvious over D16 taken alone, or in combination with common general knowledge, if the information that a high 2-phenyl LAS was effective in cleaning performance had to be additionally considered.

Auxiliary Requests - Admissibility

The latest auxiliary claim requests, such as 2, 3, 5-7, 10 and 11, were unjustifiably late filed, did not overcome the previously raised objections, indeed raised new issues, and thus were not admissible.

Auxiliary Requests 1, 3, 3A, 7, 7A, 8, 8A, 10, 10A, 11

The objections raised against the claims of the Main request applied likewise against the claims of all these other claim requests. Their claimed subject-matters were all obvious over D16 for the same reasons as given for the Main request.

Auxiliary Requests 2 and 2A

The claimed subject-matter of Auxiliary Request 2 lacked clarity (Article 84 EPC), as no antecedent basis in Claim 1 for the term "surfactant" in the new feature "*and wherein the composition comprises from 5% to 50% by weight of surfactant*", was present in the claim. In particular, it was also not clear if the specified amount related to the total surfactant or to the LAS surfactant specified in the wording of Claim 1. Moreover, the amendment amounted to added subject-matter contravening Article 123(2) EPC, as the combination of the new feature "*and wherein the composition comprises from 5% to 50% by weight of surfactant*" with the remaining features of Claim 1 was not disclosed originally. The original disclosure mentioned this range but in the context of additional surfactants (excluding LAS), certainly not in combination with a specific list of gel breakers. Thus, these claim requests were *prima facie* not admissible. In any case, the claimed subject-matter was not inventive over D16.

Auxiliary Requests 4, 4A, 5, 5A, 6, 6A, 9 and 9A

In these auxiliary claim requests, filed with the statement setting out the grounds of appeal, in particular the limitation of the total water content to less than 20% was not disclosed in the combination as

claimed in the application as originally filed, let alone in combination with a particular filling method. Also, the introduction of the feature relating to the packaging forming a unitized dose contravened the requirements of Article 123(3) EPC. Moreover, as the packaging material was not casually related to the other compositional features claimed, it could not backup any particular effect of the composition, nor bring up any new contribution to inventive step. Moreover, as the claim now sought to define the claimed liquid detergent with reference to an entity (the packaging) that was not part of that liquid detergent, the claim no longer concerned a liquid composition but a unitized form thereof, so that it also lacked clarity under Article 84 EPC.

Reasons for the Decision

Procedural aspects

Admittance of new item of evidence TR1

1. Technical Report TR1 was filed with letter dated 29 January 2018, in reaction to objections against the comparative nature of the examples in the patent in suit. However, for the Board, TR1 is not comparative over the most relevant Example I of D16, in which TEA is used, considered to be the closest prior art by the Board (*infra*). This is not in dispute. As TR1 is not relevant for establishing any effect that could be used in the formulation of the technical problem effectively solved over D16, the Board needed not consider it any further in the present decision, let alone decide on its admittance into the proceedings.

Main Request

Admissibility

2. The Main Request has been filed with the grounds of appeal and is a similar, more restricted version, of the First Auxiliary Request dealt with in the decision under appeal and its admissibility is not in dispute between the parties. Thus, the Board sees no reason not to admit it (Article 12(4) RPBA).

Amendments

3. As upon reviewing the decision under appeal on inventive step over D16, the claimed subject-matter of the Main Request is found to lack an inventive step over D16 (*infra*), i.e. as the Main Request is not allowable already on this substantive ground, the Board needed not to decide upon the formal allowability of the amended claims, objected to under Article 123(2) EPC by the Respondents.

Construction of Claim 1

Claim 1 - Construction

4. The general principles applicable in the construction of the claims are established in the case law of the Boards of Appeal of the EPO (8th edition, II.A.6.1, 6.3.1, 6.3.4, 6.3.6), in particular the skilled person, when considering a claim, should rule out interpretations which are illogical or which do not make technical sense, thus should construe the claim with a mind willing to understand.

4.1 Claim 1 according to the Main Request (see Point VI, *supra*) contains the following features:

"1. A liquid detergent comprising
(a) less than 40% total water or non-amino functional solvent,
(b) alkyl benzene sulphonate surfactant comprising greater than 20% of the 2 phenyl isomer,
(c) wherein the composition has a ratio of total surfactant to total solvent of greater than 1:1,
and
(d) a gel breaker selected from the group consisting of triethanolamine ...at a level of less than 6%.

4.2 At the oral proceedings before the Board it was *inter alia* in dispute whether Example I of D16 discloses a total level of TEA of less than 6%. In this respect, the Appellant invoked that, in Example I of D16, TEA was used also for neutralising the alkyl benzene sulphonic acid used as anionic surfactant in that example, so that its total level in the composition was necessarily higher than the 6% prescribed by Claim 1. The Respondents instead contended that the level of free TEA in the composition of Example I of D16 was decisive, and that it was within the prescribed limit defined in Claim 1 at issue, which only set a limit to the level of the gel breaker (TEA), present as free amino alcohol.

4.3 Thus, the proper construction of Features (a) to (d) of Claim 1 is of utmost importance. In this respect, the position of the Board is as follows:

- 4.3.1 In the Board's view, features (b) and (d) comprise only conventional terms of art providing the following unambiguous technical teaching to the skilled reader:
- Feature (b) "*alkyl benzene sulphonate surfactant comprising greater than 20% of the 2 phenyl isomer*" defines the LAS surfactant, however neutralised.
 - Feature (d) "*a gel breaker selected from the group consisting of triethanolamine ...at a level of less than 6%*" defines the amino alcohol such as TEA and its amount used for fulfilling the function of gel breaker.
- 4.3.2 Thus, for the person skilled in the art, these features define **distinct** components of the composition. This also implies a distinction between the TEA used as gel breaker and the material, whatever it is (see paragraph [0018] of the patent), used for neutralising the linear alkyl benzene sulphonic acid.
- 4.3.3 In fact, if the construction invoked by the Appellant were taken, according to which the amino alcohol gel breaker could be also part of the amino alcohol possibly neutralizing alkyl benzene sulphonic acid, than it would no longer be clear which part of the amount of amino alcohol present in the liquid composition should be considered part of the LAS in order to calculate the total amount of surfactant, hence the essential ratio between total surfactant and total solvent defined by feature (c).
- 4.3.4 Summing up, for the Board, Claim 1 should be interpreted as requiring that the composition comprises an amount of less than 6% of defined amino alcohol as gel breaker, independently from the content of whatever amino alcohol compound, if any, would be used for

neutralising the LAS free acid form when preparing the LAS surfactant defined in Claim 1 at issue.

Novelty

5. Novelty of the claimed subject-matter is not in dispute.

Inventive step

6. In the decision under appeal, D16 was considered to be the most appropriate starting point for assessing the inventive step of the claimed subject-matter of the then pending claim requests. The claimed subject-matter of all not upheld claim requests was found to be obvious over D16.

- 6.1 The present Main Request is based on the First Auxiliary Request dealt with in the decision under appeal and not upheld by the Opposition Division.

Invention

7. According to the patent in suit, "The present invention relates to the field of cold storage stability of liquid detergent compositions." (paragraph [0001])

- 7.1 Still according to the patent (paragraph [0002]), "Detergent compositions comprise surfactants for cleaning soils from fabrics and other surfaces. A variety of surfactants exist. However a particularly preferred anionic surfactant is linear alkyl benzene sulphonate (LAS). LAS is a preferred surfactant since it provides superior cleaning and detergency power."

- 7.2 Also (paragraph [0003]), "Linear alkylbenzene is typically manufactured on an industrial scale using one of three commercial processes which differ from one another primarily by virtue of the catalyst system employed. One process employs an aluminum trichloride catalyst, another process uses a hydrogen fluoride catalyst, while the third process uses solid alkylation catalyst, known as DETAL™. The three processes result in linear alkylbenzene products with different phenyl isomer distributions. The process for making LAS using the DETAL™ catalyst ... results in LAS products with a high percentage of the 2-phenyl isomer."
- 7.3 Further (paragraph [0005]), "A typical phenyl isomer distribution for products of the hydrogen fluoride process is about 16% to 18% 2-phenyl isomer. By contrast the typical 2-phenyl isomer content of LAS made using the DETAL™ catalyst is higher, generally greater than 20%. This LAS species is often referred to as "high 2-phenyl" linear alkylbenzene, whereas the product of the hydrogen fluoride process, which is relatively low in 2-phenyl isomer content, is often referred to as "low 2-phenyl" linear alkylbenzene."
- 7.4 Furthermore (paragraph [0006]), "The benefits of using DETAL™ prepared LAS include ... improved detergency performance of the LAS."
- 7.5 Moreover (paragraph [0007]), "The Applicant has found however that when formulating a detergent composition with the DETAL™ LAS, the composition freezes at a higher temperature as compared to when formulating with LAS produced using the HF catalyst. In some instances the composition has in fact frozen at temperatures as high as 10°C. The freezing of the composition is particularly noticeable when the composition is

transparent and the frozen composition turns opaque. Moreover this phenomenon also leads to dissolution and performance issues, as the product cools and becomes more viscous. This phenomenon is more prevalent when the content of the 2-phenyl isomer of LAS is increased since the Krafft temperature of the surfactant system increases with increasing 2-phenyl isomer content."

- 7.6 Finally (paragraph [0008]), "The Applicant has therefore set out to find a solution to this problem of early freezing of the composition."

Closest prior art

8. It is long standing case law (see Case Law of the Boards of Appeal of the EPO, 8th edition 2016, I.D.3.1 to 3.3) that the closest prior art for assessing inventive step according to the problem solution approach is a prior art document disclosing subject-matter conceived for the same purpose or aiming at the same objective as the claimed invention, or relating to the same or to a similar technical problem, and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications.

- 8.1 It is apparent from the above that the patent in suit has the objectives of providing a liquid detergent composition having cold storage stability (paragraph [0001]), comprising "high 2-phenyl" LAS species, and not freezing at relatively high temperatures (paragraph [0007]), i.e. not being prone to early freezing (paragraph [0008]). The description mentions in this respect a temperature of 10°C (paragraph [0007], second sentence) and the examples show the stability of the composition at 4°C.

- 8.2 D3, invoked by the Appellant as the closest prior art, relates to detergent/cleaning compositions having enhanced detergency and cleaning capabilities (page 1, lines 14-19; paragraph bridging pages 13 and 14), as well as enhanced water hardness tolerance (page 44, lines 11-15) and containing a high level of the 2-phenyl isomer of linear alkylbenzene sulphonates (page 7, lines 7-12). No temperature stability problem is addressed by D3, let alone any gelation in relation to the high presence of the 2-phenyl isomer of LAS.
- 8.3 D16 (invoked by the Respondents) too relates to liquid detergents compositions (page 1, left column, lines 11-12, and addresses (see page 2, left column, lines 35-42) the provision of builder-free, liquid detergent compositions providing both good pre-wash and through-the-wash fabric cleansing, whereby the liquid compositions are stable and free from fatty acid stabilizers. As regards stability, in particular the shipping/storage stability, D16 addresses the cloudiness at low temperature and the gelling tendency upon dilution with water (page 4, right column, lines 82-97) as well as the gel formation due to alkanolamine neutralized surfactants (page 4, lines 116-120). The composition of example I is representative of a composition of this type (see page 6, lines 60-65). Although the compositions of D16 can comprise Calsoft LAS 99 (page 4, left column, line 21), which is a high 2-phenyl LAS (see D22), no "early freezing" problem is mentioned therein.
- 8.4 It follows from the foregoing that none of the invoked items of evidence D3 (by the Appellant) and D16 (by the Respondents) explicitly addresses the prevention of the "early freezing" of the composition due to the presence of a high 2-phenyl LAS.

8.5 However, in respect of the problem detailed in paragraph [0007] of the patent in suit, D16 at least relates to a gelling problem, arising when formulating with water and, in particular, to a good storage stability at low temperature and to the prevention of gelling in presence of alkanolamine neutralized surfactants.

Therefore, D16 deals with a purpose more similar to that of the invention than D3.

8.6 The Board remarks also that, even if the gelling effect mentioned in paragraph [0007] of the patent is not comparable with that mentioned in D16 (page 4, lines 85-87; page 5, lines 9-19), then the closest prior art has to be established among the documents dealing with the same kind of detergent composition, i.e. belonging to the same technical field, and containing possibly also high 2-phenyl LAS, which allegedly causes the problem of early freezing, hence among those having the most relevant technical features in common, and requiring the minimum of structural modifications. In that case, each of D3 and D16, to the extent that their compositions can comprise high 2-phenyl LAS, represents a suitable starting point for assessing inventive step, whereby the closest prior art is then the document disclosing the closest composition to the composition according to Claim 1 at issue.

8.7 As D3 discloses the use of MEA in its closest compositions (such as the composition of Example 16), i.e. of an alkanolamine which is not a gel breaker according to Claim 1 at issue, whilst D16 discloses in all exemplified compositions the use of TEA, defined in

Claim 1 at issue as a suitable gel breaker, D16, rather than D3, discloses the closest composition.

- 8.8 Thus, for the Board, in any case, the best starting point for assessing inventive step is represented by the liquid composition of D16, Example I, differing from the claimed subject-matter (see *infra*) only insofar as the LAS present in the composition is not specified to be one with greater than 20% of the 2-phenyl isomer, i.e. a high 2-phenyl LAS.

Technical problem

9. Also in respect of D16, example I, taken as the closest prior art, the Appellant has invoked the technical problem allegedly addressed in the patent in suit (paragraphs [0007], [0008] and [0010]), namely the formulation of highly concentrated liquid detergent compositions comprising a good surfactant such as a high 2-phenyl LAS and not being prone to early freezing (a disadvantage caused by the high 2-phenyl LAS).

- 9.1 According to the decision under appeal (page 7, eighth paragraph), the technical problem was considered to be the provision of a liquid detergent composition comprising LAS surfactants and having improved cleaning and detergative power.

- 9.2 In this respect, the Respondents however argued that the technical problem over a prior art such as D16, Example I, already disclosing TEA containing liquid detergent compositions, could only consist in the provision of alternative liquid detergent compositions.

- 9.3 The Board, considering that D16 is not acknowledged in the application as filed, thus that it was not taken

into account when formulating the problem stated in the application as filed, and that no comparative example over the composition of Example I of D16 is available, has no reason to deviate from the technical problem to be solved as formulated in the decision under appeal (point 9.1, *supra*), which appears acceptable, in so far as it was not in dispute that a high 2-phenyl LAS provides better cleaning results.

Solution

10. As a solution to the technical problem, the patent in suit in the amended form according to the Main Request proposes a liquid detergent composition comprising
 - less than 40% total water or non-amino functional solvent,
 - **alkylbenzene sulphonate surfactant with greater than 20% of the 2-phenyl isomer,**
 - a ratio of total surfactant to total solvent of greater than 1:1, and
 - a gel breaker selected from the group consisting of the listed amino alcohol compounds, *inter alia* alkanolamines such as TEA,
 - whereby the gel breaker is present at a level of less than 6%.

11. It is not in dispute between the parties that the claimed solution effectively solves the technical problem stated above.

Obviousness

12. It remains to be decided whether the skilled person starting from D16, faced with the technical problem formulated above, was motivated at modifying the

composition of Example I of D16 towards a composition as defined in Claim 1 at issue.

- 12.1 D16/Example I discloses a stable liquid detergent composition comprising,
- 33.0% of C₁₄₋₁₅(EO)₇ surfactant;
 - 24.2% of TEA-salt of a LAS surfactant with average chain length 12 (obtained by neutralisation of 16.5 g of C₁₂ LAS acid with 11.0 grams of TEA);
 - 3.7% free MEA;
 - a ratio of total surfactant to total solvent (at least water and ethanol) necessarily greater than 1:1, thus a liquid detergent composition with all of the features of Claim 1 at issue apart from the explicit presence of high 2-phenyl LAS.
- 12.2 In fact, the composition of Example I of D16 does not disclose the nature of the LAS surfactant used as being low or high 2-phenyl.
- 12.3 However, D16 (page 4, line 16 ff) itself mentions that "Examples of commercially available alkyl benzene sulfonic acids useful in preparing the alkanolamine sulfonates ... include ... Calsoft LAS 99", i.e. that Calsoft LAS 99 is an option for formulating the compositions of D16.
- 12.4 It is not in dispute that Calsoft LAS 99 mentioned in D16 is a high 2-phenyl isomer LAS.
- 12.5 This is in any case also evidenced by D22, stating that the Linear Alkyl Benzene Sulfonic Acid "Calsoft LAS-99 is a high 2-phenyl product that provides copious and stable foam with outstanding detergency, wetting, rinsability and grease cutting ability".

- 12.6 The mention of a high 2-phenyl Calsoft LAS 99 as useful or preferred option is made generally in D16, so that it is applicable to all of the embodiments of D16.
- 12.7 This preferred option of D16 was thus at hand for the skilled person, already for implementing the teaching of Example I. The skilled person, in view of the very good properties of the Calsoft LAS 99 was motivated at using this preferred high 2-phenyl LAS option in the composition illustrated in Example I, which in this respect was open, and prone to be used with the preferred high 2-phenyl LAS of D16.
- 12.8 Thus, the subject-matter of Claim 1 at issue was obvious over the disclosure of D16 taken alone, or in combination with D22, in accordance with the decision under appeal.
- 12.9 Consequently, the Main Request is not allowable.

Auxiliary Requests 1, 3, 3A, 7, 7A, 8, 8A, 10, 10A, 11

The subject-matter of Claim 1 according to each of Auxiliary Requests 1, 3, 3A, 7, 7A, 8, 8A, 10, 10A and 11 (XII, *supra*) still comprises TEA as a gel breaker and, as sole distinguishing feature over D16/Example I, the presence of "*alkyl benzene sulphonate surfactant comprising than 20% of the 2 phenyl isomer*", i.e. a high 2-phenyl LAS as surfactant in accordance with paragraph [0005] of the patent in suit. This is not in dispute. Therefore, the lack of inventive step over D16/Example I found for the subject-matter of Claim 1 according to the Main Request applies *mutatis mutandis* to the subject-matter of Claim 1 according to each of these claim requests.

Consequently, none of them is allowable.

Auxiliary Requests 2 and 2A

Admissibility

13. Auxiliary Requests 2 and 2A were respectively filed with letters dated 29 January 2018 and 25 June 2018. The justifications adduced were, respectively, the objections raised by the Respondents in reply to the statement setting out the grounds of appeal, and the objections raised by the Board in its communication. In particular, Auxiliary Request 2A was filed in reaction to the issue of added subject-matter.
- 13.1 On the admissibility of these claim requests, the provisions of Articles 13(1) and (for the A Version thereof) 13(3) RPBA are applicable.
- 13.2 The Board preliminary notes that none of these auxiliary claim requests corresponds to a claim request which was filed during the opposition proceedings, hence which was pending before the Opposition Division, let alone which was dealt with in the decision under appeal.
- 13.3 The Respondents have raised objections against the admittance of the new claim requests into the proceedings (because late filed and raising issues not dealt with during the opposition proceedings), as well as under Articles 84, 123(2) and Article 56 EPC.
- 13.4 Even if it were accepted that the application as originally filed (page 6, lines 3-4) provides a fair basis for the feature "*5% to 50% by weight of surfactant*" as such, and that the application as filed also provides a general basis for the claimed

combination of features, the introduction of the additional range feature into Claim 1 raises questions of clarity (Article 84 EPC) not dealt with in the opposition proceedings. As a case in point, Claim 1 according to the Second Auxiliary Request does not comprise any antecedent for the generic term "*surfactant*", which consequently introduces an indirect limitation. It is thus at first sight unclear if the specified amount of "*surfactant*" relates to the total surfactant or, for example, only to the LAS surfactant, both recited in the preceding part of the claim. Therefore, the claim request is *prima facie* not allowable.

13.5 Finally, if the addition of the total content of surfactant would be considered to be an important distinction over D16, this feature could and should have been introduced in a new claim request at the latest at the oral proceedings before the Opposition Division, in order to meet there the then raised objection of lack of inventive step over the disclosure of D16.

13.6 Therefore, Auxiliary Requests 2 and 2A, which should have been filed during the opposition proceedings (Article 12(4) RPBA), and at least AR2, which raises further issues arising from a technical feature taken from the description which had never been relied upon nor discussed previously in the opposition proceedings (Article 13(1) RPBA) and which is *prima facie* not allowable, are not admitted into the proceedings by the Board.

Auxiliary Requests 4, 4A, 5, 5A, 6, 6A, 9 and 9A

14. Claim 1 of each of these claims requests (XII, *supra*) comprises the feature "*and wherein the composition is packaged in a water-soluble material forming a unitized dose of the composition*".
- 14.1.1 Compared to Claim 1 as granted, this feature as such does not contribute to limit in any way the liquid detergent as granted, which is defined by its own chemical features, hence it does not contribute to further restrict the protection conferred by Claim 1 as granted, but it shifts the claimed subject-matter, and the protection conferred thereby, from a **liquid detergent** (chemical composition as such) to a different physical entity, a **unitized dose of the composition packaged in a water-soluble material**, i.e. to a product comprising not only the liquid detergent but also the water-soluble packaging material, which new physical entity was not defined in any of the claims as granted. The fact that a further limitation, to a total water content to less than 20% by weight, has been introduced in Claim 1 does not heal/overcome the objection due to the packaged material form.
- 14.2 Thus, amended Claim 1 according to any of these auxiliary claim requests extends the protection beyond the protection conferred by Claim 1 as granted (concerning a liquid detergent) to a different entity.
- 14.3 This conclusion is in line with the finding (reasons, 2.9-2.10) in T 352/04 of 11 October 2007.
- 14.4 Therefore, Claim 1 according to these auxiliary claim requests does not meet the requirements of Article 123(3) EPC.

14.5 In view of this finding, the Board needed neither decide whether these claim requests were to be admitted into the proceedings, because all these auxiliary claim requests are at least not allowable.

Conclusion

15. None of the claim requests at issue complies with the requirements of the EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Magliano

L. Li Voti

Decision electronically authenticated