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Datasheet for the decision of 21 November 2019

Case Number: T 1169/17 - 3.3.06

Application Number: 11715377.5

Publication Number: 2561061

IPC: C11D11/04, C11D1/37

Language of the proceedings: EN

Title of invention:
PROCESS FOR MAKING A DETERGENT BASE COMPOSITION

Patent Proprietor:
The Procter & Gamble Company

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

Headword:
Process for making a detergent base composition/Procter & Gamble

Relevant legal provisions:
EPC Art. 52(1), 56, 83, 123(2)
RPBA Art. 12(4), 13(1)

Keyword:
Late-filed documents - not admissible
Amendments - added subject-matter (no)
Sufficiency of disclosure - (yes)
Inventive step (yes) - non-obvious alternative

Decisions cited:
G 0001/03, T 0939/92, T 0357/02

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

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Case Number: T 1169/17 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 21 November 2019

Appellant: (Opponent 1)	UNILEVER PLC / UNILEVER NV Unilever House, 100 Victoria Embankment/ Weena 455 London EC4Y 0DY / 3013 AL Rotterdam (GB)
Representative:	Newbould, Frazer Anthony Unilever PLC Unilever Patent Group Colworth House Sharnbrook Bedford, Bedfordshire MK44 1LQ (GB)
Appellant: (Opponent 2)	Henkel AG & Co. KGaA Henkelstrasse 67 40589 Düsseldorf (DE)
Representative:	dompatent von Kreisler Selting Werner - Partnerschaft von Patent- und Rechtsanwälten mbB Deichmannhaus am Dom Bahnhofsvorplatz 1 DE-50667 Köln (DE)
Respondent: (Patent Proprietor)	The Procter & Gamble Company One Procter & Gamble Plaza Cincinnati, OH 45202 (US)
Representative:	P&G Patent Belgium UK N.V. Procter & Gamble Services Company S.A. Temselaan 100 1853 Strombeek-Bever (BE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on**

16 March 2017 concerning maintenance of the European Patent No. 2561061 in amended form.

Composition of the Board:

Chairman	L. Li Voti
Members:	G. Santavicca
	C. Heath

Summary of Facts and Submissions

I. The appeal lies from the interlocutory decision of the Opposition Division concerning maintenance of European Patent No. 2 561 061 in amended form according to the main request filed with letter dated 24 July 2015.

II. Independent claim 1 according to the upheld main request reads as follows:

"*1. A process for making an anhydrous laundry liquid detergent base composition comprising less than 30% of water by weight and detersive surfactant, the process comprising the steps of:*
a) providing a pre-neutralized sulphate detersive surfactant syrup wherein 100% of the sulphate detersive surfactant is pre-neutralized with an organic neutralizing agent;
b) adding a neutralizing agent to the sulphate detersive surfactant syrup; and
c) adding a sulphonic detersive surfactant in acid form to the mixture resulting from step b)."

Claims 2 to 9 concern particular embodiments of the process according to claim 1.

III. Two oppositions were filed against the patent, on the grounds of lack of an inventive step (Article 100(a) EPC) as well as on the ground of insufficiency of the disclosure (Article 100(b) EPC) (only by opponent 1).

The following items of evidence were *inter alia* relied upon:
D1: WO 95/14071 A1;
D7: US 5 382 386 A;
D8: US 5 527 489 A;

D10: US 20009/0298739 A1.

IV. In the decision under appeal, the Opposition *inter alia* found that, even if the technical problem solved was the provision of an alternative process for making anhydrous liquid detergent compositions comprising both a sulphate and a sulphonate detersive surfactants, the claimed process was not obvious for a skilled person starting from D1 or D10.

V. With its statement setting out the grounds of appeal, appellant/opponent 1 only dealt with the issue of inventive step, maintaining that the claimed process comprised an arbitrary alternative sequence of known steps, which thus was obvious.

VI. With its statement setting out the grounds of appeal, appellant/opponent 2 submitted new items of evidence:

D13: Product data sheet of the sodium alkylbenzene sulphonate MARLON® ARL, 15 December 2008;

D14: Excerpts from Sasol Tensid Programm, March 2010;

D15: MEA-LAS, Product Safety Summary, P&G, July 2012.

It maintained that the process of upheld claim 1 did not comply with the requirements of Article 123(2) EPC, that the claimed invention was not sufficiently disclosed as required by Article 83 EPC as well as that claim 1 was obvious for the skilled person over D10, taken as the closest prior art, alone or in combination with D7 or D8.

VII. With its response to the statements setting out the grounds of appeal, the respondent/patent proprietor

contested all the appellants' arguments and requested not to admit new documents D13 to D15.

VIII. In response thereto, appellant 1 filed new documents:

D16: US 4,191,704; and

D17: US 4,435,317,

and maintained its arguments as regards inventive step.

IX. In a communication in preparation for oral proceedings, dated 30 September 2019, the board expressed its provisional opinion:
- that documents D13 to D15, filed by opponent 2, and D16-D17, filed by opponent 1, did not appear to be relevant or admissible,
- that the claims complied with the requirements of article 123(2) EPC;
- that the invention was sufficiently disclosed;
- that D10 rather than D1 appeared to disclose the closest prior art; and
- that, starting from D10, or even from D1, the claimed process did not appear to be obvious.

X. With letter dated 15 October 2019, appellant/opponent 1 announced that it would not attend the oral proceedings and maintained that D1 disclosed the closest prior art for assessing obviousness.

XI. With letter dated 29 October 2019, the respondent *inter alia* took stance against the admittance of D16 and D17 into the proceedings.

XII. With letter dated 30 October 2019, appellant/opponent 2 contested the preliminary position of the Board on D10

and maintained that D10 also suggested a process including, after the pre-neutralization of the step (a), a sequence including steps (b) and (c).

XIII. With letter dated 7 November 2019, the respondent took stance on the latest submission by appellant/opponent 2.

XIV. Oral proceedings took place on 21 November 2019. Appellant/opponent 2 referred to its written case in regard of admittance and consideration of late filed documents D13-D15, added subject-matter and insufficiency of the disclosure. Inventive step over D10 was discussed, in particular with reference to example 3 and the table on page 8 thereof.

XV. **Appellant/opponent 2** requested that the decision under appeal be set aside and that the patent be revoked. It also requested that D13 to D15 be admitted into the proceedings.

Appellant/opponent 1 had requested in writing that the decision under appeal be set aside and that the patent be revoked. It also had requested that D16 and D17 be admitted into the proceedings.

The **respondent/patent proprietor** requested that the appeals be dismissed.

It further requested not to admit documents D13-D17 into the appeal proceedings.

Reasons for the Decision

1. *Admittance of new items of evidence D13 to D17 into the appeal proceedings*

1.1 D13, D14 and D15 have all been filed with the statement setting out the grounds of appeal of opponent 2, so that their admittance is at the discretion of the Board, in accordance with Article 12(4) RPBA.

These documents have allegedly been filed in reaction to the decision under appeal acknowledging that no evidence had been submitted on the poor pumpability of neutralised sulphonate detersive surfactants, in particular in order to prove that these surfactants were solid, i.e. not capable of being pumped.

1.2 The respondent contested their relevance/admissibility.

1.3 The Board had expressed in its communication in preparation for oral proceedings the following:

1.3.1 Whilst D13 concerns a solid product, D14 however concerns a range of products, including alkyl benzene sulphonate and acids, most of which are liquid, not solid. D15 concerns a specific benzene sulfonic acid neutralised with ethanolamine, which is said to be in paste form but in solid physical state.

1.3.2 Hence, it is not seen that D13 to D15 are relevant in respect of rheological properties sought-for in the claimed low-water liquid composition.

1.3.3 Appellant/opponent 2 has not contested in writing the (then provisional) opinion of the Board that the

admittance of D13 to D15 under Article 12(4) RPBA would be discussed only if it were considered to be necessary for the decision, hence that it was to be expected that these documents would be considered not to be relevant. At the oral proceedings, appellant/opponent 2 referred to its written case in respect of D13 to D15 but did not use any of them in its inventive step attack.

1.3.4 Therefore, the Board has no reason to deviate from its preliminary position that these documents are not relevant for the discussion of inventive step. Consequently, these documents are not further considered in this decision and there is no need to decide on their admissibility.

1.4 The admittance of D16 and D17, filed with letter 15 February 2018 by appellant/opponent 1 (i.e. after the response of the patent proprietor to opponent 1's statement setting out the grounds of appeal) is at the board's discretion under Articles 12(4) and 13(1) RPBA.

1.4.1 Opponent 1 had justified the late filing of D16 and D17 as a response to the comments made by the patent proprietor on the common general knowledge of the surfactant formulators.

1.4.2 The respondent has objected that D16 and D17 could not be representative of the common general knowledge.

1.4.3 The board, as already expressed in its communication, cannot disregard the fact that D16 and D17 are patent specifications, not handbooks or general technical books, thus that they do not concern common general knowledge in dispute. They instead only address the issue whether a conceptual neutralising option, invoked in the statement setting out the grounds of appeal of

opponent 1, was (generally) known, thus available, for the skilled person.

1.4.4 Appellant/opponent 1 did not contest in writing (see letter dated 15 October 2019) the stance taken by the board that D16 and D17 did not appear to disclose common general knowledge, hence that they would not be admitted. Indeed, still in its latest written submission, it no longer used any of D16 or D17 in its inventive step attack against the claimed process.

1.4.5 Therefore, the board has no reason to deviate from its preliminary position that D16 and D17 are not admissible under Articles 12(4) or 13(1) RPBA.

2. Claims upheld by the opposition division - Allowability of the amendments (Article 123(2) EPC)

2.1 Claim 1 at issue includes the following (made apparent) amendments, compared to claim 1 as originally filed:

"*1. A process for making an anhydrous laundry liquid detergent base composition comprising* ***less than 30% of water by weight and*** *detersive surfactant, the process comprising the steps of:*

a) providing a pre-neutralized sulphate detersive surfactant syrup wherein ~~at least 50%~~ 100% of the sulphate detersive surfactant is pre-neutralized with an organic neutralizing agent;

b) adding a neutralizing agent to the sulphate detersive surfactant syrup; and

c) adding a sulphonic detersive surfactant in acid form to the mixture resulting from step b)."

2.2 Appellant/opponent 2 held the subject-matter of claim 1 at issue to infringe Article 123(2) EPC, as resulting from selections from two different lists, which selections were not directly and unambiguously disclosed in combination in the application as originally filed.

2.3 For the board, page 2, lines 16, of the application as originally filed directly and unambiguously discloses, as one of the directly and unambiguously defined alternatives, a process of the type as defined in claim 1 at issue comprising the steps:

"a) providing a pre-neutralized sulphate detersive surfactant syrup wherein ~~at least 50%, preferably at least 60%, more preferably at least 70% and~~ especially 100% of the sulphate detersive surfactant is pre-neutralized with an organic neutralizing agent, preferably with mono-ethanol amine;
b) adding a neutralizing agent to the pre-neutralized sulphate detersive surfactant syrup; and
c) subsequently adding a sulphonate detersive surfactant in acid form."

2.4 The further restrictions to this disclosed most preferred embodiment, as provided in claim 1 at issue ("*less than 30% of water by weight*" and "*to the mixture resulting from step b)*"), respectively have a basis in the application as originally filed as follows:

2.4.1 Page 2, lines 10-12, according to which the first preferred meaning to be given to the generic feature "*anhydrous composition*" is a composition "having less than 30% of water by weight". This is a first choice

within a disclosed list of alternative anhydrous compositions.

2.4.2 Page 2, lines 21-22, mentioning "and, subsequently", which implies that the sulphonate detersive surfactant in acid form is added after the addition of the excess neutralizing agent, thus to a mixture resulting from step b). This is also unequivocally apparent from page 2, lines 30-33, and from page 3, lines 1-2, as well as also defined in step c) of original claim 1, which appears to use the same wording of claim 1 at issue in this respect. Thus, this amendment does not represent a second choice or selection within another list of preferences for a generic definition. It rather is a mere clarification.

2.5 Summing up, claim 1 at issue complies with the requirements of Article 123(2) EPC.

3. Sufficiency of the disclosure of the invention

3.1 Although sufficiency was acknowledged in the decision under appeal (reasons, 2.3), appellant/opponent 2 maintains that insufficiency arises in particular in view of the fact that the present invention should on the one hand ensure that the sulphate surfactants remain stable during the process, i.e. should not hydrolize, whilst, on the other hand, it should be ensured that the composition remains processable, i.e. in liquid state, even after the process. However, in this respect (i.e. in order to obtain a liquid, processable composition at the end of the process), the description of the patent in suit does not provide sufficient teaching, so that the skilled person should undertake trial and error experiments to find the missing information.

3.2 As already expressed in its communication in preparation for oral proceedings, the board remarks that the process defined in claim 1 at issue (the invention) requires the obtention of an anhydrous laundry liquid detergent base composition with no limiting amounts of the components apart from water, and that the patent mentions in paragraphs [0017] and [0034] that a solvent can be used to adjust the rheological properties of the resulting detergent base composition. This is fully reflected in the example, which, albeit not disclosing the relevant amounts, shows almost in any step the use of detergent syrups and solvents, in addition to water.

3.2.1 Moreover, claim 1 defines no requirements in respect of viscosity values to be attained, nor flowability or pumpability of the base detergent composition. These sought-for results, if any, are only mentioned in the description, apparently only in a generic way as "good rheological properties" (e.g. paragraphs [0004], [0017], [0024] and [0026]).

3.2.2 As established in **G 1/03** (OJ 2004, 413, reasons 2.5.2): "If an effect is expressed in a claim, there is lack of sufficient disclosure. Otherwise, i.e. if the effect is not expressed in a claim but is part of the problem to be solved, there is a problem of inventive step (**T 939/92**, OJ EPO 1996, 309)."

3.2.3 Given that no pumpability is mentioned in claim 1 at issue, there is no reason why the skilled person should undertake trial and error experiments to determine the pumpability of the base composition.

3.3 Instead, it is apparent to the Board that appellant/ opponent 2 has not backed up its objections with any item of evidence, to show that the invention as claimed is insufficiently disclosed, i.e. does not appear to have discharged its burden of proving that the process of claim 1 at issue encompasses non-working embodiments. In this respect, the mere casting of doubts on the basis of the invoked items of prior art is not sufficient for discharging the burden of proof.

3.4 Therefore, the Board concludes that the claimed invention is sufficiently disclosed (article 83 EPC).

4. *Inventive step*

4.1 The invention

4.1.1 The present invention relates (paragraph [0001] of the patent) to a process for making a liquid detergent base composition, whereby this base composition should be a compacted liquid laundry detergent product having the same performance as traditional uncompacted liquid laundry detergents (paragraph [0002] of the patent), such as good cleaning performance, good storage stability profile and desirable rheological properties so that it can be handled and dosed easily by the consumer (paragraph [0004] of the patent).

4.1.2 In particular (paragraph [0005] of the patent), the present invention addresses a problem associated to the manufacturing process of compacted detergents, namely that the reduction of the ingredients such as solvents can give rise to undesired phase formation in the base composition, such as surfactant middle phases that are difficult to process.

4.1.3 More particularly (paragraph [0006] of the patent), the present invention addresses the problem of making a common base composition that can be later on differentiated to give rise to different products, whereby the post-addition of solvent or late differentiation additives to the base composition does not alter the rheology of the composition making it unmanageable.

4.1.4 These problems are to be solved by the process as defined in claim 1 at issue.

4.2 Closest prior art

4.2.1 As regards the closest prior art, in the appeal proceedings, appellant/opponent 1 invoked that D1 represented the closest prior art for assessing obviousness, whilst appellant/opponent 2 chose D10 as closest prior art.

4.2.2 D1 (page 1, lines 3 and 4) concerns a process for the preparation of a surfactant mixture, whereby the different surfactants forming the base composition should be compatible with the remaining components of the formulation to ensure homogeneity and clarity under prolonged storage (see page 2, lines 9-12) (i.e., storage stability). In particular D1 (see page 2, lines 19-23) (like the patent in suit) acknowledges the need for a basic surfactant mixture which is easy and economical to manufacture in pure form from easily available starting materials, and from which, by suitably adding adjuvants and additional surfactants, products suitable for various applications are obtained (hence, a differentiable composition).

As regards the water content and the rheology of its composition, D1 (page 6, lines 11-14; claim 12) teaches to use water to adjust the viscosity and the level of the anionic surfactants to 10 to 35 wt.-%. D1 (see page 2, lines 25-29) thus aims to provide a process for the preparation of a cleaning composition which can be used in different technical and domestic fields, including personal hygiene (in particular, shampoo), and which has improved quality properties (detergent laundry compositions are however not explicitly mentioned).

It is apparent from the foregoing that D1 shares with the patent in suit only the objective of a process for preparing a storage stable and differentiable mixed-surfactants, base composition.

As regards the disclosed process (see e.g. claim 1 or 12 of D1), this is characterized in that a mixture, which contains
- an alkali metal salt of an alkyl sulphonic acid, and optionally
- an alkali metal salt of an ethoxylated alkyl sulphate, is treated with concentrated, over 70 % sulfuric acid in an amount in excess of the amount needed for liberating the organic acids, while stirring and simultaneously cooling, if necessary, so that the temperature of the mixture does not exceed 35°C,
- the reaction mixture is allowed to separate into two layers,
- the layer containing the organic acids is separated and neutralised with di- and/or triethanolamine to produce the di- and/or triethanolamine salts of the said acids, and optionally water and conventional additional agents and adjuvants are added.

Summing up, it is thereby apparent that, even if D1 discloses a process for preparing a differentiable composition including sulphonic and ethoxylated alkyl sulphate surfactants, this composition need not have a low water content as defined in claim 1 at issue, nor as such good rheological properties. These are instead adjusted with addition of water. Moreover, the process does not comprise the claimed sequence of steps. In fact, both the alkyl sulphonic acid and the ethoxylated alkyl sulphate are neutralized in the same step with di- and triethanolamines.

4.2.3 D10 (paragraph [0001]), too, belongs to the technical field of surfactant concentrates, in particular (paragraph [0002], last sentence) to a process of making compact formulations using less water and requiring less packaging whilst maintaining or improving their performance.

The object of D10 (paragraphs [0004] and [0007]) is the development of an efficient, continuous process of making a highly efficient anionic sulphate surfactant concentrate that can be processed, shipped, stored, pumped and used in its designated application throughout its lifetime, that does not require the use of water for process ability, that permits the inclusion of less surfactant in the finished product and formulation flexibility, and that reduces the environmental impact and irritancy of the concentrate or final product composition.

It is apparent that D10 shares with the patent in suit the objective/problem of providing highly concentrated (i.e. containing low water) mixtures of alkylsulphate surfactants which still have good performance and good rheological properties.

As regards the latter properties, D10 (paragraphs [0019] to [0021] and [0025]) teaches the addition of 5 to 25% by weight of the concentrate of a carboxylic acid to the neutralized sulphates, whereby it is essential that 4 to 96% of the total carboxylic acid is present in its free acid form, such that the carboxylic acid in its free form acts as a solvent to manage the viscosity of the anionic surfactant concentrate, whilst the anionic form (soap) thereof acts as a proton sink which stabilizes the surfactant by reacting any surfactant acid precursor back to its anionic surfactant.

This is in particular illustrated by Example 3 of D10, invoked by appellant 2, disclosing a surfactant concentrate consisting of 78 wt.-% MEA/AE3S (i.e. an alkyl ethoxylated, with an average of 3 moles, sulphate neutralised with monethanolamine), 20 wt.-% added fatty acid and 2 wt.-% minors and alkanolamine, the latter being a neutralising agent, whereby the ratio of free fatty acid to fatty acid anion (soap) is 96 to 4. This concentrate has a pH of 5.9, shows a viscosity of 6.8 Pas at 40°C and has an anionic surfactant activity of 98% after 4 weeks at 40°C (stability), thus meets the viscosity and stability criteria set by D10.

Therefore (see in particular "...***added***", example 3, line 2), it is implicit from example 3 that D10 discloses a process of preparing a surfactant concentrate comprising the step of adding to a neutralised anionic sulphate surfactant sufficient neutralising agent.

The process proposed by D10 in said example 3 thus comprises the features of claim 1 at issue up to and

including steps (a) and (b) thereof. However, the thereby obtained concentrate mixture also contains free carboxylic acid, which is not a sulphonic acid according to the patent in suit. Hence, the closest process of D10 does not include step (c) of claim 1 at issue, namely "*and c) adding a sulphonic detersive surfactant in acid form to the mixture resulting from step b)*".

4.2.4 It follows from the foregoing that D10 appears to have greater similarity of objectives with the patent in suit than D1, as well as a closer process sequence (e.g. steps (a) and (b) thereof).

4.2.5 In particular, as invoked by appellant/opponent 2, example 3 of D10 is considered to represent the closest prior art embodiment for the assessment of obviousness according to the problem-solution approach.

4.2.6 More particularly, the process of claim 1 at issue is **distinguished therefrom** by the sequence of steps also including step (c), in the given order.

4.3 The technical problem

4.3.1 For the sake of argument in appellant/opponent 2's favour, the board accepts that, as discussed during oral proceedings, the technical problem has to be reformulated in the light of D10 as the provision of a further process for providing an anhydrous laundry liquid detergent base composition comprising a mixture of neutralised sulphate and sulphonate surfactants.

4.3.2 It is not contested that the process defined in claim 1 at issue represents an effective solution to this least ambitiously formulated technical problem.

5. Obviousness

5.1 It remains to be decided whether the skilled person starting from example 3 of D10 would have found any motivation to modify the process leading to the therein illustrated concentrate by adding a sulphonic detersive surfactant in acid form to the stable, manageable, neutralised sulphate surfactant concentrate according to example 3 of D10.

5.2 D10 taken alone

5.2.1 Example 3 of D10 does not disclose nor suggest the addition of a sulphonic surfactant in acid form to its concentrate. Example 3 only mentions the addition of a carboxylic acid, part of which is in free acid form.

In general, D10 (see in particular paragraph [0021], more particularly the first and the second sentences) discloses that it is essential to use carboxylic acid in free acid form to fulfil the function of "solvent" for the neutralised sulphate composition, such that it remains pumpable.

As a matter of fact, D10 neither discloses nor suggests to add a sulphonic surfactant in acid form to a completely neutralized anionic surfactant concentrate (see paragraphs [0047] and [0048]), to obtain a modified, further concentrate.

In fact, it is apparent from example 5 of D10, which is identical to invoked example 3 up to the pH value,

which is 5.2 instead of 5.9 for example 3, that a lowering of the pH destabilizes the concentrate.

5.2.2 The mention of a possible addition of known anionic surfactants (thus theoretically also of known sulphonic surfactants) and specifically of an anionic sulphonate surfactant appears in the listing of the surfactants for use in the **final** detergent product composition (see paragraphs [0053] and [0054]), as follows : "...Anionic and non-ionic surfactants are preferred. In a preferred embodiment, the (detergent product) composition of the present invention further comprises an anionic sulphonate surfactant. More preferably a sodium, potassium, substituted ammonium or alkanolamine alkylbenzene sulfonate ...".
In view of the mention of sulphonate and of the species sodium, potassium, ammonium and alkanolamine, it is apparent that this paragraph of D10 merely discloses the possible addition of an anionic sulphonate in the final detergent product, without disclosing how and when it is to be added, and without thereby suggesting in any way the addition of a sulphonate in acid form.

5.2.3 Appellant/opponent 2 has however maintained that the addition to the concentrate of example 3 of a sulphonate in acid form would be disclosed by D10, namely in the compositions illustrated in the table of page 8 thereof, where "alkylbenzene sulfonic acid" is mentioned.

5.2.4 The Board is not convinced by the appellant's argument, for the following reasons:
(a) The table on page 8 of D10 discloses the formulation (i.e. the compositional proportions and on which basis or how they are calculated) of the liquid

detergent compositions including the concentrate of D10.
(b) The mention "alkylbenzene sulfonic acid" therein does not necessarily mean that alkylbenzene sulphonic acid is added as such, unless the addition is disclosed as such in D10.
(c) In fact, D10 (see paragraph [0050], first sentence), does not make known how the concentrate is combined with the further ingredients mentioned in the table of page 8. The first two sentences of that paragraph read as follows:
"The surfactant concentrate may be combined with the remaining detergent composition ingredients at any point in the manufacture of said detergent composition. However it is preferred that it is added at an appropriate point so as not to greatly affect the viscosity of the product."
(d) As already pointed out, it is apparent from example 5 of D10, which is identical to the invoked example 3 up to the pH value, which is 5.2 instead of 5.9 for example 3, that a lowering of the pH destabilizes the concentrate.
(e) Thus, it is not apparent that the skilled person, following the teaching of D10 and knowing that sulphate surfactants can be destabilized by the presence of acids, hence by sulphonic acids, as stated in the patent in suit (page 2, lines 55-56) and not disputed by the appellant, would envisage to add a sulphonic acid to the concentrate of example 3. He would rather follow the suggestion of paragraph [0054] and, if any, add a neutralised sulphonate to the concentrate, in order not to destabilize the concentrate.
(e) Hence, the mention "alkylbenzene sulfonic acid" in the table of page 8 of D10 appears to merely imply how, on which basis, the relevant amount thereof is determined, i.e. that the amount thereof is expressed

as "sulfonic acid". In fact, the table lists "C_{12-18} Fatty acid", and not the neutralised form as present in said example 3, but also lists monoethanolamine neutralising agent separately, as buffers.
It follows from this analysis that D10 does not disclose, not even in connection with the way of combining the concentrate of example 3 with the remaining ingredients of the final detergent compositions, *inter alia* as given in the table on page 8 of D10, to add a sulphonic acid to the concentrate of example 3.

5.2.5 Thus, D10 does not contain any motivation for the skilled person towards a modification of the process according to its example 3 in order to arrive at a process as defined in claim 1 at issue.

5.2.6 Even considering the additional argument raised by appellant/opponent 2 that the addition of sulphonate surfactant in acid form was just one of two possible options known to the skilled person wishing to incorporate a sulphonate surfactant in the composition of example 3, as explained above, there is no teaching in D10 which would have prompted the skilled person to try to add a sulphonic acid surfactant to the composition of example 3. Therefore this argument appears to be retrospective.

5.3 D10 in combination with D7 or D8

5.3.1 Appellant/opponent 2 also referred in writing to a combination of D10 with D7 (column 1, lines 65-68; and table of columns 5 and 6) or with D8 (column 8, lines 6-14).

5.3.2 Although D7 concerns the manufacture of concentrated liquid detergent compositions including alkylbenzene sulphonate, the manufacture of its illustrated and referred to compositions (see column 5, lines 40-45) foresees the post-addition of dodecylbenzene sulphonic acid to a mixture including all other ingredients, which however include hydrotropes (Na cumene sulphonate and Na xylene sulphonate) and suds boosting alkanolamides (lauric/myristic monethanolamide) and do not contain sulphate surfactants.

5.3.3 D8 instead concerns high density granular (i.e. solid) detergent products, in which (column 8, lines 6-14) alkaline inorganic (solid) material such as carbonate is used to neutralize the alkylbenzene sulphonic acid and does not concern an anhydrous laundry liquid detergent.

5.3.4 Hence, as already expressed in the board's communication, also the combination of D10 with D7 or with D8 appears to be retrospective, in so far as neither of D7 or D8 contain a teaching that could have motivated the skilled person towards modifying the process of example 3 of D10 in an obvious manner towards the process of claim 1 at issue.

5.4 Document D1

5.4.1 As regards D1, considered as closest prior art by appellant 1 only and already discussed in detail above (4.2.2), the board had already expressed its preliminary opinion in its written communication that even if, *arguendo*, it were taken as the closest prior art, it could not be considered to render the claimed subject-matter obvious as:

5.4.2 D1 discloses the neutralization of an anionic mixture already containing sulphate and sulphonic surfactant precursors, hence a different step (a) of the claimed process, without any disclosure or suggestion of process steps (b) and (c) in sequence. Moreover, D1 concerns in particular a shampoo and not a laundry detergent composition. Hence, the attack based on D1 is rather retrospective, and cannot succeed.

5.4.3 Furthermore, concerning the reference to decision **T 0357/02** in appellant/opponent 1's letter of 15 October 2019, in order to back up the argument that in case of a minimalist technical problem, such as the provision of a further process, "almost any modification of the process might be regarded as a feasible alternative by the person skilled in the relevant art", the board observes that appellant/ opponent 1 has not shown that the invoked modification was known, thus available, from the invoked prior art (see reasons 6.3 in the referred to decision).

5.5 The board thus concludes that the claimed process is not rendered obvious by D10, even if D10 were taken in combination with the other invoked documents, and *a fortiori* over D1.

5.6 The subject-matter of claims 1 to 9 thus involves an inventive step (article 56 EPC).

Conclusion

6. The upheld claims meet the requirements of the EPC, and the main request is allowable.

Order

For these reasons it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

A. Pinna L. Li Voti

Decision electronically authenticated