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**Datasheet for the decision  
of 9 December 2020**

**Case Number:** T 2191/17 - 3.3.06

**Application Number:** 05025877.1

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**IPC:** C11D3/386, C11D3/50, C11D17/00

**Language of the proceedings:** EN

**Title of invention:**  
Detergent compositions

**Patent Proprietor:**  
The Procter & Gamble Company

**Opponents:**  
1) UNILEVER PLC / UNILEVER NV  
2) Henkel AG & Co. KGaA

**Headword:**  
Detergent compositions/The Procter & Gamble Company

**Relevant legal provisions:**  
EPC Art. 56  
RPBA 2020 Art. 13(1), 25  
RPBA Art. 13

**Keyword:**

Inventive step - (no) - obvious composition - all claim requests

**Decisions cited:**

T 1598/13

**Catchword:**



**Beschwerdekammern**  
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Case Number: T 2191/17 - 3.3.06

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.06**  
**of 9 December 2020**

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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
28 August 2017 concerning maintenance of the  
European Patent No. 1661978 in amended form.**

**Composition of the Board:**

**Chairman**            J.-M. Schwaller  
**Members:**            G. Santavicca  
                              J. Hoppe

## Summary of Facts and Submissions

I. The appeals of the opponents lie against the opposition division's decision to maintain European Patent No. 1 661 978 in the amended form of the main request filed on 26 May 2017, claim 1 of which reads as follows:

*"1. A detergent composition comprising:*

- 1. a lipase which is a polypeptide having the amino acid sequence of positions 1-269 of SEQ. ID No: 2 of US5869438 with the mutations T231R and N233R with reference to said SEQ. ID. No: 2; and*
- 2. an encapsulated perfume particle comprising*
  - (a) an at least partially water-soluble solid matrix comprising one or more water-soluble hydroxylic compounds, preferably starch; and*
  - (b) a perfume oil encapsulated by the solid matrix."*

II. With its grounds of appeal, appellant/opponent 2 filed two new items of evidence (D23 and D24) and argued that, in the decision under appeal, the assessment of the technical problem solved across the breadth of claim 1 according to the upheld claim request was defective, in so far as no technical effect had been clearly proven, as also apparent from the counter-tests of opponents 1. Therefore, starting from D17 (EP 0965326 A1) or D4 (WO 00/60063 A1) as the closest prior art, the claimed composition was obvious over their disclosure taken in combination with that of D4 or D7 (Smulders, "Laundry Detergents", pages 96-97, 2002), respectively.

III. In their statement of grounds, appellants/opponents 1 contested the finding in the decision under appeal that

D4 was not a plausible starting point for assessing inventive step, arguing that D17 did not care about lipase but only about providing perfumed garments. The technical problem was thus the provision of an alternative composition over that of the example of D4. As to obviousness, the claimed composition was obvious over D4 (with the content of D15 (WO 98/08939 A1) being incorporated by reference into D4), taken alone or in combination with common general knowledge or any of D9, D12, D13 and D17.

- IV. With its reply of 24 May 2018, the respondent/patent proprietor requested to dismiss the appeals (main request) and it filed auxiliary requests 1 to 7, with auxiliary requests 1 to 6 corresponding to those filed during opposition proceedings. In respect of inventive step, it argued that D17 (example 1A) was the closest prior art.
- V. In its provisional opinion, the board held *inter alia* that the composition of claim 1 of the main and auxiliary request 1 was obvious over D4 taken in combination with common general knowledge D5 (Louis Ho Tan Tai: "*Formulating Detergents and Personal Care products*", 2000) or prior art D15 and that none of the auxiliary requests seemed to involve an inventive step.
- VI. With letter dated 27 November 2020, appellants/opponents 1 objected to the patentability of all auxiliary requests on file.
- VII. At the closure of the oral proceedings before the board, the final requests of the parties were as follows:

**The appellants** requested that the decision under appeal be set aside and that the patent be revoked.

**The respondent** requested that the appeals be dismissed (main request), or auxiliary, that the patent be maintained in amended form according to one of the first to seventh auxiliary request filed with letter dated 24 May 2018.

### **Reasons for the Decision**

#### 1. *Main Request (claims as upheld) - Inventive step*

- 1.1 The patent (paragraph ([0001]) relates to detergent compositions comprising lipase enzymes which according to paragraph [0002] impact perfumes of detergent compositions. The patent acknowledges the prior art (EP-A-430 315) which combats malodours resulting from the use of lipase enzymes by using perfumes that comprise at least 25% by weight of defined perfume materials and less than 50% by weight of esters derived from fatty acids with 1-7 carbon atoms.

According to paragraph [0004], this odor problem is addressed in view of the more recently developed higher efficiency lipases (described *inter alia* in D4) that work effectively also during the wash phase of the cleaning process. These new lipases make it even more difficult for the detergent formulator to produce consumer acceptable perfumes in a climate where consumers' expectation is increasingly for pleasant perfumes at all stages of the washing process. One particular area where the impact of lipase on the perfume in the detergent composition can be most

noticeable to consumers is after storage and during the washing process.

The present invention thus aims at alleviating these problems for detergent formulations comprising the new high efficiency lipase enzymes.

## 1.2 Closest prior art

While in the decision under appeal, D17 was taken as the most promising closest prior art, the appellants argued that D4 was a suitable closest prior art. At the oral proceedings, the respondent maintained that D17 was the most suitable closest prior art document.

According to the jurisprudence (Case Law of the Boards of Appeal of the EPO, 9th edition 2019, I.D.3.1 to 3.3) the closest prior art is a 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.

D17 (see paragraphs [0001] and [0011]) relates to encapsulated perfume compositions and their use in laundry and cleaning products, with its invention solving the long standing need for a simple, effective, storage-stable delivery system which provides surprising odor benefits after the laundering process. Further, encapsulated perfume-containing compositions have reduced product odor during storage of the composition.

The problems mentioned in D17 concern all laundry detergent compositions, in particular the aspects of



protection of perfume ([0005]), density and concentration of all detergent compositions ([0008]), and intensity of the odor in particular on mixed fabrics ([0009]). These problems do not appear to be necessarily linked to the presence of enzymes. Indeed, as regards the presence of enzymes, D17 merely discloses them as further optional ingredients (see paragraph [0017], first and second sentences), among which cellulase is preferred. Of course, the Board does not disregard that in some of its examples Lipolase or Lipolase Ultra (see D17, page 21) is used additionally.

D4 (page 1, lines 17-19) addresses the need for novel lipases with improved washing properties in a variety of commercial detergents, and provides such novel lipases. In fact, D4 (page 1, lines 3-5) concerns lipase variants for use in detergent compositions, more particularly variants of the wild-type lipase from *Humicola lanuginosa* strain DSM 4109 showing a first-wash effect. In particular, D4 (page 1, lines 21-24) discloses certain variants of Lipolase (wild-type *Humicola lanuginosa* lipase) having particularly good first-wash performance in a detergent solution, and also providing additional benefits, such as whiteness maintenance and dingy clean-up. The preferred substitutions for the variants of D4 (see page 3, first two lines) include the substitutions **T231R** and **N233R**, and D4 mentions variants with only two substitutions (first entry in the tables on, respectively, pages 4 and 10; example on page 10) as defined in claim 1 at issue. Moreover, D4 (page 7, lines 12-17) discloses detergent compositions containing said lipases, and which may additionally comprise "encapsulated or non-encapsulated **perfumes**", and so may be improved in respect of pleasant odour. Hence, the argument of the patent proprietor that D4 does not mention improving

perfume behaviour is not convincing for the Board, as the suggested presence of encapsulated or non-encapsulated perfumes would inevitably lead to enhanced perfume behaviour.

It follows from the above analysis that D17 does not particularly address lipases, let alone the "higher efficiency lipase" of the patent in suit, but merely discloses a similar solution as that defined by feature 2 of claim 1 at issue for all detergent compositions. Thus, D17 does not address the same purpose as the patent in suit, in so far as D17, albeit representing improvements over the prior art, does not deal with the malodour produced by the Lipase variants defined in claim 1 at issue.

Instead, D4 concerns the detergent lipase enzymes defined in claim 1 at issue and discloses detergent compositions containing them, and so in view of the mention of the combination with *inter alia* encapsulated or non-encapsulated perfumes, this document addresses more closely the problems stated in the patent arising from the novel lipase. In fact, D4 is also expressly acknowledged in the patent in suit for that purpose (paragraph [0004]), and thus represents the same starting position as the inventors, who addressed the odour problems arising from the use of "the more recently developed (as described in WO 00/60063 (D4) and Research Disclosure IP6553D) higher efficiency lipases that work effectively also during the wash phase of the cleaning process".

For the Board, D4 is thus the most promising prior art for assessing obviousness, with the closest embodiment being the unspecified commercial US detergent disclosed on page 10, first paragraph, including the lipase with

the two substitutions as defined in claim 1 at issue (first entry in the table of page 10) and showing improved first-wash performance (last paragraph of page 10), over the parent enzyme (lipolase), on each type of soiled swatch tested.

The detergent composition of the example of D4, however, does not contain an encapsulated perfume as defined in feature 2 of claim 1 at issue.

### 1.3 Technical problem to be solved

The patent proprietor argued that even if starting from D4, the claimed composition would still involve an inventive step but it has not formulated any ambitious technical problem over this closest prior art.

For the Board, D4 having been acknowledged in the application as filed from which the patent at issue was granted as the starting point for the inventors, and thus considered when formulating the technical problem to be solved in the patent in suit, the technical problem to be solved over D4 remains as formulated in paragraph [0004] of the patent, namely "to provide detergent compositions comprising the new high efficiency lipase and being suitable to provide a pleasant perfume after storage and at all stages of the washing process."

### 1.4 Solution

As a solution thereto, the patent in the upheld form provides the detergent composition as defined in claim 1 at issue, which is in particular characterised in that it comprises **an encapsulated perfume particle comprising**

- (a) an at least partially water-soluble solid matrix comprising one or more water-soluble hydroxylic compounds, preferably starch; and**
- (b) a perfume oil encapsulated by the solid matrix.**

1.5 Success of the solution

The test reports filed by the patent proprietor during the opposition procedure (see letter dated 11 March 2010) compares the perfume/malodour performance of the following lipases:

- Lipase 1 is the wild-type lipase endogenous to *Humicola lanuginosa* defined by SEQ ID NO: 2 of US 5,869,438, sold under the tradename Lipolase™;
- Lipase 2 is the variant of Lipase 1 comprising the single amino acid substitution D96L, and 99% homology to Lipase 1. It is the best-performing variant listed in Table 4 of US 5,869,438 sold under the tradename Lipolase Ultra™; and
- Lipase 3 is the variant of Lipase 1 comprising the double amino acid substitution T231R, N233R and 99% homology to Lipase 1. This enzyme was disclosed in WO 00/60063 (D4) in the name of Novo Nordisk A/S.

These lipases were used with 40g of the detergent WE Ariel Color powder comprising 0.570% starch-encapsulated perfume (49% perfume content) + 0.5 ppm Lipase (1, 2 or 3), to assess the interference of food-based soils with the perfume system of the laundry detergent.

The purpose of the comparative tests was to show that, although lipase enzymes had been documented as causing malodour in a laundry context by liberating short-chain fatty acids from certain greasy soils, lipase 3 actually led to an increase in the perfume of fabrics

laundered with detergent compositions comprising encapsulated perfumes.

For the Board, the comparative tests play no role over D4, already disclosing a Lipase 3 as tested, for the following reasons:

- the comparative test data show that the use, in a detergent composition, of a Lipase 3 and a particular starch encapsulated perfume leads to improved level of perfume deposition and reduction in malodour;
- however, the materials for the particular starch encapsulated perfume are unspecified, and the perfume content (49%) is high, well above that of the examples of the patent in suit (about 25%);
- moreover, in claim 1 at issue, the starch is just an optional, not a mandatory, feature, so that the comparative test results do not cover the whole breadth of the claim, encompassing any kind of water-soluble solid matrix comprising one or more water-soluble hydroxylic compounds;
- finally, claim 1 is completely open in respect of the perfume oil, i.e. it does not set any limitation as to the kind of perfume oil and its perfume content.

Hence, the invoked comparative test report cannot prove an improved level of perfume deposition and a reduction of malodour, i.e. the invoked enhanced performance of encapsulated perfumes effect, compared to the starting point in D4 across the whole breadth of claim 1. Nor, especially in view of the prior art mentioned in paragraph [0002] of the patent, is it plausible that the invoked improvement can be achieved with e.g. a low perfume content and with hydroxylic materials other than starch, as brought forward by the appellants at the oral proceedings.

Furthermore, the comparative test report of appellants 1 filed in opposition (letter of 1 December 2011) using starch encapsulates commercially available from Givaudan as Bloomtech™, in comparison with aminoplast encapsulates, and, as enzyme, LIPEX™ ex Novozymes, both in two different commercial fabric washing powders, to assess perfume behaviour after washing, shows no significant difference between the behaviour of starch and aminoplast encapsulates, and in a South African product both encapsulates gave the same slight improvement in the presence of LIPEX. The respondent argued that also these tests showed that the novel lipase used with the claimed encapsulated perfumes did not negatively impact on the perfume performance, though it was known that the combination of lipase and perfumes led to malodours.

The argument of the respondent that the specification of starch and perfume in its comparative tests was not essential in as far as they were the same for all three lipases, and that its tests showed an improvement, is not convincing for the Board, because the alleged improvement problem had not been disclosed in the application as filed but formulated in the subsequent proceedings, so that the onus to prove that an enhanced effect is achieved across the whole breadth as claimed lies on the patent proprietor/respondent. Moreover, even if an enhanced effect were acknowledged for the particular encapsulated perfume oil tested, claim 1 would anyhow be so broad to encompass all perfume oils encapsulated in all water-soluble matrices comprising hydroxylic compounds.

Therefore, the technical problem cannot be formulated in terms of "surprisingly improved level of perfume

deposition and reduction in malodour", or "enhanced performance of encapsulated perfumes".

It nevertheless follows from both comparative tests that the combination of Lipase and encapsulated perfume as defined in claim 1 at issue is not arbitrary and suitable to provide a pleasant perfume after washing.

Consequently, for the Board, the technical problem effectively solved by the detergent composition defined in claim 1 at issue over the closest embodiment of D4 remains as formulated originally, namely "to provide detergent compositions comprising the new high efficiency lipase and being suitable to provide a pleasant perfume after storage and at all stages of the washing process".

#### 1.6 Obviousness of the solution

It remains to be decided whether the skilled person starting from D4 and facing the problem posed, would have modified the closest embodiment of D4 and thereby, in an obvious way, have arrived at the claimed subject-matter.

The respondent argued that it was not obvious to make the claimed composition, irrespective from where the skilled person started, because it was known that the better the lipase the worse the malodour problems. Contrary to that expectation, all comparative tests showed that the claimed composition was not worse as expected.

The Board does not share this position for the following reasons:

The sole example of D4 is the closest embodiment, which discloses an unspecified commercial US detergent (i.e. its complete composition is not disclosed) to which, *inter alia*, a lipase variant with the substitutions T231R and N233R was added, for testing the compositions on the soil removal from three different swatches soiled with lard or lipsticks and made of cotton or polycotton. This example thus does not disclose the presence of an encapsulated perfume as defined in claim 1 at issue.

The composition of claim 1 at issue is distinguished from the closest embodiment of D4 in that it contains, in addition to the specific lipase with only two particular substitutions N233**R**+T231**R** as used in the example of D4, an encapsulated perfume as defined by feature (2) thereof.

However, D4 (page 7, lines 12-17) generally discloses that its detergent compositions comprising the novel lipase and a surfactant can additionally comprise *inter alia* "encapsulated or non-encapsulated perfumes". The fact that the commercial US detergent used in the example of D4 does not contain a(n) encapsulated perfume does not impact against this general disclosure, because the purpose of the example was to comparatively assess the first-wash performance. Hence, a detergent composition including a lipase according claim 1 at issue and an encapsulated perfume is obviously derivable already from the passage on page 7, lines 12-17 of D4.

To decide whether the skilled person would have envisaged the addition of an encapsulated perfume as defined in feature (2) of claim 1 at issue in the closest detergent composition of D4, it has to be



established whether the use of common general knowledge or of the prior art specifically referred to in D4 would have motivated the skilled person to solve the problem posed with an encapsulated perfume as claimed.

As regards common general knowledge, the formulator of the detergent composition generally knows that in order to improve perfume performance in detergent products, loss during storage should be avoided and deposition should be improved (see for example D5, page 325, last paragraph, first two sentences), and that these objectives can be achieved with or without adsorption of the fragrance on a (porous) material by providing an external protection (encapsulation or micro-encapsulation), made up of **water-soluble, hydroxylated materials** (D5, description under the headings "Stability of Perfumes in Powder Detergents", "Adsorption on a Material with external protection", "Inclusion in a Water-Soluble Matrix"). Thus, the encapsulation material as defined in claim 1 at issue, is in fact generally known (from D5) for the skilled person.

The Board further remarks that D4 (page 8, lines 3-5) also suggests that its novel lipases can be used in the detergent compositions known from *inter alia* D15. See D4, page 7, lines 12-17: "The detergent composition of the invention comprises the lipase of the invention and a surfactant. Additionally, it may optionally comprise a builder, ..., and/or encapsulated **or** non-encapsulated perfumes." and page 8, lines 3-5: "More specifically, the lipase of the invention may be incorporated in the detergent compositions described in ..., PCT/DK **WO 98/08939** (this is D15) and ...".

It is immediately apparent that these passages are of general applicability to all embodiments of D4, thus to detergent compositions including the preferred lipase such as the specific one with only two substitutions (T231R+N233R) used in the example of D4.

As to D15, this document concerns (Claim 22) detergent compositions including lipases, such as Lipolase<sup>TM</sup> and Lipolase Ultra<sup>TM</sup> (page, lines 32-34). These enzymes are similar to the claimed lipase with only two substitutions, at least in so far as Lipolase is the reference lipase for both Lipolase ultra and lipase of claim 1 at issue, as apparent from e.g. D4 (page 2, lines 17-21) and the comparative test of the patent proprietor "Lipase 2 is the variant of Lipase 1 comprising the single amino acid substitution D96L, and 99% homology to Lipase 1".

Hence, D4 suggests by way of reference that its novel lipase with two mutations can be formulated into detergent compositions as taught in D15, i.e. which may *inter alia* contain lipolytic enzymes such as Lipolase and Lipolase Ultra enzymes. Thus D4 suggests that the novel lipase may be used to replace or supplement the lipases of D15 in detergent compositions formulated as taught by D15.

D15 teaches (page 30; see "other components") that detergent compositions can additionally contain encapsulated perfumes and that "especially suitable" encapsulating materials are the water-soluble capsules comprising polyhydroxy compounds (last paragraph on page 30; first full paragraph on page 31).

It follows that the skilled person starting from the detergent composition of D4, willing to fully implement

the suggestion of D4 (page 7, lines 12-17), and facing the problem posed, would have used an encapsulated perfume according to feature 2 of claim 1 at issue to solve the problem underlying the patent in suit,  
- either because common general knowledge, evidenced by D5, in respect of perfume encapsulation, teaches the use of perfumes encapsulated by a water-soluble matrix made up of hydroxylic compounds,  
- or in view of the clear reference, in D4, to the compositions of D15, teaching the use of encapsulated perfumes as claimed.

Thereby the skilled person would have arrived in an obvious manner at the claimed subject-matter; the detergent composition defined in claim 1 according to the main request thus does not involve an inventive step (Article 56 EPC), and the main request is not in compliance with the EPC, thus not allowable.

2. *Admittance of late-filed submissions*

Although the appellants' submissions with respect to the auxiliary requests were only filed with a letter dated 27 November 2020, they are based on documents already provided during the opposition proceedings and referred to in the grounds of appeal and/or in the board's communication dated 15 October 2020.

Furthermore, the respondent explicitly stated that it did not object to their admittance. Under these particular circumstances the board used its discretion to admit them into the proceedings (Articles 13(1), 25(1)(3) RPBA 2020, Article 13 RPBA 2007).

3. *Auxiliary request 1*

Claim 1 of this request is distinguished from that of the main request by the addition of the word "only" in the feature: "*with **only** the mutations T231R and N233R*".

### 3.1 Construction

In respect of this amendment the Board sees no reason to deviate from the finding in the previous decision taken in the present case (T 1598/13, reasons, 4.3), where it was decided that "for the skilled person, the wording used in claim 1 "a lipase which is a polypeptide having the amino acid sequence ... with the mutations T231R and N233R" unambiguously expresses that said amino acid sequence 1 - 269 must be present and must contain only the two specific mutations T231R and N233R, further mutations to other positions of said sequence thus being excluded".

It follows from the above construction that the amendment "**only**" does not impart any limitation, so that the composition of claim 1 of this request is not different from that of claim 1 of the main request.

### 3.2 Inventive step

In the absence of a distinguishing feature, the composition of claim 1 according to auxiliary request 1 thus lacks an inventive step for the reasons given (*supra*) in respect of the main request. Auxiliary request 1 thus is not allowable either.

### 4. *Auxiliary request 2*

Claim 1 of this request is distinguished from that of the main request by the additional feature "**and in which in addition to the encapsulated perfume oil**

**additional perfume oil is present as sprayed-on component**" at the end of claim 1.

#### 4.1 Construction

Under "**additional perfume oil present as sprayed-on component**" the skilled person understands additional non-encapsulated oil suitable to be sprayed on any of the typical components (agglomerates, spray-dried particles, powders) of the detergent compositions.

Apart that "sprayed-on" is a process feature, merely indicating the way in which the additional perfume oil is included in the detergent composition, the whole additional feature neither specifies what perfume oil, nor how much of it, is effectively sprayed on. Hence, claim 1 has to be construed broadly in these respects.

#### 4.2 Inventive step

4.2.1 It is generally known from D5 (page 325, Performance Improvement in Detergent Powder Perfumes; page 326, Stability of Perfumes in Powder Detergents) that perfume performance is not improved if perfume losses are not avoided and perfume deposition is not improved. This being the very reason for using encapsulation to provide sufficient perfume protection while ensuring prevention of losses and perfume deposition.

4.2.2 The board notes that there is no evidence on file for any technical effect (such as an improved perfume performance or deposition, or a functional interrelationship between encapsulated and non-encapsulated perfumes) in respect of the combination of encapsulated perfume oil and additional sprayed-on perfume oil in the claimed composition.

- 4.2.3 Already for this reason the board does not see any reason to change the technical problem already formulated for the main request.
- 4.2.4 As to obviousness, the respondent argued that the skilled person would not add any perfume in an unprotected way to a detergent composition comprising a novel lipase which would interact with it.
- 4.2.5 The Board does not accept this argument because D4 (page 7, line 17) and D15 (page 30, lines 32 and 33), referred to in D4, teach that the detergent compositions comprising the novel lipase may contain encapsulated or non-encapsulated perfumes. Hence, the skilled person was prompted to use such non-encapsulated perfumes (whether or not they are "sprayed-on" is of no importance for the claimed composition, since this is a non-limiting process feature), also in combination with encapsulated perfumed oils, in such detergent compositions.
- 4.2.6 Consequently, also the composition of claim 1 according to auxiliary request 2 was obvious over D4 taken in combination with common general knowledge D5 (or with D15), and so lacks an inventive step; auxiliary request 2 is therefore not allowable.

5. Auxiliary request 3

Claim 1 according to this request is distinguished from that of the main request by the additional feature "***in which the perfume oil in the encapsulated perfume particle is absorbed or adsorbed onto a carrier and both perfume oil and carrier are encapsulated***" at the end of claim 1.

5.1 *Inventive step*

5.2 No evidence on file shows any unexpected technical effect linked to this feature over D4. Thus, the additional pre-adsorption on a carrier before encapsulation cannot change the technical problem formulated for the main request.

5.3 Moreover, as regards obviousness over D4 taken as the closest prior art in view of the technical problem set out in the patent, the common general knowledge (D5, pages 325-327, e.g. "Stability of Perfumes in Powder Detergents" and "Adsorption on a material with external protection") makes it generally known that the pre-absorption/adsorption of the perfume oil on/in a carrier and the subsequent coating of the carrier with absorbed/adsorbed oil was a generally known option at disposal of the skilled person, to prevent loss of perfume on storage while providing perfume deposition.

5.4 Hence, the composition of claim 1 of auxiliary request 3 was obvious for the skilled person. As auxiliary request 3 does not comply with the EPC, it is thus not allowable.

6. *Auxiliary request 4*

6.1 Claim 1 of this request is distinguished from that of the main request by the additional features "**and in which the encapsulated perfume oil comprises at least 1% or at least 5% or at least 10%, by weight, or even at least 40% by weight of at least one perfume ingredient having a boiling point at  $36\text{Knm}^{-2}$  (760mmHg) of  $260^{\circ}\text{C}$  or lower and a calculated  $\log_{10}$  of its octanol/water coefficient  $P$  (CLogP), of at least 3.0**" at the end of claim 1.

6.2 It is not in dispute that a perfume oil is indeed a mixture of different ingredients thereof. This is also generally known, e.g. from D7 (page 96, point 3.4.7, second paragraph, last sentence).

The physical properties defined in claim 1 at issue, namely the boiling point and CLogP are characteristics of the chemical substance making the ingredient of the perfume oil, which are generally known ([0026] and [0027] of the patent).

6.3 Inventive step

6.3.1 Table 1 of the patent in suit provides a list of preferred perfume ingredients with their physical properties, and the patent in suit ([0028]) discloses that they make the perfume "very effusive and very noticeable" when the product is used. However, none of the comparative tests on file mentions the nature of the perfume oil nor shows any unexpected effect over D4. Hence, starting from D4 as the closest prior art, the technical problem stated in the patent in suit ([0004]) does not change.

6.3.2 As to obviousness, the known common general knowledge and prior art make it apparent that for the skilled person starting from D4, facing the technical problem posed, the perfume oil as claimed was a (generally) known option for the skilled person seeking to provide a perfumed detergent compositions comprising lipolytic enzymes (lipase) because as explained above for the main request the prior art documents D4 and D5 (or D15) would obviously lead the skilled person towards using encapsulated perfumes.



Since none of D4, D5 or D15 discloses the additional features of claim 1 at issue, the skilled person may either recur to common general knowledge or to prior art in the same technical field.

- 6.3.3 As to common general knowledge, it is undisputed that D7 (page 96, point 3.4.7, first paragraph, second sentence; second paragraph, last sentence; table 20) makes known perfume oil mixtures and their composition, for "providing detergents with a pleasant odour, ... to mask certain odours arising from the wash liquor during washing. ... Fragrances are also intended to confer a fresh, pleasant odour on the laundry itself. For this, long-lasting fragrances on dry laundry, resulting either from detergents .... have become a more and more important factor ...". Thus, D7 generally addresses the objectives of the patent.

Table 20 of D7 illustrates a perfume oil composition for detergents *inter alia* including the following perfume ingredients:

7% Dihydromyrcenol; 5% Lynalyl acetate; 1% Diphenyl ether (Diphenyloxide) and 1.5% Isobornyl acetate, with all these ingredients inherently having, as a matter of fact, the physical properties as claimed, this fact being also apparent from table 1 of the patent in suit and not contested.

- 6.3.4 Indeed, perfume oils as claimed were also known from the prior art in the technical field of perfumed enzymatic detergent compositions, such as D17, dealt with in the decision under appeal and particularly invoked by the opposing parties.

D17 ([0001] and [0061]) concerns perfume compositions for laundry products, such as detergent compositions,

for the same objectives as the patent in suit (see e.g. [0010] and [0011]). The detergent compositions may *inter alia* contain enzymes such as *inter alia* lipases ([0117]). The perfume compositions are preferably encapsulated ([0013]), whereby the water-soluble encapsulating materials thereof (see [0039] and [0047]) are, not only as generally disclosed in D5 (pages 326-327) but, identical to those suggested in D15 (last paragraph on page 30, first paragraph on page 31). Hence, the skilled person starting from D4 would have considered the perfumes oils disclosed in D17 for similar detergent compositions, for the same objectives, in the same encapsulation materials. In this respect, D17 discloses perfume oils including at least an ingredient having a boiling point and a CLogP as defined in claim 1 at issue, as apparent *inter alia* from [0012]a) (requiring at least 10% of the high impact ingredient) and Table 1 thereof, the latter *inter alia* mentioning octanal, nonanal and decanal, which indisputably have physical properties as defined in claim 1 at issue, which fact is also apparent from Table 1 of the patent in suit, where the same ingredients are respectively named octyl-, nonyl and decyl aldehydes. As D17 teaches ([0025]) that these preferred perfume ingredients are "very effusive and very noticeable" when the product is in use, the skilled person was indeed motivated to use the perfume oils of D17 with the encapsulating materials of D5 or D15 in the detergent compositions according to D4, in the expectancy of providing the very effusive and noticeable perfume in use.

- 6.4 Regarding the argument of the patent proprietor that these combinations would not have been made without hindsight, the Board remarks that these combinations include either one document (D4) and two items of

common general knowledge (D5 and D7), or the combined disclosure of two patent documents (D4 and D15), the second being referred to in the first, with a third patent document representing prior art in the same technical field and disclosing common objectives/solutions with the first two documents. Hence, the argument of the respondent is not convincing.

6.5 Therefore, the composition of claim 1 of auxiliary request 4 was obvious for the skilled person over D4. As auxiliary request 4 does not comply with the EPC, it is thus not allowable.

7. *Auxiliary requests 5 and 6*

7.1 Claim 1 according to auxiliary request 5 is distinguished from that of the main request by the additional feature "**and wherein the encapsulated perfume oil comprises an ester derived from a fatty acid having 1 to 7 carbon atoms**" at the end of claim 1.

Claim 1 according to auxiliary request 6 is distinguished from that of the main request by the additional feature "**and in which the encapsulated perfume particle comprises benzyl acetate and/or phenylethyl acetate**" at the end of claim 1.

It is noted that claim 1 of auxiliary request 6 concerns specific esters of the broader class defined in auxiliary request 5, in so far as benzyl acetate and phenylethyl acetate are esters derived from fatty acids having 2 carbon atoms. Hence, these two auxiliary requests can be dealt with together.

7.2 Inventive step

7.2.1 The patent in suit (Table 1) discloses fatty acid esters as claimed (see the acetate, propionate, (iso)butyrate, heptoate esters listed) and in ([0007], penultimate and last sentence of first paragraph thereof), it further discloses that benzyl acetate and phenylethyl acetate are particularly sensitive to lipase, so that their encapsulation is beneficial. This teaching, however, does not go beyond the teaching of the prior art acknowledged in [0002] of the patent. Moreover, the comparative tests on file do not specify whether the esters currently defined in claim 1 are present in the formulation and no evidence is on file proving any improved technical effect whatsoever. Consequently the technical problem remains as stated in the patent in suit.

7.2.2 As to obviousness of the detergent compositions according to claim 1 of these auxiliary requests, the Board remarks that the skilled person either using common general knowledge or considering prior art in the same technical field would have arrived in an obvious manner at the claimed detergent compositions, for the following reasons:

- as regards common general knowledge, the Board draws attention to the generally known fragrances for detergents (table 20 in D7), which include "***an ester derived from a fatty acid having 1 to 7 carbon atoms***", as apparent from the mention of e.g. Verdyl propionate or acetate and Linalyl acetate.
- The composition of claim 1 according to auxiliary request 5 was therefore obvious over D4 with common general knowledge D5 and D7.

7.2.3 Also D17 discloses the use of the claimed encapsulated perfume ingredients, as apparent from its claims 1, 4 and 5, and paragraphs [0048] and [0049] disclosing the

encapsulation material, taken in combination with the disclosure of the perfume ingredients as claimed in Table 1 (e.g. Flor acetate or Ethyl-2-methyl Butyrate), *idem* in examples 1 and 3, and in the description ([0101], with e.g. the propionate or acetate ingredients being mentioned in lines 7, 13 and 14).

7.2.4 As the skilled person was motivated to use the (ester) perfume oils of D17 with the encapsulating materials of D5 or D15 in detergent compositions according to D4, in particular the esters disclosed in its Table 1 in the expectance of "very effusive and noticeable" perfumes in use, the detergent composition of claim 1 of auxiliary request 5 was thus obvious.

7.2.5 As regards the specific esters of claim 1 of auxiliary request 6, for which, apart their sensitivity to lipase, no effect whatsoever has been disclosed or proven, the Board remarks that they too were known to the skilled person at issue, at least from D17 (page 16, line 29, which explicitly disclose 2-phenylethyl acetate and benzyl acetate as specific examples of perfume components for detergent compositions.

Hence, the composition of claim 1 of auxiliary request 6 was obvious at least in view of D4 and D5/D15 in combination with D17.

7.3 It follows from the foregoing analysis that auxiliary requests 5 and 6 do not comply with the EPC, and are thus not allowable.

8. Auxiliary request 7

The board notes that this request was filed for the first time in the appeal proceedings with the

respondent's reply. Its claim 1 now requires that the encapsulation matrix be made of an at least partially water soluble solid material comprising starch.

8.1 Inventive step

8.1.1 The patent in suit ([0013] to [0020]) discloses a large number of possible starches suitable as the solid matrix material for encapsulation of perfume. The comparative tests on file, in particular those of the patent proprietor, use an unspecified starch, as well as an unspecified perfume oil. Hence, the limitation to "... *comprising starch*" does not change the technical problem, which remains as set out in the patent.

8.1.2 For the skilled person starting from D4 and considering the disclosure of the compositions referred to in document D15 (e.g. page 31, first paragraph, more particularly last two sentences) the use of starch for making the encapsulation solid matrix was at hand.

8.2 Therefore, the composition of claim 1 according to auxiliary request 7 was obvious (Article 56 EPC) over D4 taken as the closest prior art, in view of its reference to D15, so that auxiliary request 7 does not comply with the EPC, and is not allowable.

9. *Conclusio*

Since none of the sets of claims underlying the proposed requests meets the requirements of the EPC, the appeals succeed.

**Order**

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

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

The Registrar:

The Chairman:



A. Pinna

J.-M. Schwaller

Decision electronically authenticated