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**Datasheet for the decision
of 11 June 2015**

Case Number: T 1476/12 - 3.3.06
Application Number: 05802405.0
Publication Number: 1841851
IPC: C11D17/00, C11D3/50, C11D3/43,
C11D17/04
Language of the proceedings: EN

Title of invention:

Liquid detergent compositions and their use

Patent Proprietor:

Unilever PLC / Unilever N.V.

Opponents:

The Procter & Gamble Company
Henkel AG & Co. KGaA

Headword:

Melamine-formaldehyde microcapsules / UNILEVER

Relevant legal provisions:

EPC Art. 52(1), 56, 107, 108, 114(2), 101(1)
EPC R. 99(2)
RPBA Art. 12(4), 13(3)

Keyword:

Admissibility of appeal - (yes)
Admissibility of the claim request filed during oral proceedings - (yes)
Inventive step (no) - obvious solution

Decisions cited:

T 1912/09, T 2532/11

Catchword:



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Case Number: T 1476/12 - 3.3.06

**D E C I S I O N
of Technical Board of Appeal 3.3.06
of 11 June 2015**

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(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 27 April 2012
revoking European patent No. 1841851 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman B. Czech
Members: L. Li Voti
 S. Fernández de Córdoba

Summary of Facts and Submissions

- I. The present appeal is from the decision of the Opposition Division revoking European patent no. 1 841 851.
- II. Two oppositions had been filed on the grounds of Articles 100(a) and (b) EPC. The evidence relied upon includes the following documents:
- D11: EP 1431384 A;
D23: EP 1393706 A and
D25: Comparative experimental data submitted by Opponent 1 in letter of 11 January 2012 (pages 10 to 14; section 2.6.2);
U8: Graphical representation of data based on table 6 of D25, submitted by the Patent Proprietors by letter of 9 March 2012;
U9: Chart reporting the data listed in U10 and those of table 6 of D25, submitted by the Patent Proprietors by letter of 9 March 2012;
U10: Table of examples and supplementary data, submitted by the Patent Proprietors by letter of 9 March 2012.
- III. In the reasons for the decision, the Opposition Division found *inter alia* that the subject-matter of claim 1 according to then pending auxiliary request 1 lacked an inventive step. Claim 1 according to this request reads as follows:
- "1. A water soluble polymer envelope containing a substantially non-aqueous liquid detergent composition which comprises:*
- (a) core-in-shell perfume microcapsules which comprise melamine-formaldehyde microcapsules having a $d_{4,3}$*

average particle size of from 0.01 microns to 200 microns;

(b) no more than 20%, preferably no more than 15%, still more preferably no more than 10% by weight of water;

(c) from 10% to 70%, preferably from 20% to 60% by weight of water-miscible organic solvent having a molecular weight greater than 70; and

(d) from 30% to 90%, preferably from 40% to 80% by weight of one or more components comprising alkyl or alkenyl chains having more than 6 carbon atoms."

As regards this claim 1, the Opposition Division held *inter alia* that even though "it has been shown in the patent in suit that the storage stability of a single composition falling within the claimed range (example 3) is higher compared to compositions comprising more propylene glycol or more water as claimed" (page 7 of the decision under appeal, last full paragraph), the experimental data U10/U9 and D25 and the graph U8 showed that such an effect could not be acknowledged throughout the whole breadth of claim 1 at issue (page 8, first, second and seventh full paragraphs). Therefore, the objective technical problem to be solved was the provision of an alternative composition (page 9, second full paragraph) and the claimed subject-matter lacked an inventive step in the light of the combination of document D11 with document D23 (page 9, last full paragraph to page 10, first full paragraph and point 19).

IV. With its statement of the grounds of appeal of 21 August 2012 the Appellant (Patent Proprietor) filed document

D26: Declaration and experimental report by Mr.

Merrington dated 16 August 2012, complemented by visual representations (documents D27 and D28) of the comparative data presented in D26.

Moreover, it filed fresh set of claims to be considered as main claim request. Claim 1 thereof differs from claim 1 according to the auxiliary request 1 that had been pending before the Opposition Division (III, *supra*) in that the latter was amended to read as follows (amendments made apparent by the Board):

"1. A water soluble polymer envelope containing a substantially non-aqueous liquid detergent composition which comprises:

(a) core-in-shell perfume microcapsules which comprise melamine-formaldehyde microcapsules having a $d_{4,3}$ average particle size of from 0.01 microns to 200 microns;

(b) ~~no more than 20%, preferably no more than 15%, still more preferably~~ no more than 10% by weight of water;

(c) ~~from 10% to 70%, preferably~~ from 20% to 60% by weight of water-miscible organic solvent having a molecular weight greater than 70; and

(d) ~~from 30% to 90%, preferably~~ from 40% to 80% by weight of one or more components comprising alkyl or alkenyl chains having more than 6 carbon atoms."

V. In their respective replies of 17 December 2012, the Respondents (Opponents 01 and 02) submitted *inter alia* that

- the appeal did not comply with Rule 99(2) EPC and was inadmissible;
- the claim request submitted with the statement of grounds was inadmissible under Article 12(4) RPBA in

view of its late filing ;

- the amended claim 1 contravened the requirements of Article 123(3) EPC,
- the amended claim 1 was unclear and did not fulfil the requirements of Article 84 EPC,
- the invention was not sufficiently disclosed (Article 83 EPC),
- the subject-matter of claim 1 lacked an inventive step in the light of the combination of document D11 with D23.

VI. The parties were summoned to oral proceedings. In its communication pursuant to Article 15(1) RPBA dated 17 September 2014 the Board expressed its provisional opinion regarding some of the issues raised.

VII. With letter of 11 May 2015 the Appellant filed another amended set of claims as auxiliary request. This set of claims was subsequently replaced (letter of 29 May 2015) with a new version thereof containing a corrected claim 2, and complemented by amended description pages.

VIII. Oral proceedings were held on 11 June 2015.

After discussion, the parties were informed of the Board's decision that the appeal was admissible and that the pending main claim request was admitted into the proceedings.

Following discussion of objections concerning the compliance of claim 1 according to the pending main claim request with the requirements of Articles 84, 123(2) and (3) EPC, the Appellant submitted an amended set of claims as its sole claim request.

The Respondents did not raise further objections concerning the late filing of this request, did not contest the compliance of the amended claims with the requirements of Articles 84, 123(2) and (3) EPC and did no longer contest sufficiency of disclosure.

- IX. The Appellant finally requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claims according to the request filed during oral proceedings.

The Respondents requested that the appeal be rejected as inadmissible or that the appeal be dismissed.

- X. Claim 1 according to the sole claim request of the Appellant as filed during the oral proceedings differs from claim 1 of the request filed with the statement of grounds (IV *supra*), in that the latter was amended as follows:

"1. A water soluble polymer envelope ...
(a) core-in-shell perfume microcapsules ~~which comprise melamine-formaldehyde microcapsules,~~ having a d_{4,3} average particle size of from 0.01 microns to 200 microns;

....,

wherein the core-in-shell perfume microcapsules comprise melamine-formaldehyde microcapsules."

- XI. The arguments of the parties of relevance here can be summarised as follows.

As regards the admissibility of the appeal and of the Appellant's claim request filed with the statement of grounds the **Respondents** submitted the following:

- The appeal was inadmissible under Article 108 EPC in combination with Rules 101(1) and 99(2) EPC since the Patent Proprietor, by relying, on appeal only, on claims having a more limited scope than the claims discussed before the department of first instance as well as on new experimental evidence concerning the newly claimed limited subject-matter, had implicitly accepted the first instance decision that the previously claimed subject-matter did not solve the technical problem underlying the invention over the whole breadth of claim 1 and that the claimed subject-matter lacked an inventive step. The Patent Proprietor was thus not adversely affected by the decision of the Opposition Division.

- The subject-matter of claim 1 was now limited to preferred embodiments already expressly contained in claim 1 according to the auxiliary request 1 that had been pending before the Opposition Division. The new main claim request thus could and should have been filed during the first instance proceedings. In fact, the inventive step objections raised and the deficiencies of the experimental evidence allegedly supporting the previous auxiliary request 1 were already known to the Appellant in the first instance proceedings.

- Moreover, the Appellant's new claim request was accompanied by new supporting data and evidence and amounted thus to a fresh case unrelated to the decision under appeal.

- According to case law, the Appellant's main request was thus not admissible under Article 12(4) RPBA.

- Thus, the statement of grounds did not contain any

admissible request.

In this respect, the **Appellant** essentially argued as follows:

- It was adversely affected since the decision of the Opposition Division was to revoke the patent.
- Moreover, the filing of amended claims on appeal did not amount to an implicit acceptance of the decision but was intended to address the reasons given in the impugned decision.
- The statement of grounds discussed the decision under appeal and expressed explicitly the Appellant's disagreement with the decision.
- Since claim 1 was restricted to subject-matter already indicated as preferred in claim 1 according to the former auxiliary request 1, and since the Appellant's main line of argument in defence of the claimed subject-matter was substantially the same as that presented before the Opposition Division, the claims filed with the statement of grounds together with the experimental evidence D26 to D28 did not constitute a fresh case but only a foreseeable reaction to the reasoning of the decision under appeal.
- The appeal was thus admissible under Article 108 EPC in combination with Rules 101(1) and 99(2) EPC and the main claim request was admissible under Article 12(4) RPBA.

As regards inventive step the **Respondents** submitted *inter alia* the following:

- The experimental evidence D26 to D28, submitted by the Appellant, did not contain a comparison with a composition according to example III of D11, which represented the closest prior art, or with a composition containing perfume microcapsules different from those of claim 1 at issue. Moreover, the experimental method used appeared to lead to inconsistent and unreliable results;

- However, even considering reliable the results shown in the experimental evidence D26 to D28, the technical problem formulated by the Appellant, i.e. the provision of a further unit dose product in the form of a water soluble polymer envelope comprising a substantially non-aqueous liquid detergent composition showing a substantial perfume stability upon storage, was clearly not solved throughout the entire breadth of claim 1 at issue. In fact, some of the tested compositions according to claim 1 at issue showed a much greater perfume loss than most of the compositions outside the scope of claim 1. A similar conclusion could be drawn considering the evidence D25, which showed *inter alia* how the obtained results were dependent on the type of perfume and of melamine/formaldehyde microcapsules used.

- Therefore, starting from the closest prior art (example III of D11), the technical problem credibly solved by the claimed invention could only be formulated as the provision of an alternative unit dose product in the form of a water soluble polymer envelope comprising a substantially non-aqueous liquid detergent composition showing an increased perfume stability upon storage.

- In this respect, it would have been obvious to the

skilled person to try to increase the stability of the free perfume contained in the composition of example III of D11 by using any of the means, for example encapsulation, suggested in the description of D11 in order to protect perfume from the aggressive environment of the detergent composition and to increase its deposition on the washed fabrics. Moreover, as acknowledged also in the patent in suit, the use of microencapsulation to this end was well known.

- Furthermore, the skilled person would have obviously tried any type of microcapsules known to be suitable for use in liquid detergents containing surfactants and organic solvents, and not only the specific types of microcapsules exemplified in the description of D11.

- D23, disclosing in reference example 1 melamine/formaldehyde microcapsules having an average particle size as required in claim 1 at issue, taught that such microcapsules provided stability to the encapsulated perfume against surfactants and organic solvents and could be used in liquid detergent compositions comprising great amounts of surfactants and organic solvents. Therefore, the skilled person could and would have tried the melamine/formaldehyde microcapsules known from document D23 in a composition of example III of D11 in order to improve perfume stability.

- Moreover, even though the composition of example III of D11 contained an amount of water-miscible organic solvent having a molecular weight greater than 70 which was 0.5% by weight lower than the lower limit required in claim 1 at issue, this difference was irrelevant for the posed technical problem. Moreover, it was obvious to the skilled person, by following the teaching of

D11, to try also greater amounts of such solvents.

- Therefore, the claimed subject-matter did not involve an inventive step.

In this respect, the **Appellant** argued essentially as follows:

- The experimental evidence D26 to D28 showed that the claimed product, containing melamine/formaldehyde microcapsules, provided an unexpected "substantial perfume stability" upon storage, across the particular range of substantially non-aqueous liquid detergent compositions claimed. The results shown in D26 to D28 were surprising since, for example, the skilled person would have expected a constant reduction of the perfume stability by reducing the amount of water in the composition and not a reduction followed by an improvement within the claimed region of compositions, as shown in the submitted experimental evidence.

- Even though the perfume stability could depend also on other characteristics of the microencapsulation, the submitted evidence showed a clear unexpected trend in substantial perfume stability within the claimed range of compositions.

- Therefore, even if the skilled person could have tried to use the melamine-formaldehyde microcapsules disclosed in D23 for protecting the perfume contained in example III of D11, he would not have expected that such microcapsules were "special" in that they provided such a "substantial perfume stability".

- Moreover, even if the evidence D26 to D28 were found to be non-conclusive, the skilled person would not have

been motivated to improve the stability of the free perfume contained in the composition of example III of D11 by microencapsulation instead of using the other possible means disclosed in this document, for example a carrier material.

- Furthermore, even though the skilled person would have chosen to microencapsulate the perfume, he would not obviously have chosen the melamine/formaldehyde microcapsules disclosed in document D23 instead of microcapsules made of starch or cellulosic material suggested in D11, such as the microcapsules made of cellulosic material also disclosed in reference example 2 of D23. In fact, D23 concerned perfume protection in compositions comprising substantial amounts of water, i.e. compositions very different from that of example III of D11. Therefore, the skilled person would have been deterred from using the microcapsules disclosed in D23 in the different type of composition of example III of D11 in order to improve perfume stability.

- The claimed subject-matter thus involved an inventive step.

Reasons for the Decision

Admissibility of the appeal

1. The Respondents submitted that the appeal was inadmissible under Article 108 EPC in conjunction with Rules 101(1) and 99(2) EPC and that the Patent Proprietor was not adversely affected by the decision of the Opposition Division.

- 1.1 For the Board there is no doubt that the Patent Proprietor is indeed adversely affected by the decision of the Opposition Division, since the patent was revoked in its entirety notwithstanding the Proprietor's request to maintain the patent in amended form. Therefore, the Proprietor was entitled to file an appeal against this decision pursuant to Article 107 EPC.
- 1.2 It remains thus to decide whether the appeal complies with the requirements of Rule 99(2) EPC.
 - 1.2.1 Rule 99(2) EPC stipulates that *"In the statement of the grounds of appeal the appellant shall indicate the reasons for setting aside the decision impugned, or the extent to which it is to be amended, and the facts and evidence on which the appeal is based."*
 - 1.2.2 The Board holds that the Appellant clearly indicated in its statement of grounds (pages 1 and 2 and page 4, last full paragraph to page 5, first full paragraph) why it considered that the Opposition Division, arguing essentially that the alleged technical effect could not be acknowledged throughout the whole breadth of claim 1 at issue, erred in its finding that the subject-matter claimed according to auxiliary request 1 did not involve an inventive step over the cited prior art. Hence, the decision was wrong and had to be set aside.
 - 1.2.3 The set of claims filed by the Appellant with its statement of grounds is different from the one that had been pending before the Opposition Division. However, this new set of claims was merely restricted to more specific preferred embodiments already expressly recited in the wording of the previously pending claim 1.

For the Board, this course of action cannot be considered to represent an implicit acceptance of the appealed decision.

1.2.4 Quite to the contrary, considered in combination with the arguments submitted in the statement of grounds which clearly contest the appealed decision, it represents a *bona fide* attempt of the Patent Proprietor to redress the decision by reinforcing its line of defense. There is thus a direct link between the decision under appeal and the statement of grounds of appeal contesting the reasoning given in the decision under appeal.

1.2.5 Therefore, for reasons similar to those given in, for example, decision T 1912/09 of 16 January 2014 (points 1.3.4 to 1.5 of the reasons), the rationale of decision T 2532/11 of 14 October 2013 (Reasons, 2.6.2) cited by the Respondents, is not applicable to the present case.

1.3 The Board thus concludes that in the present case the statement of grounds indicates the reasons for setting aside the decision impugned, the extent to which it is to be amended, and the facts and evidence on which the appeal is based.

Therefore, in the Board's judgement, all the requirements of Rule 99(2) EPC are met.

1.4 The appeal is thus admissible (Article 108 EPC).

Admissibility of the Appellants' claim request(s)

2. At the oral proceedings, the Board took the discretionary decision to admit the then pending claim request (main request as filed with the statement of

grounds) into the proceedings despite its late filing (Article 114(2) EPC and Article 12(4) RPBA). In the exercise of its discretion, the Board took into account *inter alia*

- that the experimental data D25, which turned out to be a key element of the reasoning of the Opposition Division, had only been filed by Opponent 01 two months before the date of the oral proceedings;
- that the filing, upon appeal, of such a request limiting the subject-matter of claim 1 to embodiments recited as preferred alternatives in the claims that had been pending before the opposition division, together with a new experimental report (D26 to D28), is to be regarded, under the circumstances of the case, a justified reaction to the decision under appeal;
- that said restriction of claim 1 raised no new, let alone complex issues, since the achievement of the technical effect invoked across the full ambit of claim 1 had already been an issue in the first instance proceedings, but it rather contributed to the convergence of the debate on inventive step; and
- that, for these reasons, the filing of the new claim request together with further corroborating evidence did not generate a fresh case as alleged by the Respondents.

2.1 At the oral proceedings before the Board, following the debate with regard to objections under Articles 123(2), (3) and 84 EPC (see points VIII and IX above), the Appellant replaced the claim request admitted by the Board by an amended version thereof, the latter being the sole remaining request at issue.

2.1.1 Said new claim request *prima facie* overcame all outstanding formal objections, did not raise any

further complex issues, and its late filing was also not objected to by the Respondents.

- 2.1.2 Therefore, the Board decided to admit this claim request, submitted as sole request to be considered by the Board, into the proceedings despite its late filing (Articles 114(2) EPC and 13(3) RPBA).

Admissibility of late filed evidence

3. Documents D26 to D28, an experimental report and visual representations of the data determined, were also filed under cover of the statement of grounds of appeal.

- 3.1 The Board regards their filing

- as an attempt to further corroborate and strengthen the Appellant's position that the claimed invention provided an unexpected technical improvement compared to the product according to the closest prior art; and
- as a justified reaction to the reasoning given in the decision under appeal that on the basis of the (late filed) experimental data (D25) said alleged effect could not be acknowledged across the whole breadth of claim 1 at issue (see point III above).

- 3.2 The Respondents did not object to the late filing of said experimental report.

- 3.3 Hence, the Board decided to admit also documents D26 to D28 into the proceedings despite their late filing (Articles 114(2) EPC and 12(4) RPBA).

Appellant's (sole) claim request - Inventive step - Claim 1

4. The invention

The invention concerns a water soluble polymer envelope containing a substantially non-aqueous liquid detergent composition comprising perfume (see claim 1 at issue; wording under points X and IV, *supra*).

5. Closest prior art

5.1 It is common ground between the parties that document D11 and, in particular, the product of example III disclosed in this document (page 19, paragraphs [0169] and [0170]), represents the closest prior art.

5.2 In view of the similarities in terms of the composition and purpose of the products according to claim 1 at issue and those disclosed in D11, the Board accepts that example III of D11 is an appropriate starting point for the assessment of inventive step.

5.3 Indeed, document D11 (paragraphs [0001], [0017] and [0089]) and, in particular, example III, discloses a water soluble polymer (polyvinylalcohol) envelope (pouch) containing a substantially non-aqueous liquid detergent composition for cleaning fabrics containing

- 3.5%, i.e. no more than 10% by weight of water (component (b) of claim 1 at issue)
- 5.5% propanediol, i.e. a water-miscible organic solvent having a molecular weight greater than 70 (component (c) of claim 1 at issue),
- a substantial amount of components comprising alkyl or alkenyl chains having more than 6 carbon atoms (component (d) of claim 1 at issue), namely 27.8% dodecylbenzene sulphonic acid, 5.4% C₁₃-C₁₅ alcohol,

ethoxylated 7 times, 22.3% C₁₂-C₁₈ alkyl fatty acid (together with 11.8% monoethanolamine, possibly for neutralization), and
- perfumes in free, i.e. non-encapsulated form.

6. Technical problem solved according to the Appellant

The Appellant argued (point XI *supra*) that, starting from example III of D11 as the closest prior art, the objective technical problem solved by the invention consisted in the provision of a further unit dose product, in the form of a water soluble polymer envelope comprising a substantially non-aqueous liquid detergent composition, showing "substantial perfume stability" upon storage.

7. Solution

As a solution to this technical problem, the patent in suit proposes the "*water soluble polymer envelope containing a substantially non-aqueous liquid detergent composition*" according to claim 1 at issue which is characterised in that this composition comprises (emphasis added by the Board)

(a) **core-in-shell perfume microcapsules having a d_{4,3} average particle size of from 0.01 microns to 200 microns;**

(b) **no more than 10% by weight of water;**

(c) **from 20% to 60% by weight of water-miscible organic solvent having a molecular weight greater than 70; and**

(d) **from 40% to 80% by weight of one or more components comprising alkyl or alkenyl chains having more than 6 carbon atoms,**

wherein the core-in-shell perfume microcapsules comprise **melamine-formaldehyde microcapsules.**"

8. Alleged success of the solution
 - 8.1 No evidence was submitted during the first instance and appeal proceedings showing that the choice of melamine-formaldehyde microcapsules would provide an unexpected advantage over the use of microcapsules made from other materials. This was not disputed. However, the Appellant submitted during oral proceedings that melamine-formaldehyde microcapsules were "special" in the sense that they provided "substantial perfume stability" upon storage throughout the range of compositions containing components (b), (c) and (d) in the relative amounts required by claim 1 at issue.
 - 8.2 However, the patent in suit does not contain any explicit indication of what could be considered to represent a "substantial perfume stability" upon storage. Therefore, the Board, in assessing whether the claimed compositions do show a "substantial perfume stability" across the full breadth of claim 1, compared to each other the values of perfume loss determined for compositions falling within the ambit of claim 1 at issue, and compared these values to those determined for compositions not falling within the terms of claim 1.
 - 8.2.1 In the examples of the patent in suit (paragraphs [0051] to [0058]) "*perfume stability*" is determined by storing the tested compositions in glass jars for two weeks at 37°C. The tested liquid detergent compositions contained melamine-formaldehyde microcapsules ("ex-Polychrom") comprising an unspecified perfume and containing components (b), (c) and (d) in concentrations as required by claim 1 at issue (**formulation 3**) or falling outside the ambit of claim 1 (formulations 1 and 2).

8.2.2 The amount of perfume leaked out from the microcapsules into the liquid after two weeks of storage was evaluated by measuring the amount of perfume in the headspace over 5 grams of the specific formulations 1 to 3 in a 20 ml headspace vial, and comparing it with reference headspace measurements on formulations containing an equivalent amount of free perfume (non-encapsulated). The results are reported as loss of perfume in terms of weight % based on the original perfume content.

The three tested formulations present the following amounts by weight of water (component (b)), solvent component (c) and component (d), respectively, wherein the monoethanolamine used for neutralisation was considered to be part of component (d),

formulation 1: (38.9/ 39.0 / 22.1)- Loss: 11 %
formulation 2: (0 / 77.9 / 22.1)- Loss: 13 %
formulation 3: (0 / 33.7 / 66.3)- Loss: 3 %.

8.2.3 Comparative formulations 1 and 2 both comprise component (d) in concentrations below the lower limit of 40% prescribed by claim 1 at issue. Formulation 1 comprises more than the 10 % of water (component (b)) permitted according to claim 1. Formulation 2 comprises solvent (component (c)) in a concentration above the upper limit of 60% prescribed by claim 1.

From the experimental data presented in the patent in suit, the Board gathers that **formulation 3** is the only one falling within the terms of claim 1 at issue. It suffers from a perfume loss of only **3 %** after two weeks storage at 37°C, whilst the two formulations 1 and 2 not falling within the terms of claim 1 at issue show a perfume loss of 11% and 13%, respectively. Hence, the

Board accepts that **formulation 3** indeed shows "substantial perfume stability".

8.3 The experimental data D25

8.3.1 The same experimental protocol was used in obtaining the comparative data presented in D25 (see page 10, "Perfume Leakage Test set-up").

According to D25 (comparative example 4 and table 7) formulations 1 and 3 of the patent in suit were reworked by using "Polychrom "microcapsules, i.e. melamine-formaldehyde microcapsules, which contained different Lavender or Jasmine perfumes.

8.3.2 The results in terms of perfume loss obtained according to these tests differ markedly from those reported in the patent in suit: Formulation 1 shows in the three tests a perfume loss of 64% (Lavender), 34% (Jasmine) and 37% (Jasmine), respectively, whilst **formulation 3** (the only one falling within the ambit of claim 1 at issue) shows, in every case, an even higher perfume loss of **69%, 41% and 48%**, respectively.

For the Board, the perfume losses determined in the tests according to D25 are not indicative of a "perfume stability" that could be considered as being "substantial".

8.3.3 Moreover, the Board infers from the test results presented in D25 that the "perfume stability" depends at least to some extent on the specific material forming the microcapsule walls and on the specific perfume contained therein. This was also emphasised by the Respondents during oral proceedings with reference to Table 3 of D25, reporting different perfume loss

values for compositions according to example III of D11 and for two high water content variants thereof, containing either HW4108B ex Quest perfume in Appletone microcapsules or Polychrom powder Jasmine perfume microcapsules.

The dependency of the perfume loss results on the material of the microcapsules and on the perfume contained therein was not disputed by the Appellant during oral proceedings.

8.3.4 For the Respondents, the data of D25, for example those reported in Table 6, also showed that there was substantially no difference in perfume loss between compositions having high or low amounts of water and that no substantial perfume stability was present throughout the whole breadth of claim 1 at issue.

8.3.5 The Appellant maintained instead that the overall data of D25 were not reliable because the microcapsules used were particularly leaky (see page 2, third and fourth full paragraphs of the statement of grounds of appeal) and could not sufficiently hinder the perfume from passing into the liquid composition.

The Board remarks that this argument of the Appellant is not supported by experimental evidence and can thus not be verified. Moreover, it does not appear to be relevant, since claim 1 at issue does not contain any further limitations with regard to the melamine-formaldehyde microcapsule-forming material or the type of perfume contained therein.

However, for the sake of argument only, and in the Appellant's favour, the Board accords the benefit of the doubt to the Appellant concerning the relevance and

significance of the data D25 discussed above and does not rely on these data in the following.

8.4 The experimental data presented in D26 to D28

8.4.1 In preparing D26 to D28, the Appellant used an experimental procedure similar to that used according to the patent in suit (see points 8.2.1 and 8.2.2 above). However, PET-jars instead of glass jars were used for storing the tested compositions (D26; page 2 of the declaration, point 6, last paragraph). Perfume loss was measured after storage at 37°C at different points in time: (0, 1, 2, 4, 7, 10, 16 and 23 days, respectively (D26, point "6. Results" of the Experimental Report), whereas according to the patent in suit it was measured once after two weeks.

8.4.2 For the Board, the perfume loss values measured after 10 and 16 days are indeed, as suggested by the Respondents during oral proceedings, the most relevant ones for the purpose of comparison with the data presented in patent in suit in the evaluation of the "substantial perfume stability" invoked by the Appellant. The Board remarks also that the **relevance of these two data points** appears to be confirmed by D26 itself. In fact, whilst D27 contains a graphical representation of all the tested values throughout the time period from 0 to 23 days, D26 (page 3 of the declaration, point 8) shows a "Chart 2" which relates to the perfume loss **after 10 days**, the text under this chart reading: *"My interpretation of the results is that the base formulation is having a significant effect on the loss of fragrance from the encapsulates."*

Therefore, in the following, the Board only considers as relevant and significant those perfume loss values

reported in D26 which were measured after 10 and 16 days.

- 8.4.3 As regards the possible inconsistency and alleged unreliability of the perfume loss data of D26, invoked by Respondent 01 during oral proceedings, the Board notes that D26 contains the following statement (page 3, point 9): *"Looking at the data as a whole, it can be seen that over the course of storage levels of fragrance detected in the headspace of each sample at first increases but may then reduce. I interpret this to be diffusion of fragrance into the PET-jar wall, and possibly away from the container altogether, or due to loss of fragrance due to repeated openings of the jar during sampling."*

However, again for the sake of argument only, but again in the Appellant's favour, the Board hereinafter considers the data of D26 as reliable.

- 8.4.4 As submitted by the Appellant during oral proceedings, the experimental evidence D26 is supposed to show the variation in perfume stability across various series of compositions by keeping the concentration of one component of the ternary composition water (b), solvent component (c) and surfactant components (d) constant and by varying the concentrations of the other two components.

The materials tested are reported in Tables 1 to 3 of the experimental report D26. The materials F1 to F5 (points 1 to 5 in Chart 1 of declaration D26) are compositions comprising Aromaball menthol powder microcapsules and all containing an amount of solvent (c) of 40% by weight (in accordance with claim 1 at issue) and increasing amounts of water (b) and

decreasing amounts of surfactants (d) (see D26, Experimental, Tables 1 to 3). In this series of five experiments only **F1** and **F2** (see water contents) are compositions according to claim 1 at issue.

In the series F6 to F10, concerning compositions containing Asteroid 61 microcapsules containing a fragrance oil, the amount of water (b) is maintained at a value (in accordance to claim 1 at issue) of 3% by weight whilst the amount of solvent (c) decreases and that of surfactants (d) increases. In this series only compositions **F9** and **F10** (see MPG solvent contents) are according to claim 1 at issue.

In the series F12 to F14, which again concern compositions containing Aromaball menthol powder microcapsules, the amount of surfactants (d) is kept constant at an amount in accordance with claim 1 at issue of 70.72% (including MEA used for neutralization) by weight whilst the amount of solvent (c) decreases and that of water (b) increases. In this series only composition **F12** is in accordance (see water contents) with claim 1 at issue.

Finally, the compositions F11 and F15 (also Aromaball compositions) are both outside the ambit of claim 1 at issue (in terms of water content) and have the same amount of surfactants (d) as F5 and F2, respectively, but a greater amount of water (b) and a lower amount of solvent (c) (F11) or vice versa (F15).

8.4.5 In the Appellant's view these data would show that throughout the region of compositions claimed (the dark region of chart 2 of D26) the melamine-formaldehyde microcapsules result in a "special effect" in terms of "substantial perfume stability". Moreover the data

would show a clearly unexpected trend, since when reducing the amount of water in the compositions, contrary to what would be expected, perfume stability would not decrease continuously but, instead, start increasing again within the region of claimed compositions.

- 8.4.6 As also accepted by the Respondents, compositions **F1** and **F12** (according to claim 1 at issue) can indeed be considered to show a "substantial perfume stability" in terms of percentage of perfume loss after 10 or 16 days (**F1**: 2.6/7.7; **F12**: 1.2/1.4; values are rounded up to the first decimal like in the graphical representation D27 and in Chart 2 of D26).

Such a perfume loss is in fact comparable to, or even better, than that of **formulation 3** of the patent in suit (**3%** after two weeks).

Composition **F2**, differing from **F1** insofar as it comprises more (9.17%) water and correspondingly less surfactants (d), shows instead a perfume loss of **24.7/24.6**, respectively. Compared to **F1** and **F12** and also to other Aromaball compositions outside the scope of claim 1 (F4, F5, F13, F14 and F15, the worst composition of this group being F4 showing a perfume loss of **19.3/11.7**), **F2** clearly shows a lower perfume stability. Therefore, for the Board, the latter composition, although being in accordance with claim 1, does not show, in comparison to these other compositions, a perfume stability which can be considered to be more "substantial".

- 8.4.7 Moreover, in the series F6 to F10, which concerns Asteroid compositions comprising only 3% water, i.e. an amount of water which is even inferior to that of the

stable composition **F12** already discussed above (4.28% water), the compositions **F9** and **F10** (in accordance with claim 1) show a perfume loss of **37.2/30.0** and **21.9/24.6**, respectively.

For the Board, the results in terms of perfume loss of **F9** surely cannot be considered to represent a "substantial perfume stability", when compared to those reported for **F1** or **F12** or for the compositions outside the scope of claim 1 F4, F5, F13, F14 and F15, discussed above. The results for **F10** are comparable to those for **F2** and, for the same reasons as given above, also not indicative of a "substantial perfume stability".

Furthermore, the results for composition **F9** are also clearly worse than, or comparable with, those determined for compositions F6 and F7 outside the scope of claim 1, showing a perfume loss of **30.2/28.4** and **29.9/31.4**, respectively.

8.5 Considering the overall picture emanating from the above analysis of the data of D26, the Board concludes that even though some of the compositions according to claim 1 at issue can indeed be considered to show a "substantial perfume stability", it was not convincingly established that such a stability is achieved across the entire breadth of claim 1, i.e. for all the compositions encompassed by the wording of claim 1 at issue, as represented by the dark region of chart 2 of D26. Quite to the contrary, some of the data (perfume loss values for compositions F2, F9, F10) demonstrate that this is not the case.

8.6 The Appellant also argued that considering the series of compositions F5 through F1, the experimental data

D26 would show an unexpected trend: By reducing the amount of water, the stability of the perfume did not decrease continuously as would be expected, but instead started to increase within the region corresponding to the compositions claimed.

8.6.1 In this respect, the Board acknowledges that composition **F1**, containing the lowest amount of water (**0.33%**) of this series, indeed has the best perfume stability (**2.6/7.7**). However, along this series of compositions only composition **F2** and composition **F1** are compositions according to claim 1 at issue. Moreover, composition **F2**, containing **9.17%** water, is a composition at the border of the dark region of chart 2 of D26, i.e. at the limit of the claimed range of compositions and does not show a "substantial perfume stability" (**24.7/24.6**).

8.6.2 Therefore, the Board is not convinced that it is possible to conclusively derive from the data in D26 that a decrease of the amount of water from that of composition **F2** to that of composition **F1** goes along with an unexpected trend of increasing perfume stability as invoked by the Appellant. As submitted by the Respondents, the particular stability of **F1** can also be considered as an isolated result which is not representative of a trend existing throughout the range of compositions claimed.

8.6.3 In fact, no conclusion can be drawn from the available data regarding the degree of perfume stability achievable with compositions falling within the remainder of the claimed region of compositions. Quite to the contrary, the poor perfume stability of compositions **F9** and **F10**, containing 3% by weight of water, rather reinforces the doubts of the Board as to

the existence of the alleged unexpected trend throughout the whole region of claimed compositions.

8.7 Therefore, in the Board's judgement, the Appellant's data D26 to D28 do not convincingly show a specific improvement in perfume stability allegedly attributable to the use of melamine-formaldehyde microcapsule in combination with the specific compositional requirements according to claim 1 at issue.

9. Reformulation of the technical problem

9.1 Hence, starting from example III of D11, the technical problem underlying the invention must be re-formulated in a less ambitious manner.

9.2 It can thus be seen in the provision of a unit dose product in form of a water-soluble polymer envelope comprising a substantially non-aqueous liquid detergent composition and showing increased perfume stability upon storage.

10. Success of the solution

Not least with a view to the experimental data contained in the patent in suit and those submitted as D26 to D28, it is perfectly plausible, and the Board therefore has no doubt, that a product according to claim 1 at issue containing encapsulated perfume shows a better perfume stability upon storage than a similar product containing free, i.e. non-encapsulated, perfume, like the composition of example III of D11. This was not in dispute.

11. Obviousness of the solution

11.1 The product according to the closest prior art (example III of D11; see features under 5.3 *supra*), differs from the subject-matter of claim 1 at issue only in that it contains the perfume in "free" form, i.e. not contained in microcapsules, and in that it only contains 19.5% by weight of solvent component (c), instead of 20 to 60%.

11.2 It thus remains to be evaluated whether it was obvious to the skilled person, seeking to solve the less ambitious technical problem identified above, to modify the product of example III of D11

- by incorporating the perfume component in the form of core-in-shell perfume microcapsules having a d_{4,3} average particle size of from 0.01 microns to 200 microns and comprising melamine-formaldehyde microcapsules, and
- by increasing the concentration of solvent component (c) from 19,5 % to a value between 20 and 60% by weight.

11.3 Document D11 - The detergent composition

11.3.1 D11 expressly teaches (paragraph [0115]) that, in order to deposit perfume more efficiently onto the fabric, it is highly preferred to use perfume components comprising either a coating agent and/or a carrier material or an encapsulate enclosing the perfume. Since this document does not indicate any preference for any of the means disclosed, they are to be considered as being equally preferred. It was thus obvious to the skilled person to apply any of these means also to the perfume contained in the composition of example III of document D11.

11.3.2 The Board does not accept the Appellant's argument that the skilled person, once he has decided to encapsulate the perfume, would use only capsules made of one of the materials indicated expressly in paragraph [0115] of D11, i.e. starch or cellulosic material. In fact, these materials are expressly only mentioned as examples, and not as being especially preferred. Therefore, for the Board, D11 induces the skilled person to provide compositions wherein the perfume component is encapsulated in a material suitable for use in substantially non-aqueous liquid detergent compositions.

11.4 As regards the concentration of the solvent component (c), the Board notes that no particular effect was invoked by the Appellant which could be attributed to the difference in concentration between the composition of example III of D11 (19.5%) and the lower limit of 20% prescribed for the solvent component (c) by claim 1 at issue.

Moreover, D11 (see claims 10 and 11) expressly discloses that the non-aqueous solvent component (e.g. propanediol) is most preferably used in concentrations from 15 **to 30** %. Hence, for the Board, the mere increase of the amount of propanediol solvent component from 19.5% to at least 20% with, for example, a corresponding reduction of the content of other components contained in the composition of example III of D11, was one of many slight alterations of the composition that the skilled person would readily envisage without any ingeniousness.

11.5 Document D23 - Teaching regarding microcapsules

11.5.1 As regards the encapsulation of perfumes, it is

undisputed that microencapsulation of perfumes was well known in the prior art (see, for example paragraph [0003] of the patent in suit). In this respect, document D23 teaches (paragraph [0002]) that it was known to encapsulate perfume in small capsules or microcapsules for a variety of reasons relating to the protection, delivery and release of the perfume. Moreover (D23, paragraph [0003]), if such capsules are incorporated in certain solvents and/or surfactant-containing consumer products stability problems can arise "with the encapsulated material tending to leach out into the product over time". This document thus addresses and attempts to solve the problems arising from the solubility of the encapsulated material in certain surfactants and solvents by applying a specific barrier coating to the capsule wall(s) (see D23, paragraphs [0003], [0004] and [0041], in particular page 5, lines 25 to 28 and claim 1).

In particular, this document concerns (paragraphs [0005] to [0008] and [0041]) improved capsules for use in liquid products, such as laundry treatment liquid compositions comprising surfactants and/or solvents in which the encapsulated material is soluble.

- 11.5.2 According to D23 (paragraph [0038]), encapsulates preferably have a shell made of melamine-formaldehyde polymers. The compositions wherein the encapsulates are used may contain organic solvents (paragraph [0052]), which can be of type (c) as defined in claim 1 at issue. For example, the first solvent mentioned in this paragraph is propylene glycol. The surfactants contained in the compositions according to D23 (see paragraph [0053]) may be of type (d) as defined in claim 1 at issue.

11.5.3 Although, as pointed out by the Appellant, the liquid detergent compositions disclosed in the examples of D23 contain substantial amounts of water (see, for example, paragraph [0060] Shampoo Base B), the compositions envisaged according to the overall teaching of D23 are not limited to those containing such great amounts of water. In fact, as explained above, the aim of the invention disclosed in D23 was to solve the problems arising from using surfactants and organic solvents in capsule-containing compositions. In paragraph [0054] of D23, which follows the paragraphs listing possible organic solvents and surfactants of such compositions, it is specified that the weight ratio of solvent/surfactant to capsules in the composition is conveniently in the range 100:1 to 5:1. In the Board's understanding, the solvent component referred to in this paragraph is not water but an organic solvent as mentioned in the preceding paragraph [0052], i.e. a solvent wherein the perfume component may be soluble.

Therefore, the Board is convinced that the teaching of document D23 is also directed to the use of compositions containing relatively high amounts of surfactants (d) and organic solvents (c) and which may be substantially non-aqueous within the meaning of the patent in suit.

11.5.4 Therefore, the skilled person would not find in D23 any disincentive regarding the application of the specific encapsulates disclosed in this document to a substantially non-aqueous liquid detergent composition like that of example III of D11.

11.5.5 Hence, for the Board, it was obvious to the skilled person to use any of the specific microcapsules disclosed in D23 in order to improve the perfume

stability upon storage of the composition of example III of D11.

- 11.5.6 Document D23 discloses in Reference example 1 a core-in-shell perfume melamine-formaldehyde microcapsule having a mean particle size of 8µm.

In this respect, it was undisputed that melamine/formaldehyde microcapsules with a mean particle size of 8 µm necessarily fall within the broad definition according to claim 1 in terms of the microcapsule size (expressed in terms of the $d_{4,3}$ average particle size). Anyway, no particular advantage was invoked by the Appellant with regard to the specific mean particle size range indicated in claim 1.

The Board thus concludes that modifying the composition of example III of D11 incorporating the perfume component in the form of core-in-shell melamine-formaldehyde microcapsules as disclosed in D23 was one of several options readily available to the skilled person seeking to solve the technical problem posed.

- 11.6 Summarising, based on the above considerations, the Board concludes that, in the light of the teachings of D11 and D23, it was obvious to the skilled person seeking to provide a further product of the type disclosed in example III of D11, but with improved perfume stability, to modify the composition described in said example in a way leading to a product falling within the terms of claim 1 at issue.

- 11.6.1 Hence, in the Board's judgement, the subject-matter of claim 1 at issue does not involve an inventive step (Articles 52(1) and 56 EPC).

Conclusion

The Appellant's sole claim request is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Magliano

B. Czech

Decision electronically authenticated