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Datasheet for the decision of 4 December 2012

Case Number: T 1325/10 - 3.3.06

Application Number: 98959155.7

Publication Number: 969082

IPC: C11D 17/06

Language of the proceedings: EN

Title of invention:
Detergent particles

Patent Proprietor:
KAO CORPORATION

Opponent:
Unilever PLC

Headword:
Unicore detergent particles/KAO CORP.

Relevant legal provisions:
EPC Art. 123(2), 83, 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Added subject-matter (Main Request): yes - no pointer to the combination of features present in claim 1"
"Added subject-matter (Auxiliary Request): claimed combination of features implied in the original application"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1325/10 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 4 December 2012

Appellant: (Opponent)
Unilever PLC
Unilever House
Blackfriars
London EC4P 4BQ (GB)

Representative:
Kan, Jacob Hendrik
Unilever Patent Group
Olivier van Noortlaan 120
NL-3133 AT Vlaardingen (NL)

Respondent: (Patent Proprietor)
KAO CORPORATION
14-10, Nihonbashi Kayaba-cho 1—chome,
Chuo-ku
Tokyo 103—8210 (JP)

Representative:
HOFFMANN EITLE
Patent— und Rechtsanwalte
Arabellastrasse 4
D-81925 München (DE)

Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 23 April 2010 rejecting the opposition filed against European patent No. 969082 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: P.-P. Bracke
Members: P. Ammendola
T. Bokor

Summary of Facts and Submissions

I. This appeal is from the decision of the Opposition Division rejecting the opposition against the European patent No. 0 969 082, relating to detergent particles.

II. The corresponding European patent application as originally filed and published contains twelve claims (hereinafter **claims as filed**).

Claim 1 as filed reads

"*1. Detergent particles having an average particle size of from 150 to 500 μm and a bulk density of 500 g/liter or more, wherein the detergent particles comprise a detergent particle being capable of releasing a bubble from an inner portion of the detergent particle in a process of dissolving the detergent particle in water, the bubble having a size of one-tenth or more of the particle size of the detergent particle, and wherein the detergent particles have a dissolution rate of 90% or more, under conditions where the detergent particles are supplied in water at 5°C; stirred for 60 seconds under the stirring conditions that 1 g of the detergent particles is supplied to a one-liter beaker having an inner diameter of 105 mm which is charged with one-liter of hard water having 71.2 mg $CaCO_3$/liter, wherein a molar ratio of Ca/Mg is 7/3, and stirred with a stirring bar of 35 mm in length and 8 mm in diameter at a rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 μm as defined by JIS Z 8801, wherein*

the dissolution rate of the detergent particles is calculated by Equation (1):

Dissolution Rate (%) = [1-(T/S)] x 100 (1)

wherein S is a weight (g) of the detergent particles supplied; and T is a dry weight (g) of remaining insolubles of the detergent particles remaining on the sieve when a liquid prepared under the above stirring conditions is filtered with the sieve, wherein drying conditions for the remaining insolubles are keeping at a temperature of 105°C for 1 hour, and then in a desiccator with a silica gel at 25°C for 30 minutes."

Claim 2 as filed only differs from claim 1 in that the passage of this latter reading

"a dissolution rate of 90% or more, under conditions where the detergent particles are supplied in water at 5°C stirred for 60 seconds"

is replaced by

"*a dissolution rate of 82% or more, under conditions where the detergent particles are supplied in water at 5°C stirred for 30 seconds* ".

Claim 3 as filed reads

"*3. The detergent particles according to claim 1 or 2, wherein the detergent particles are a collective of a detergent particle comprising a base particle comprising a water-insoluble inorganic compound, a*

water-soluble polymer and a water-soluble salt, and a surfactant supported by the base particle, wherein the base particle has a localized structure in which larger portions of the water-soluble polymer and the water-soluble salt are present near the surface of the base particle rather than in the inner portion thereof."

Claims 4 and 5 as filed differ respectively from claims 1 and 2 as filed only in that the passage in these latter reading

"*500 g/liter or more, wherein the detergent particles comprise a detergent particle being capable of releasing a bubble from an inner portion of the detergent particle in a process of dissolving the detergent particle in water, the bubble having a size of one-tenth or more of the particle size of the detergent particle, and wherein the detergent particles have a dissolution*"

is replaced by

"*500 g/liter or more, wherein the detergent particles are a collective of a detergent particle comprising a base particle comprising a water-insoluble inorganic compound, a water-soluble polymer and a water-soluble salt, and a surfactant supported by the base particle, wherein the base particle has a localized structure in which larger portions of the water-soluble polymer and the water-soluble salt are present near the surface of the base particle rather than in the inner portion*

thereof, and wherein the detergent particles have a dissolution".

Claims 6 to 10 as filed read

"*6. The detergent particles according to claim 4 or 5, wherein the detergent particles comprise a detergent particle having pores in the inner portion thereof having a size of one-tenth to four-fifth of the particle size.*"

"*7. The detergent particles according to any one of claims 4 to 6, wherein the base particle comprises 20 to 90% by weight of the water-insoluble inorganic compound; 2 to 30% by weight of the water-soluble polymer; and 5 to 78% by weight of the water-soluble salt.*"

"*8. The detergent particles according to any one of claims 1 to 7, wherein the detergent particles comprise a uni-core detergent particle.*"

"*9. A method for preparing the detergent particles as defined in any one of claims 1 to 8, comprising the steps of:*

Step (a): preparing a slurry containing a water-insoluble inorganic compound, a water-soluble polymer, and a water-soluble salt, wherein 60 % by weight or more of water-soluble components including the water-soluble polymer and the water-soluble salt is dissolved in the slurry;

Step (b): spray-drying the slurry obtained in Step (a) to prepare base particles; and

Step (c): adding a surfactant to the base particles obtained in Step (b) to support the surfactant thereby."

"*10. A detergent composition comprising the detergent particles as defined in any one of claims 1 to 8 in an amount of 50 % by weight or more.*"

III. The patent as granted contains three claims (hereinafter **granted claims 1 to 3**) that read:

"*1. Uni-core detergent particles having an average particle size of from 150 to 500 µm and a bulk density of 500 g/liter or more, wherein the detergent particles comprise at least 60 wt.% of detergent particles having pores in the inner portion thereof having a size of one-tenth to four-fifth of the particle size and being capable of releasing a bubble from an inner portion of the detergent particle in a process of dissolving the detergent particle in water, the bubble having a size of one-tenth or more of the particle size of the detergent particle; wherein the detergent particles are a collective of detergent particles comprising base particles comprising 20-90 wt.% of a water-insoluble inorganic compound, 2-30 wt.% of a water-soluble polymer and 5-70 wt.% of a water-soluble salt, and a surfactant supported by the base particle, wherein the base particle has a localized structure in which larger portions of the water-soluble polymer and the water-soluble salt are present near the surface of the base particle rather than in the inner portion thereof; and wherein the detergent particles have (a) a*

dissolution rate of 90 % or more, under conditions where the detergent particles are supplied in water at 5°C stirred for 60 seconds under the stirring conditions defined below or (b) a dissolution rate of 82 % or more under conditions where the detergent particles are supplied in water at 5°C stirred for 30 seconds under the stirring conditions defined below:

1 g of the detergent particles is supplied to a one-liter beaker having an inner diameter of 105 mm which is charged with one-liter of hard water having 71.2 mg $CaCO_3$/liter, wherein a molar ratio of Ca/Mg is 7/3, and stirred with a stirring bar of 35 mm in length and 8 mm in diameter at a rotational speed of 800 rpm; and filtered with a standard sieve having a sieve-opening of 74 µm as defined by JIS Z 8801, wherein the dissolution rate of the detergent particles is calculated by Equation (1):

$$\text{Dissolution Rate (\%)} = [1-(T/S)] \times 100 \quad (1)$$

wherein S is a weight (g) of the detergent particles supplied; and T is a dry weight (g) of remaining insolubles of the detergent particles remaining on the sieve when a liquid prepared under the above stirring conditions is filtered with the sieve, wherein drying conditions for the remaining insolubles are keeping at a temperature of 105°C for 1 hour, and then in a desiccator with a silica gel at 25°C for 30 minutes."

"2. A method for preparing the detergent particles as defined in Claim 1 comprising the steps of:

Step (a): preparing a slurry containing a water-insoluble inorganic compound, a water-soluble polymer, and a water-soluble salt, wherein 60 % by weight or more of water-soluble components including the water-soluble polymer and the water-soluble salt is dissolved in the slurry;

Step (b): spray-drying the slurry obtained in Step (a) to prepare base particles wherein the high-temperature gas supplied to the drying tower is from 150-300°C and wherein the temperature of the gas exhausted from the drying tower is 70-125°C, more preferably from 80° to 115°C; and

Step (c): adding a surfactant to the base particles obtained in Step (b) to support the surfactant thereby."

"3. A detergent composition comprising the detergent particles as defined in Claim 1 in an amount of 50% by weight or more."

IV. The Opponent had sought revocation of the patent-in-suit on the grounds of added subject-matter (Article 100(c) EPC), insufficient disclosure (Article 100(b) EPC) and lack of novelty and of inventive step (Article 100(a) EPC in combination with Articles 52(1), 54 and 56 EPC) and had cited, *inter alia*, documents:

(1) = US 5,139,693 ,

(2) = US 4,707,290

and

(3) = EP-A-0 520 582.

V. The Opponent (hereafter Appellant) lodged an appeal against the decision of the Opposition Division to reject the opposition. With the statement setting out the grounds of appeal it filed, *inter alia*, document

(6) = US 3,926,827.

VI. At the oral proceedings before the Board the Patent Proprietor (hereafter Respondent) filed as **Auxiliary Request** an amended set of three claims as well amended pages 3 and 7 of the patent description.

Claim 1 of the Auxiliary request only differs from claim 1 as granted in that the passage in this latter reading

"*and 5-70 wt.% of a water-soluble salt*"

is replaced by

"*and 10-70 wt.% of a water-soluble salt*".

The remaining claims 2 and 3 of the Auxiliary Request are identical to the corresponding claims as granted.

VII. The Appellant argued that claim 1 as granted contained added subject-matter resulting from "cherry picking" a number of distinct features that, although separately disclosed e.g. in claims 1 to 8 as filed, were not originally disclosed in combination.

In particular, none of the claims as filed disclosed pluralities of 100% uni-core particles (i.e. each containing only one base particle in its interior) having bubble-releasing pores and comprising base particles possessing a localized structure. Nor would this subject-matter be disclosed from lines 5 of page 15 to line 11 of page 16 of the application as originally filed (corresponding to the identically worded paragraph [0024] of the application as published) which only referred to pluralities of particles (with bubble-releasing pores and containing base particles with a localized structure) which were mixtures of uni-core and multi-core particles.

In addition, the requirement added in claim 1 as granted that the water-soluble salt had to represent "*5-70 wt.%*" of the ingredients of the base particles (hereinafter this requirement is also indicated as the **5-70 wt.% feature**) was only implied in the original description of several alternative ranges for the relative amount of such ingredient (see in the application as filed from line 14 of page 21 to line 7 of page 22, corresponding to paragraph [0036] of the application as published). Also the requirement in claim 1 as granted that the particles capable of releasing bubbles having a size of one-tenth or more of the particle size had to constitute at least 60 wt.% of the claimed plurality of detergent particles

(hereinafter this requirement is also indicated as the **at least 60 wt.% feature**), was just an alternative, and not the "most preferred" one, disclosed in the original description for the minimum wt.% of particles having the bubble-releasing pores (see page 12, lines 8 to 23, of the application as filed, corresponding to paragraph [0015] of the application as published). Hence, the subject-matter of claim 1 as granted not only corresponded to a previously undisclosed combination of features separately described in claims 1 to 8 as filed, but also implied two further arbitrary selections among the several alternative features disclosed in the original description. Thus, this claim was contrary to Article 123(2) EPC.

The granted claims were also not in accordance with the requirements of Article 83 EPC, for the patent-in-suit did not describe how to obtain a plurality of particles all possessing uni-core structure, i.e. it disclosed neither how to separate the uni-core particles from the multi-core particles nor how to carry out the addition of the surfactant so as to completely suppress any agglomeration of the finer base particles, which were explicitly acknowledged in the patent-in-suit to be formed also in the examples of the invention and which had been used to generate the multi-core particles of comparative example 1. The indication in the patent-in-suit that a "*supporting ability*" of the base particles of at least 20 ml/100 g promoted the formation of uni-core particles, was also missing of a detailed description of the measures to be applied during the manufacture of the base particles in order to ensure the achievement of such supporting ability.

The insufficiency of disclosure of the patent-in-suit was further apparent from the fact that whereas the uni-core structure was defined in paragraph [0056] of the patent-in-suit as corresponding to the presence of a single base particle (as core) of each detergent particle, the three methods for verifying the uni-core property described in the subsequent paragraph [0076] only allowed to verify the presence of some uni-core particles within a plurality of detergent particles and, thus, were not apt at identifying the claimed compositions made of 100% uni-core particles.

The Appellant argued that if granted claim 1 was considered by the Board to allow for the presence of multi-core particles as well, then the subject-matter of this claim (as well as that of granted claim 2) was not novel vis-à-vis example 1 of document (1). The particles of this example were manufactured in steps possessing all the features that the patent-in-suit acknowledged as resulting in the desired structural properties (i.e. localized structure of the base particles as well as bubble-releasing pores and uni-core structure in some of the finished particles). In particular, the particle size distribution of the base particle made by this spray drying process was in the range 0.1 to 0.4 mm and, thus, the average particle size had necessarily to be in the range 150 to 500 µm.

Claim 3 as granted, that certainly allowed for the presence of multi-core particles as well, was instead anticipated by example 6 of document (1) that taught to improve the dissolution of a washing powder by adding therein 30% of fast dissolving particles.

In the opinion of the Appellant similar novelty objections against all the patented claims could be raised on the basis of the examples of document (2).

In addition, also the examples of document (3) were novelty destroying for claim 3 as granted.

As to the issue of inventive step, the Appellant considered that paragraph [0006] of the patent-in-suit described the same technical problem that had already been solved by the prior art disclosed in document (3). This latter was, therefore, a suitable starting point for the assessment of inventive step. In particular, the detergent particles of claim 1 as granted only differed from those of example 1 of document (3) in that the former were required to possess (i) uni-core structure only, (ii) a bubble release functionality and (iii) a localised structure in the base particles forming their cores.

The Appellant stressed that the Respondent had provided no comparative tests vis-à-vis the prior art disclosed in document (3) and that the data in Table 2 represented no credible evidence that particles with the uni-core structure (i) dissolved better than multi-core particles.

Regarding the feature of the bubble release functionality (ii), the patent itself did not show any conclusive evidence as to a contribution of this feature on the particle dissolution rate. However, it was well known in the detergents' art that porous or hollow detergent particles provided faster dissolution rates. This was apparent e.g. from document (6) that

also disclosed starting at column 6, line 23, the ratio between the size of the pores and that of the particle of such fast dissolving detergents.

Regarding the localised structure (iii) it was justified to assume that this feature was the inevitable result of the 38 wt.% amount of water present in the slurry from which the base particles of example 1 of document (3) had been produced.

Hence, the sole credibly solved technical problem was the provision of an alternative to the prior art.

This problem had been solved by the arbitrary selection among the detergent particles formed in the examples of document (3) of those with uni-core structure, and by following the common general knowledge, also reflected e.g. in document (6), that it is possible to increase the dissolution rates of spray-dried particles by using manufacturing conditions apt at rendering them more hollow.

Accordingly, the combination of documents (3) and (6) rendered obvious the subject-matter of claim 1 as granted.

Claim 1 of the Auxiliary Request, which only differed from granted claim 1 in that the range for the amount of the water-soluble salt had been amended to "*10-70 wt.%*", contravened Article 123(2) EPC for substantially the same reasons as granted claim 1, since also such amended range was just one of the possible options disclosed in the original application, and not the "most preferred" of these options.

Finally, claims 1 to 3 of the Auxiliary Request suffered of the same deficiencies in respect to sufficiency of disclosure, novelty and inventive step which were raised for the granted claims.

VIII. The Respondent considered it to be apparent to the skilled reader of the patent application as originally filed that the best dissolution properties were displayed by detergent particles which simultaneously possessed localized structure in the base particle, bubble-releasing pores and which were uni-core. Hence, the subject-matter of granted claim 1 was essentially the most preferred embodiment of the invention as defined in claim 8 as filed. The combined benefits of the bubble-releasing pores, uni-core structure and base particles with localized structure were also explicitly disclosed at page 14, lines 15 to 17, and from lines 5 of page 15 to line 11 of page 16 of the application as originally filed (corresponding to paragraphs [0022] and [0024] of the patent application as published).

As to the two features of granted claim 1 not disclosed in any of claims 1 to 8 as filed (i.e. the at least 60 wt.% and the 5-70 wt.% features), the Respondent considered that such features were originally disclosed as "preferred" in paragraphs [0015] and [0036] of the application as published and, thus, could be freely combined with the combination of features already implied in claims 1 to 8 as filed and which was also apparent from paragraphs [0019], [0022] and [0024] of the application as published.

The Respondent argued additionally that the 5-70 wt.% feature resulted from an unfortunate typing error that could not be remedied without infringing Article 123(3) EPC. Indeed, while the initially intended range was the broadest one of 5-78 wt.% originally disclosed e.g. in claim 7 as filed (see Section II of the Facts and Submissions), the 5-70 wt.% feature was also disclosed, although only implicitly, in paragraph [0036] of the application as published. In view of this last fact the restriction of claim 1 as granted to the 5-70 wt.% feature would, however, also be a restriction to a feature implicitly disclosed as "preferred" and, thus, allowable in view of Article 123(2) EPC.

The Respondent rebutted the Appellant's objections as to the insufficiency of disclosure of the subject-matter of the granted claims as speculative and deprived of any supporting evidence. In particular, it would be apparent to the skilled reader of the patent-in-suit that by replicating the patent examples and by sieving the portion of particles having particle size about the average it was possible to obtain a plurality of particles all possessing a uni-core structure. Hence, even embodiments of the subject-matter of granted claim 1 consisting in a plurality of uni-core particles in pure form could be realized by the skilled reader of the patent-in-suit.

As to the novelty of the granted claims the Respondent stressed that, in the absence of any supporting evidence it was unjustified to presume that the detergent particles disclosed in any of documents (1) to (3) also possessed simultaneously the required combination of uni-core and localized structures and of

bubble releasing pores. In addition, the average particle size of the finished particles of the examples of documents (1) to (3) was undisclosed.

As to the issue of inventive step, the Respondent considered that the patent-in-suit proved that uni-core particles were more soluble than multi-core particles. But even if the problem to be solved was identified merely in the provision of an alternative to the prior art disclosed in document (3), still the Appellant had provided no evidence that a generic instruction - as that contained in document (6) - that a hollow structure favour the dissolution rate of detergent particles and/or the application of e.g. the spray drying conditions used in document (6) to the ingredients used in the examples of document (3), would automatically result in particles possessing not only large pores but also the other structural and compositional features described in claim 1 as granted. Hence, it was not even credible that a skilled person aiming at an alternative to e.g. example 1 of document (3) and combining the teachings of document (3) and (6) could take into consideration processing measures which would also be apt at ensuring initially the formation of base particles with a localized structure, and then the production of finished detergent particles which were uni-core.

Hence, none of the Appellant's objections to the granted claims was founded.

As to the basis in the original disclosure for the subject-matter of claim 1 of the Auxiliary Request the Respondent stressed that this claim complied with

Article 123(2) EPC for substantially the same reasons already indicated for granted claim 1, with the additional consideration that in claim 1 of the Auxiliary Request the range for the amount of water-soluble salt had been limited to that explicitly identified as "*more preferable*" in paragraph [0036] of the application as published.

Finally, the Respondent's arguments as to sufficiency of disclosure, novelty and inventive step of the granted claims applied identically to the claims of the Auxiliary Request.

IX. The Appellant requested that the decision under appeal be set aside and that the European patent No. 0 960 082 be revoked.

The Respondent requested that the appeal be dismissed (Main Request), or that the decision under appeal be set aside and the patent be maintained in an amended form on the basis of Claims 1-3 filed as Auxiliary Request during the oral proceedings with an appropriately amended description, also filed during the oral proceedings.

Reasons for the Decision

Main Request (patent as granted)

1. Article 123(2) EPC: granted claim 1

1.1 This claim (see section III of the Facts and Submissions) describes a plurality of detergent

particles of defined average particle size and bulk density, which possess certain structural and compositional features and display at least one of two specified dissolution rates in water at 5°C, measured under defined test conditions.

In particular, the claim requires the presence of a single base particle forming the core of each particle (uni-core structure) whereby the base particle possesses a localized structure and a specific composition including "*5-70 wt.%*" of water-soluble salt. Moreover, the claim specifies that "*at least 60 wt.%*" of the uni-core detergent particles must comprise pores of given size (i.e. from 1/10 to 4/5 of the particle size) that release bubbles of a given minimum size (i.e. at least 1/10 of the particle size) during the dissolution of the particles in water.

The Board considers it appropriate to preliminarily stress that such claim explicitly or implicitly requires neither that the uni-core particles must necessarily be present in isolated form nor that they must necessarily be part of a composition of matter comprising other ingredients. Hence, the uni-core particles defined in granted claim 1 are the claimed subject-matter when they are present in isolated (pure) form as well as when they are present in mixtures with, for instance, similar multi-core particles.

1.2 As to the Appellant's objections in view of Article 123(2) EPC (see above section VII of the Facts and Submissions), the Board finds convincing the part of the Respondent's reply thereto (see above section VIII of the Facts and Submissions) based on the

observation that paragraphs [0019], [0022] and [0024] of the application as published (see in particular the passage in paragraph [0024] reading "*Incidentally, the most preferable embodiment for exhibiting high-speed dissolubility is a detergent particle having the localized structure described above and further being the bubble-releasing detergent particle. In this case, the detergent particle includes not only the uni-core detergent particle but also the multi-core detergent particle.*") in combination with claims 1 to 8 as originally filed (see Section II of the Facts and Submissions, in particular the definitions of claim 3 and 7 as filed which require in combination bubble-releasing pores and the localized structure of the base particles, as well as the fact that the uni-core structure is described in claim 8 with reference to all preceding claims) implicitly provide the direct and unambiguous disclosure of a plurality of particles having in combination:

- uni-core structure,
- bubble-releasing pores

and

- the localized structure in the base particles forming their core.

The Board considers indeed unreasonable the Appellant's interpretation of the above-cited passage of paragraph [0024], according to which it would only describe mixtures of uni-core and multi-core particles. The last sentence of this passage appears rather to define what may be included under (the term) "*detergent particle*" as used in the immediately preceding sentence and, thus, only acknowledges that each of the particles having in

combination bubble-releasing pores and a localized structure (in the base particles forming their core) may be a uni-core particle or a multi-core particle, thereby implying that a plurality of these particles may be any mixture of uni-core and multi-core particles as well as be 100% uni-core, or 100% multi-core.

1.3 The Board finds however not convincing the Respondent's further argument (see above section VIII of the Facts and Submissions) that, similarly to the at least 60 wt.% feature, also the 5-70 wt.% feature would be combinable e.g. with the preferred combination of features apparent from claims 1 to 8 as filed, because it would be implied by the disclosure in paragraph [0036] of the application as published, of several "preferred" amount ranges for the water-soluble salt (see in particular the passage in paragraph [0036] reading "*The water-soluble salts of Component (C) is preferably from 5 to 78% by weight, more preferably from 10 to 70% by weight, still more preferably from 10 to 67% by weight, particularly preferably from 20 to 60% by weight, most preferably from 20 to 55% by weight. Within the above ranges, the base particle is favorable in the aspects of having a structure in which near the surface of the base particle is coated with a water-soluble component, so that the coating layer is sufficiently formed on the particle surface, thereby making its particle strength sufficient. Also, it is preferable from the viewpoint of the dissolubility of the resulting detergent composition.*").

The Board notes preliminarily that there may exist combinations of features which although not explicitly disclosed in the application as filed are nevertheless

derivable from the presence of an (explicit or implicit) pointer thereto. For instance, the fact that certain features are disclosed as "preferred" in the original application acts as a pointer for the skilled person, as the combination of "preferred" features is obviously the best way of achieving the technical effects that the invention aims to provide (see e.g. T 68/99, unpublished in the OJ, point 3.2.2 of the reasons).

In the present case, the at least 60 wt.% feature is explicitly disclosed as the "*preferable*" amount of uni-core particles that must possess the defined bubble-releasing pores (see in paragraph [0015] of the application as filed the passage reading "*In addition, it is preferable that the bubble-releasing detergent particle constitutes 60% by weight or more, more preferably 80% by weight or more, of the detergent particles.*").

However, the same does not apply to the 5-70 wt.% feature. Indeed, the "preferred" ranges for the amount of this ingredient are disclosed (in the above-cited passage of paragraph [0036] of the application as published) through their limit values always presented in pairs. Therefore, it has to be presumed that there exists a technical relationship between the range limits forming each pair. In other words, the original application presents as technically important each specific range, and not the end values of each range individually.
Hence, even considering plausible that the 5-70 wt.% feature originates from an unfortunate typing error that cannot be remedied without violating Article 123(3) EPC, the fact that the end values of 5 wt.% and 70 wt.%

are disclosed in paragraph [0036] as part of the definitions of two **different** "preferred" ranges does not justify considering originally disclosed therein **as "preferred"** also the 5-70 wt.% range.

1.4 The Board comes therefore to the conclusion that the patent application contains no pointer to a combination of the 5-70 wt.% feature with the remaining features also present in claim 1 as granted. Thus, the Respondent's Main Request is not allowable because granted claim 1 contravenes Article 123(2) EPC.

Auxiliary Request

2. Article 123(2) EPC

2.1 Claim 1 of the Auxiliary Request

This claim (see section VII of the Facts and Submissions) differs from granted claim 1 only in that the range for the amount of the water-soluble salt in the base particle has been restricted to 10 to 70 wt.%, so as to exactly correspond to the range originally disclosed as "more preferable" in paragraph [0036] of the application as published.

Hence, the Board concurs with the Respondent that this claim corresponds to the combination of preferred features already implied in claims 1 to 8 as filed further added with two further features originally disclosed as "preferred".

2.1.1 The Appellant has argued that the at least 60 wt.% feature and the 10-70 wt.% feature were not the **"most**

preferred" options for, respectively, the fraction of claimed particles that have the required bubble-releasing pores and the range for the amount of water-soluble salt in the base particles. Hence, their introduction in claim 1 of the Auxiliary Request was still to be regarded as a two-fold selection among several alternatives and, thus, resulted in a violation of Article 123(2) EPC.

2.1.2 The Board finds instead that the particular circumstances of the present case justify to consider the original application as comprising a pointer to these amounts that are disclosed just as preferred, rather then exclusively to the most preferred one(s).

In particular, the Board notes that in the present case the at least 60 wt.% feature corresponds not only to a "preferred" range but also to the broadest of the only two quantified alternatives for such feature disclosed in the original application at paragraph [0015].

Moreover, the base particles of example 4 of the patent-in-suit are apparently not in accordance with the most preferred amount range for the water-soluble salt or even the second most preferred one (i.e. the "*particularly*" preferred range 20 to 55 wt.% or the "*most particularly*" preferred range 20 to 60 wt.%) also disclosed in the already cited passage of paragraph [0036] (see above point 1.3).

Hence, the Board comes to the conclusion that the original disclosure of the application implicitly also suggests among the preferred features of the invention the requirements that at least 60 wt.% of the claimed

plurality of particles possess bubble-releasing pores and that the amount of water-soluble salt constitutes from 10 to 70 wt.% of the base particles. Hence, these features are regarded by the skilled reader of the original application as combinable with each other, as well as with any other disclosed preferred combination of features, inclusive of the preferred combination of features already implied in claims 1 to 8 as filed.

2.1.3 The Board finds, therefore, that claim 1 of the Auxiliary Request complies with Article 123(2) EPC.

2.2 Claims 2 and 3 of the Auxiliary Request.

In view of the considerations mentioned above in respect of claim 1 of this request and considering claims 9 and 10 as filed (see above Section II of the Facts and Submissions) as well as paragraph [0072] of the application as published, the Board comes to the conclusion that also claims 2 and 3 of the Auxiliary Request comply with Article 123(2) EPC. The Appellant has not raised any objection of added subject-matter in respect of these claims.

2.3 The Board concludes that the Auxiliary Request complies with Article 123(2) EPC.

3. Article 83 EPC

The Appellant has argued that the disclosure provided by the patent-in-suit would be insufficient for a skilled reader to reproduce the claimed plurality of detergent particles all having uni-core structure.

This objection (see above section VII of the Facts and Submissions) is essentially based on the following facts:

a) the few features of the manufacturing process explicitly mentioned e.g. in claim 2 of the Auxiliary Request, would *per se* be insufficient to suppress the formation of multi-core particles;

b) the three methods suggested for confirming the uni-core property method only allowed to verify the presence of some uni-core particles and did not teach how to isolate a plurality of particles all having the required uni-core structure;

and

c) the patent-in-suit would not even provide sufficient information as to how to ensure that the base particle had the "*supporting ability*" indicated in paragraph [0070] of the patent-in-suit as essential for ensuring the achievement of the uni-core structure.

3.1 The Board notes that in order to carry out embodiments of the presently claimed invention in which the plurality of uni-core detergent particles is present in pure form, implies neither that the process features defined in claim 2 of the Auxiliary Request must be sufficient to ensure the direct and economically feasible production of exclusively uni-core particles, nor that the patent-in-suit must explicitly describe an additional protocol for separating from the product of such process all (or at least a plurality of) the uni-core particles contained therein.

The Board considers instead relevant in this respect that the patent-in-suit not only indicates in paragraph [0044] a plurality of factors for achieving a sufficiently high supporting ability of the base particles (which, as indicated in paragraph [0070], allows to suppress the agglomeration of the base particles and, thus, to achieve the uni-core property), but also provides in paragraphs [0090] to [0116] a large number of further details on the manufacturing processes in general and, in particular, emphasizes in paragraphs [0056] to [0058] and in Table 2 that the formation of uni-core particles corresponds to a limited particle growth (from that of the base particles to that of the finished detergent particle). The Board is convinced that the skilled reader of these passages would immediately arrive at the conclusion that the limited increase of the average particle size required for achieving the uni-core structure is ensured by the use of a correspondingly limited amount of surfactant in the surfactant supporting step. Consistently with such conclusion, the skilled person also finds in paragraph [0099] the indication that the use of larger amounts of surfactant promotes instead the formation of multi-core particles.

Hence, the patent-in-suit actually identifies which parameters of the claimed manufacturing method favour the formation of particles with uni-core structure and, thus, in the absence of any evidence to the contrary, appears to disclose how to substantially suppress the formation of multi-core particles.

Thus, and also considering that:

i) Figure 12 of the patent-in-suit proves that it is possible to isolate individual particles and to unambiguously identify if they possess or not a uni-core structure,

ii) the person skilled in the art of particulate detergents has a large background experience on how to control the dimensions of the particles obtained by conventional spray-drying techniques, as well as on how to homogeneously support on these latter a desired amount of further ingredients,

iii) the patent-in-suit even implicitly reminds the skilled reader of the possibility of sieving out (prior of the step supporting the surfactant) the base particles that are too fine and that, thus, favour the formation of multi-core particles during the subsequent step (see e.g. Comparative example 1),

and

iv) the disclosure of Method (a) in paragraph [0076] implies that in a plurality of particles produced according to the manufacturing instructions provided in the patent-in-suit (and which, thus, have e.g. the appropriate average particle size, density and particle growth) those particles that possess a size near the average are also most likely to have a uni-core structure,

the Board comes to the conclusion that none of the facts "a)" to "c)" indicated by the Appellant is apt at substantiating serious doubts as to the sufficiency of disclosure for the skilled person who is aiming at a plurality of uni-core particles in pure form (*i.e.* free from multi-core particles).

3.2 Thus, the Board finds the Auxiliary Request of the Respondent to also comply with the requirements of Article 83 EPC.

4. Novelty (Article 54 EPC)

4.1 As to the Appellant's objections to the novelty of the claims of the Auxiliary Request based on documents (1) to (3) (see above section VII of the Facts and Submissions), the Board notes that none of the examples in these citations is disclosed in sufficient details to justify a sound prediction in respect of all the features indicated in claim 1 of the Auxiliary Request. For instance, the average particle size of the finished detergent particles produced in these prior art documents is neither explicitly disclosed nor predictable with reasonable certainty on the basis of the whole disclosure provided in the prior art examples. Hence, already for this reason the Board comes to the conclusion that documents (1) to (3) **do not** provide a direct and unambiguous disclosure either of the detergent particles according to claim 1 under consideration or of the method for their preparation (according to claim 2) or of the detergent composition comprising them (according to claim 3).

Thus, the Board concludes that the Appellant has not succeeded to prove that the prior art disclosed in document (1) to (3) anticipates the subject-matter of any of the claims of the Auxiliary Request. Accordingly, these claims are also found to comply with Article 54 EPC.

5. Inventive step (Article 56 EPC)

5.1 Claim 1

The Board notes that the patent-in-suit stresses in paragraphs [0002] and [0003] that detergent compositions with high dissolubility rates are needed in order to avoid that detergent residues remain on the washed clothes after short washing cycles at low-temperature and low-mechanical power. In the subsequent paragraphs [0004] to [0007] it is indicated that the speeds of dissolution of certain specific detergent compositions of the prior art, as well as of the detergents commercially available worldwide in general, have been found insufficient in this respect and, thus, that the technical problem underlying the invention is that of providing detergents with dissolution rates (in cold water and low-mechanical power according to the methods also mentioned in claim 1 under consideration) superior to those of the prior art.

Considering that the uni-core detergent particles defined in claim 1 are required to display at least one of two specified dissolution rates in water at 5°C, measured under defined test conditions, it is apparent to the Board that they represent a solution to such problem.

5.1.1 Since also document (3) undisputedly addresses the problem of complete dissolution in cold water (see e.g. the "*RESIDUE TEST*" in example 2 of this citation) the Board concurs with the Appellant that this prior art represents a suitable starting for the assessment of inventive step.

5.1.2 Similarly to the detergent particles of the examples of the patent-in-suit also the detergent particles described in the examples of this citation are obtained by overspraying a surfactant on (base) particles previously formed by spray-drying.

However, document (3) does not mention or appear to imply the occurrence of a localized structure in the spray-dried particles of e.g. example 1. The Board notes in this respect that the Appellant has provided no evidence supporting its allegation, disputed by the Respondent, that the water amount used in example 1 of this citation is sufficient to ensure dissolution in the slurries of at least 60% of all the water-soluble ingredients. Moreover, as indicated in paragraph [0097] and [0098] of the patent-in-suit, the achievement of a localized structure also requires very rapid drying under controlled conditions at temperatures not higher than 300°C. On the contrary, example 1 of document (3) uses spray-drying temperatures of 400-450°C. Thus, the Board concurs with the Respondent that there is no reason to presume the formation of the localized structure in the base-particles of document (3). Finally, it is undisputed that this citation does not disclose whether any substantial fraction of the finished detergent particles according to the examples

is made of uni-core and, in particular, of uni-core particles which also possess bubble-releasing pores.

5.1.3 In the opinion of the Appellant, the sole technical problem credibly solved by the subject-matter of claim 1 vis-à-vis this prior art would be the provision of further rapidly soluble detergents, i.e. the provision of an alternative to the detergent particles of the examples of document (3).

According to the Appellant's reasoning, the uni-core particles of claim 1 of the Auxiliary Request would represent an obvious solution to this problem for the skilled person who is aware of the common general knowledge that detergent particles containing large pores dissolve rapidly, as also apparent from e.g. document (6) (see column 6, lines 24 to 37).

5.1.4 The Board notes however that even if one assumes, for the sake of an argument in favour of the Appellant, that the subject-matter of claim 1 under consideration only represents an alternative to the detergent particles exemplified in document (3), and that the person skilled in the art aiming at such an alternative would spray dry the ingredients used in the examples of document (3) under the condition conventionally used for promoting the formation of large pores, still neither this document *per se* nor its combination with the common general knowledge allegedly reflected in document (6) too, would render it obvious to put into practice all the measures required for the provision of detergent particles which, beside being highly porous, also possess the other two specific structural features (i.e. the uni-core property and the localized structure

in the base particle forming the core) characterizing the claimed subject-matter.

In other words, there is no evidence on file that any of the manufacturing processes used in document (3) or (6) (or any other conventionally used for making this sort of detergent particles) would necessarily also result in the initial formation of a localized structure in the spray dried particles, and then in the limited particle size growth required for the production of a substantial amount of uni-core particles.

5.1.5 Already for this reason the Board comes to the conclusion that the Appellant has not succeeded to prove that the available prior art renders obvious the subject-matter of claim 1 of the Auxiliary Request.

5.2 Claims 2 and 3

These claims describe respectively the process for producing the uni-core detergent particles of claim 1 and detergent compositions comprising such detergent particles. Hence, the same reasons indicated above for rejecting the Appellant's arguments in respect of the obviousness of the subject-matter of claim 1 apply to claims 2 and 3 as well. Thus, the set of claims of the Auxiliary Request is also found to comply with the requirements of Article 56 EPC.

6. Amended description

The Board is satisfied that the amended description pages 3 and 7 filed by the Respondent at the oral

proceedings in order to adapt the description to claim 1 of the Auxiliary Request, are in accordance with the relevant provisions of the EPC. The Appellant has also not raised any objection thereto.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent in an amended form on the basis of the following documents

Description:

pages 1, 2, 4-6 and 8-23 of the granted patent,

pages 3,7 as filed during the oral proceedings.

Claims:

1-3 as filed during the oral proceedings.

Figures:

1-12 of the granted patent.

The Registrar: The Chairman:

D. Magliano P.-P. Bracke