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**Datasheet for the decision  
of 27 October 2009**

**Case Number:** T 0150/07 - 3.3.06

**Application Number:** 95930034.4

**Publication Number:** 0781320

**IPC:** C11D 3/08

**Language of the proceedings:** EN

**Title of invention:**

Washing method and clothes detergent composition

**Patentee:**

KAO CORPORATION

**Opponent:**

Unilever PLC

**Headword:**

Washing method/KAO CORPORATION

**Relevant legal provisions:**

EPC Art. 123(2), 84, 56

**Relevant legal provisions (EPC 1973):**

-

**Keyword:**

"Added subject-matter (no): 'novelty test' not to be applied"  
"Admissibility of the clarity objection (no): alleged lack of  
clarity not arising from the amendments to the granted  
claim 1"  
"Inventive step (yes)"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0150/07 - 3.3.06

**DECISION**  
of the Technical Board of Appeal 3.3.06  
of 27 October 2009

**Appellant:**  
(Opponent)

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**Decision under appeal:**

Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
17 November 2006 concerning maintenance of  
European patent No. 0781320 in amended form.

**Composition of the Board:**

**Chairman:** P.-P. Bracke  
**Members:** L. Li Voti  
A. Pignatelli

## Summary of Facts and Submissions

I. The present appeal is from the decision of the Opposition Division to maintain in amended form European patent no. 0 781 320 concerning a fabric washing detergent composition and a method for washing fabric.

II. In its notice of opposition the Opponent, referring *inter alia* to document

(5): WO95/02682

sought revocation of the patent *inter alia* on the grounds of Article 100(a) EPC, because of lack of inventive step of the claimed subject-matter.

III. In its decision, the Opposition Division found with regard to then pending auxiliary request *inter alia* that

- the amended claims according to the auxiliary request were supported by page 22 of the published application and thus complied with the requirements of Article 123(2) EPC; moreover, they were novel over the cited prior art;

- the patent in suit did not benefit from the priority date of 13 September 1994; therefore, document (5), published on 26 January 1995 was relevant to the question of inventive step;

- the only difference between the independent claims of the patent in suit and the subject-matter disclosed in

Test Samples No. 2 and 5 of document (5) consisted in the ratio of component (b) to component (a);

- starting from the disclosure of document (5) as closest prior art, the skilled person could have modified the amounts of builders and surfactants so as to arrive at a ratio of component (b) to component (a) within the range of the patent in suit but he would not have done so with the expectation of achieving high detergency as shown in the examples of the patent in suit, e.g. in tables 2 and 3 with regard to the comparison of composition 1-1 according to the patent in suit with composition 1-2 having a ratio (b) to (a) outside the claims;

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

IV. An appeal was filed against this decision by the Opponent (Appellant).

Following the objections under Article 123(2) EPC raised by the Appellant and by the Board during the oral proceedings held on 21 April 2009, the Respondent (Patent Proprietor) submitted a new set of amended claims to be considered as main request. This set of claims was found preliminary by the Board not to comply with the requirements of Article 123 EPC.

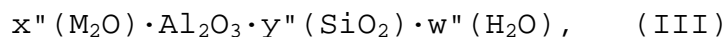
In view of the new objections raised by the Board and of the complexity of claim 1, it was decided in agreement with both parties to continue the proceedings in writing in order to give the Respondent a fair possibility to file a new set of claims.

The Respondent submitted with letter of 19 June 2009 an amended set of claims.

New oral proceedings were held before the Board on 27 October 2009.

- V. The set of 8 claims according to the sole request submitted with letter of 19 June 2009 contains an independent claim 1 reading as follows:

"1. A clothes washing method using a phosphorus-free clothes detergent composition comprising (a) one or more surfactants, (b) one or more alkali metal silicates having an  $\text{SiO}_2/\text{M}_2\text{O}$  ratio of from 0.5 to 2.6, wherein M stands for an alkali metal and (c) one or more metal ion capturing agents other than the alkali metal silicates, comprising (c-i) carboxylate polymers having a calcium ion capturing capacity of not less than 200  $\text{CaCO}_3$  mg/g, and (c-ii) aluminosilicates having the formula



wherein M stands for an alkali metal;  $x''$ ,  $y''$ , and  $w''$  each stand for a molar number of each component;  $x''$  is from 0.7 to 1.5;  $y''$  is from 0.8 to 6.0; and  $w''$  is from 0 to 20, and having an ion exchange capacity of not less than 200  $\text{CaCO}_3$  mg/g, wherein the weight ratio of the components (c-i) to (c-ii) is  $(c-i)/(c-ii) = 1/9$  to  $4/1$ , the total amount of (c-i) and (c-ii) occupies 70 to 100% by weight based on the (c) metal ion capturing agent; the total amount of (a), (b), and (c) components occupies 80 to 100% by weight of the entire composition,

the weight ratio of the component (b) to the component (c) is 3/1 to 1/15, and the weight ratio of component (b) to component (a) is 9/1 to 1/1, the method comprising the step of washing clothes in a washing liquid having the following washing conditions:

- (1) The washing liquid having a pH of not less than 10.60;
- (2) The washing liquid containing a material having an ion capturing capacity in an amount sufficient for theoretically changing a water hardness of water for washing to be not more than 0.5° DH; and
- (3) The washing liquid having a surfactant concentration of from 0.07 to 0.17 g/L."

Dependent claims 2 to 8 concern particular embodiments of the claimed method.

VI. With regard to the amended claims submitted with letter of 19 June 2009 the Appellant submitted in writing and orally that

- the wording of claim 1 contained a combination of technical features taken from different parts of the original description, i.e. pages 22 and 40, which combination was not explicitly disclosed in the original documents; this combination would fail the novelty test used for evaluating the admissibility of amendments under Article 123(2) EPC; therefore, claim 1 contravened the requirements of Articles 123(2) EPC;

- the wording "the total amount of (a), (b), and (c) components occupies 80 to 100% by weight of the entire composition" in claim 1 was unclear since the claim did

not specify if the water associated to some of the compounds belonging to the classes of components (a), (b) or (c) had also to be counted as part of these components or not; moreover, since the wording of the granted claims "the total amount of (a), (b), and (c) components occupies **70** to 100% by weight of the entire composition" had been modified, the clarity of this wording could be put in question;

- document (5) concerned the same technical problem underlying the invention of the patent in suit;

- even though the compositions of the examples of this document had a ratio of component (b) to component (a) and a concentration of surfactant in the wash outside the range of the patent in suit, the general teaching of this document encompassed also ratios of component (b) to component (a) as well as concentrations of surfactant in the wash as claimed in the patent in suit;

- the examples contained in the patent in suit did not show any technical benefit linked to the selection of a ratio of component (b) to component (a) of at least 1:1 and of the combination of features as required in claim 1;

- therefore, the skilled person, by following the teaching of document (5), could and would have modified the ratio (b) to (a) and the surfactant concentration in the wash used in the examples of this document to a level within the range of the patent in suit in order to provide an alternative washing method;



- moreover, even if it would be accepted that the patent in suit contained support for the achievement of increased detergency by means of the selection of a ratio of (b) to (a) of at least 1:1, this effect would have been obvious in the light of the teaching of document (5) that a reduced dose composition having a surfactant concentration of 25 to 65% could be provided by using a higher level of silicate; therefore, the skilled person would have arrived at the subject-matter of the patent in suit simply by following the teaching of document (5);

- the claimed subject-matter thus lacked an inventive step.

VII. The Respondent submitted orally and in writing that

- the amended claims complied with the requirements of Article 123(2) EPC;

- moreover, the amount of hydrated water contained, for example, in the alkali metal silicate was not to be considered as part of the total amount of "(a)+(b)+(c)" since it dissolved in the washing solution; claim 1 thus would have been clear to the skilled person;

- document (5) did not contain any suggestion that a technical benefit could be obtained by reducing the concentration of surfactant in the wash in the claimed range and by using a ratio of component (b) to component (a) of at least 1:1 in combination with a chosen ratio of components (c-i) to (c-ii);

- the examples of the patent in suit showed that the combination of features of claim 1 allowed to maintain a good detergency though using low amounts of surfactants;
  - therefore, the skilled person would not have found any motivation in document (5) for modifying the compositions exemplified therein in order to arrive at a method as claimed in the patent in suit with the expectation of maintaining good detergency;
  - therefore, the claimed subject-matter involved an inventive step.
- VIII. The Appellant requests that the decision under appeal be set aside and that the patent be revoked.
- IX. The Respondent requests that the patent be maintained on the basis of claims 1 to 8 submitted with letter of 19 June 2009.

## **Reasons for the Decision**

1. *Respondent's sole request*
  - 1.1 Article 123(2) EPC
    - 1.1.1 It is the established case law of the Boards of Appeal of the EPO that the relevant question to be decided in assessing whether an amendment adds subject-matter extending beyond the content of the application as filed is whether such an amendment was directly and unambiguously derivable from the application as filed

(Case Law of the Boards of Appeal of the EPO, 5th edition, 2006, III.A.2 and 2.1).

- 1.1.2 It is undisputed that the original documents of the application from which the patent in suit was granted disclose a washing method having the washing conditions (1), (2) and (3) of claim 1 (see paragraph (1) from page 9, line 12 to page 10, line 4) and the use of a clothes detergent composition described in any one of the following paragraphs (5) to (15) in such a method (see paragraph (16) page 13, lines 12 to 14).

Such a detergent composition is a phosphorus-free clothes detergent composition containing a total amount of components (a), (b) and (c) of 70 to 100% by weight of the composition at specific ratios of components (b) to (a) and (b) to (c), wherein the alkali metal silicate (b) can have a  $\text{SiO}_2/\text{M}_2\text{O}$  ratio as precised in claim 1 of the sole request, component (c) is not an alkali metal silicate (b) and can comprise components (c-i) and (c-ii) at an amount of 70 to 100% by weight of (c) and at a specific ratio of (c-i) to (c-ii) (see paragraphs (5) and (6) from page 10, line 17 to page 11, line 6; paragraph (10) on page 11, lines 19 to 22 and paragraph (15) from page 12, line 21 to page 13, line 11).

- 1.1.3 The Board remarks that the above mentioned paragraphs (5) and (6) are identical to the passage on page 22, lines 2 to 14 and that the above mentioned paragraph (15) is substantially identical to that on page 40, lines 5 to 22 apart from the preferred ratio of component (c-i) to component (c-ii) indicated additionally on page 40.

Moreover, page 22 of the original documents of the application discloses not only the broader embodiment of said paragraphs (5) and (6) but also a preferred phosphorus-free detergent composition containing components (a), (b) and (c) in a total amount as required in claim 1 of the sole request and having a ratio of component (b) to component (a) and of component (b) to component (c) also as required in that claim (see page 22, lines 2 to 21).

Similarly, the passage on page 40 repeats the broader embodiment of paragraph (15) and specifies as a highly preferred example a ratio of components (c-i) to (c-ii) as in claim 1 of the sole request (see page 40, lines 5 to 22 of the description, in particular lines 19 to 20).

In the Board's view, it would have been clear to the skilled person that the preferred features of pages 22 and 40, disclosed without any further restriction as to the method wherein they can be applied, are all applicable to the more general teaching of the washing method disclosed in the preceding part of the description.

The Board thus finds that the combination of features of claim 1 was directly and unambiguously derivable from the teaching of the description.

Claim 1 thus complies with the requirements of Article 123(2) EPC.

- 1.1.4 As regards the so-called "novelty test", i.e. a test for establishing if the amendments generate "novel"

subject-matter, invoked by the Appellant, the Board finds that this test is not to be applied in a case like the present one wherein preferred embodiments of an invention are combined with the more general teaching thereof, since the amended subject-matter, though not being disclosed as such, can be a possible embodiment of the invention directly and unambiguously derivable by the skilled person from the explicit teaching of the original documents of the application. Therefore, in such a case, the patent (application) is not amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. In fact, the "novelty test" is fact no longer considered to be a reliable tool for evaluating the admissibility of amendments under Article 123(2) EPC (see Case Law of the Boards of Appeal of the EPO, 5th edition, 2006, III.A.2.3).

1.1.5 No objections under Article 123(2) EPC were raised by the Appellant against claims 2 to 8. The Board has also no reason to doubt that these claims comply also with the requirements of Article 123(2) EPC.

## 1.2 Clarity

1.2.1 Lack of clarity is not itself a ground for opposition and according to the established jurisprudence of the Boards of Appeal of the EPO objections to the clarity of claims are only allowable if they arise in relation from the amendments made (see Case Law of the Boards of Appeal of the EPO, 5th edition, 2006, point VII.C.6.1.4 on pages 573 and 574, second and fifth full paragraph as well as point VII.C.6.2 on page 575, second full paragraph).

1.2.2 In the present case the Appellant objected to the clarity of the wording "the total amount of (a), (b), and (c) components occupies 80 to 100% by weight of the entire composition" since it was allegedly not clear if water possibly present in some of the compounds belonging to the classes (a), (b) and (c) had to be taken into account as part of this total amount.

Claim 1 as granted already contained the expression "the total amount of (a), (b), and (c) components occupies 70 to 100% by weight of the entire composition" the only difference with regard to the wording above being in the amendment of the lower limit of the range of 70% to 80%.

Therefore, the amendment to claim 1 had no effect on the question whether water has to be considered part of the total amount of components (a), (b) or (c) or not. Consequently, the alleged unclarity does not arise from the amendment of the lower limit of the range indicated above and the alleged non-compliance of claim 1 with Article 84 EPC is not an issue which can be raised during the appeal proceedings.

### 1.3 Interpretation of claim 1

As regards the interpretation of the allegedly unclear wording of claim 1, which is important in order to evaluate the novelty and inventive step of the claimed subject-matter, the Board finds that the only reasonable interpretation of the claim is that given in writing by the Respondent (see point VII above) according to which not bound water, e.g. hydrated water

which is released to the wash solution upon dissolution of the compound, is not to be considered as being part of the total amount of components (a), (b) and (c).

#### 1.4 Novelty

The novelty of the claimed subject-matter was not disputed by the Appellant. The Board finds also that the requirements of novelty are met as found in the decision under appeal. No detailed reasons thus are necessary.

#### 1.5 Inventive step

##### 1.5.1 The present invention relates to a washing method using a phosphorus-free clothes detergent composition (see paragraph 1 of the patent in suit).

As explained in the description of the patent in suit, since environmental concern required the replacement of phosphate builders in washing detergent compositions with other builders such as zeolite, it was then necessary to use a high dosage of such compositions in the wash, which fact was extremely inconvenient for handling in distribution, at stores and homes (paragraph 3).

Moreover, a large amount of surfactants had to be blended in conventional laundry detergent compositions in order to achieve a good removal of oily components contained in soil. Therefore, even the use of compact detergents could not substantially change the surfactant concentration in the washing liquid and a

drastic reduction of the standard amount of detergent dosage was difficult to achieve (paragraphs 5 and 6).

Furthermore, by using crystalline silicate as a builder, the washing power of the composition was not always satisfactory and, by reducing the dosage of the detergent composition, a good washing power could not be maintained (paragraph 8).

The patent in suit thus identifies the technical problem underlying the invention as the provision of a washing method with excellent washing power while using a lower dosage of a phosphorus-free clothes detergent composition and a lower surfactant concentration in the wash than those conventionally used with compact laundry detergent products (paragraphs 13 and 14).

- 1.5.2 Both parties and the Opposition Division found that document (5) represents the closest prior art since it addresses the similar technical problem of providing a laundry detergent composition which can be dosed at an amount lower than that currently used with compact laundry detergent products while maintaining the same detergent power (see page 1, lines 18 to 23).

The Board remarks that even though document (5) was published on 26 January 1995, i.e. between the priority date claimed from the patent in suit of 13 September 1994 and its filing date of 01 September 1995, said priority date was found not to be allowable in the decision under appeal. Therefore, document (5) was considered to be a prior art document relevant to the discussion of inventive step. This finding was not disputed by the Respondent.



The Board has also no reason to depart from this finding.

Therefore, the Board takes also document (5) as the most suitable starting point for the evaluation of inventive step.

Moreover, since document (5) already solved the technical problem of providing a laundry detergent composition which can be dosed at an amount lower than that currently used with compact laundry detergent products while maintaining the same detergent power, i.e. while maintaining the suitable pH, calcium-sequestering capacity and the suitable surfactant amount (page 1, lines 18 to 31), the technical problem underlying the invention can only be defined as the provision of a washing method using a lower surfactant concentration in the wash than those conventionally used with compact laundry detergent products, which method allows to maintain an excellent washing power.

- 1.5.3 The patent in suit contains a comparison at various detergent dosages in the wash of the detergent composition 1-1 according to the invention containing 30% surfactants and 33% silicate with the composition 1-2 outside the invention containing 43% surfactants and 20% silicate, the latter composition differing from the former only insofar as it contains a greater amount of surfactants than silicate. The Board remarks that composition 1-2 is a composition in accordance with the teaching of document (5) (see e.g. claim 16 as well as Test Sample no. 2 and Sample no. 5); therefore, this comparison could be apt to show a possible technical effect with respect to the closest prior art.

This comparison shows that a good detergency rate of above 60% is achieved with the formulation 1-1 already at a concentration of surfactant in the wash of only 0.150 or 0.099 grams per litre and a ion capturing capacity of 104 or 69 CaCO<sub>3</sub> mg/l, whilst formulation 1-2 needs at least an amount of 0.357 grams surfactants per litre and a higher ion capturing capacity (140 for CaCO<sub>3</sub> mg/l) for achieving a similar detergency rate.

The comparisons of formulation 1-1 with formulations 1-4 or 1-5 having the same amount of surfactants but a lower amount of silicate (10%) outside the limits of the patent in suit and a greater amount of the other builders (c-i) and (c-ii) or a greater amount of silicate (56%) and a lower amount of the other builders outside the limits of the patent in suits, show similar results.

The Board remarks also that all the other compositions according to the invention tested show a similar cleaning performance as the composition 1-1.

Furthermore, the comparison of the cleaning efficiency of a composition of Test Sample no. 2 of document (5) with the composition 1-14 of the patent in suit invoked by the Appellant cannot be considered to be meaningful because of the many differences in the type of surfactants used.

The Appellant argued that the above mentioned comparisons would not show any technical advantage since, as expected, the compared compositions show a similar detergency at similar pH values. In fact,

according to the Appellant, the cleaning of the specific soil tested in the patent in suit, which soil contains a great amount of fatty acids (see paragraph 123 of the patent in suit), would be dependent on the pH of the washing liquid.

The Board finds that the Appellant's consideration has not been substantiated by any evidence. To the contrary, even though the composition 1-2 achieves similar detergency as the composition 1-1 at a similar pH but at a greater dosage and greater ion capturing capacity, the composition 1-5 requires a much higher pH in order to achieve a similar cleaning efficiency. Therefore, the effect shown in the tests discussed above is not only dependent on the pH used in the washing liquid but also on the particular components ratios and ion capturing capacity selected.

The Board concludes that the above mentioned tests convincingly show that the above mentioned technical problem, i.e. the provision of a washing method using a lower surfactant concentration in the wash than those conventionally used with compact laundry detergent products, which method allows to maintain an excellent washing power, has been credibly solved by means of a method having all the features of claim 1.

- 1.5.4 The general teaching of document (5) encompasses the preferred use of a dosage of 14 to 21 grams of laundry detergent composition per 30 litres of washing water, wherein the used composition comprises 25 to 65% of detergent surfactant, 10 to 40% of a crystalline silicate of the type (b) and less than 50% by weight of other builders and other alkaline materials, the ratio

of the crystalline silicate to such other builders and alkaline materials being not less than 0.34 (see claim 16 and page 9, lines 6 to 13).

By using a dosage of 14 grams per 30 litres of water and a concentration of surfactant in the composition of 25% by weight, the concentration of surfactant in the wash would be about 0.12 grams per litre, i.e. an amount within the range of claim 1 according to the sole request; however, such a concentration range would not be complied with, for example, by using 40% by weight of surfactant with a dosage of 14 grams per 30 litres of water or by using 25% surfactants with a dosage of 19 grams per 30 litres of water.

Moreover, the frame formulation of the composition used in document (5) encompasses the possibility of using a ratio of silicate (b) to surfactants (a) of at least 1:1 or lower than 1:1 as well as the choice of other builders and alkaline materials different from (c-i) and (c-ii) such as, for example, silicates or carbonate (see claim 17 and page 3, line 27 to page 8, line 6). Therefore, the use of such a frame formulation would not necessarily lead to a pH and a capturing ion capacity (features which are not explicitly disclosed in document (5)) within the range of claim 1 according to the sole request.

As regards the specific compositions exemplified in document (5) it is undisputed that they always comprise an amount of surfactants which is greater than that of silicate and that they are used at a dosage giving a surfactant concentration in the wash greater than 0.17 grams per litre; for example, the composition of Sample

no.5 containing 43% by weight of surfactant is used at a dosage of 15 grams per 30 litres and gives a concentration of surfactant in the wash of about 0.22 grams per litre.

Summarizing, even though the general teaching of document (5) could encompass theoretically a method in accordance with the patent in suit, it does not contain any explicit teaching of using **all the features of claim 1 in combination.**

Moreover, the goal of the invention of document (5) is that of reducing the detergent dosage while maintaining the same detergent power of a high bulk density (i.e. a compact) detergent composition; in order to maintain the same detergent power, the suitable surfactant amount should also be maintained (see page 1, lines 18 to 31).

Therefore, document (5) does not contain any teaching that a careful selection of all the features of claim 1, i.e. specific ratios of the components in combination with a specific ion capturing capacity, pH of the washing liquid and low dosage giving a lower surfactant concentration in the wash than that conventionally used with compact laundry detergent products, would allow to maintain an excellent washing performance at a level obtained otherwise with a greater dosage of surfactants as shown, for example, in the comparison of composition 1-1 with composition 1-2 in the patent in suit.

Moreover, as explained in paragraph 8 of the patent in suit and evident from the comparison contained in the patent in suit of composition 1-1 with composition 1-5

which contains a greater amount of silicate and a lower amount of other builders, a good detergent performance at lower dosage is not obtainable by simply increasing the amount of the silicate as encompassed, for example, by the teaching of document (5).

Therefore, the Board finds that the skilled person would not have found any motivation in document (5) to modify, for example, the washing methods of Test Samples nos. 2 or 5 of document (5) by using more silicate than surfactants, reducing the surfactant concentration in the wash and adjusting the other features, if necessary, in order to obtain a pH and an ion capturing capacity as in claim 1 of the sole request with the expectation of maintaining a similar excellent washing performance.

The Board concludes that the subject-matter of claims 1 to 8 involves an inventive step.

**Order**

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

The decision under appeal is set aside.

The case is remitted to the first instance with the order to maintain a patent with the following documents:

- claims 1 to 8 submitted with letter of 19 June 2009;
- a description to be adapted.

The Registrar:

The Chairman:

G. Rauh

P.-P. Bracke