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Datasheet for the decision of 18 December 2012

Case Number: T 1672/10 - 3.3.06

Application Number: 98931052.9

Publication Number: 999264

IPC: C11D 17/06, C11D 3/12, C11D 3/33, C11D 3/06

Language of the proceedings: EN

Title of invention:
Powdery detergent composition

Patentee:
KAO CORPORATION

Opponent:
BASF SE

Headword:
Powdery detergent composition/KAO

Relevant legal provisions:
EPC Art. 123(2)

Relevant legal provisions (EPC 1973):
EPC Art. 83, 54(1)(2), 56

Keyword:
"Added subject-matter (no)"
"Sufficiency of disclosure (yes)"
"Novelty (yes)"
"Inventive step (yes): optimisation of properties convincingly shown"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1672/10 - 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 18 December 2012

Appellant: (Opponent)
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Global Intellectual Property
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 21 May 2010 rejecting the opposition filed against European patent No. 999264 pursuant to Article 101(2) EPC.

Composition of the Board:

Chairman: P.-P. Bracke
Members: L. Li Voti
P. Mühlens

Summary of Facts and Submissions

I. The present appeal is from the decision of the Opposition Division to reject the opposition against the European patent no. 0 999 264, concerning a powdery detergent composition.

II. In its notice of opposition the Opponent sought the revocation of the patent on the grounds of Articles 100(a) EPC 1973, because of lack of novelty and inventive step of the claimed subject-matter, and of Articles 100(b) and (c) EPC 1973.

The following document was cited *inter alia* in support of the opposition:

(1): US-A-3637511.

III. The Opposition Division found in its decision in particular that

- the subject-matters of claims 2 to 6 as granted were based on the disclosure of the application as originally filed and complied with the requirements of Article 123(2) EPC;

- the invention was sufficiently disclosed;

- the claimed subject-matter was novel and involved an inventive step over the cited prior art.

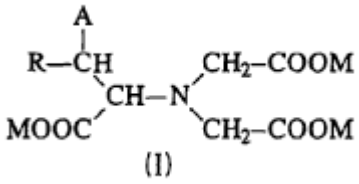
IV. An appeal was filed against this decision by the Opponent (Appellant).

The Patent Proprietor submitted with its reply to the statement of the grounds of appeal (dated 4 February 2011) three auxiliary requests.

Oral proceedings were held before the Board on 18 December 2012.

V. The independent claim 1 according to the Patent Proprietor's main request, which corresponds to the patent as granted, reads as follows:

"1. A powdery detergent composition comprising
(a) 1 to 50% by weight of a chelating agent composed of a compound represented by the following formula (I):



(I)

wherein R is $-(CH_2)_n-A$, A is H, OH or COOM, M is H, Na, K or NH_4 and n is 0 to 3,
having an average degree of neutralization in a molecule of 20 to 70%, a molecular weight of 600 or less, the number of carboxyl groups contained in one molecule of 3 or 4, and a constant of a chelating stability with Ca^{2+} of 6 to 13,
(b) 5 to 60% by weight of an alkali agent composed of a compound a 0.1% by weight aqueous solution or dispersion of which has the maximum pH of 10 or more at 20°C, at least 5 ml of a 0.1 N HCl aqueous solution being required to adjust 1 liter of the aqueous solution or the dispersion to pH 9, and
(c) 5 to 50% by weight of a surfactant."

The set of granted claims contains also dependent claims 2 to 5 relating to specific embodiments of the composition of claim 1 and claim 6 concerning the use of the previously claimed compositions for cleaning clothes.

VI. The Appellant submitted *inter alia* that

- claims 2 to 5 concerned combination of features not disclosed in the application as originally filed; moreover the use of claim 6 was not disclosed in the original application; therefore, claims 2 to 6 as granted contravened the requirements of Article 123(2) EPC;

- since claim 1 as granted contained a long list of unclear features, the skilled person would have not be able to rework the invention without undue burden because of the so many variables and inconsistencies that he had to take account of; therefore, the invention was not sufficiently disclosed;

- the claimed subject-matter was not novel or lacked an inventive step over the disclosure of document (1);

- in particular, as regards inventive step, the claimed invention had not convincingly solved the technical problem of improving both the detergency and the storage stability (in terms of caking resistance) of a detergent powder containing an aminopolycarboxylic chelating agent; in fact, any effect concerning the detergency of the used detergent composition had to be disregarded since it was obtained by means of the

dissolved composition wherein the partially neutralized chelating agent of the initial solid composition had been fully neutralised in the alkaline environment; moreover, the caking resistance of the composition had not been improved with regard to compositions containing the chelating agent in a free acid form.

VII. The Patent Proprietor (Respondent) submitted in essence that

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

- the skilled person would have been able to perform the invention by taking account of the teaching of the description;

- document (1) did not disclose a powdery detergent composition containing a chelating agent of formula (I) with the required neutralisation degree;

- the technical problem of the patent in suit did not concern the improvement of both the detergency and the caking resistance of a detergent powder of the type disclosed in document (1) but only the optimisation of these two properties;

- the comparative tests submitted during examination with the letter of 30 September 2005 and those contained in the patent in suit showed convincingly that such an optimisation was obtained by selecting the average degree of neutralisation of the chelating agent used in the detergent powder; the possibility of obtaining such an optimization was not suggested in the

prior art; therefore, the claimed subject-matter involved an inventive step.

VIII. The Appellant requests that the decision under appeal be set aside and the patent be revoked.

IX. The Respondent requests that the appeal be dismissed or, in the alternative, that the patent be maintained in amended form on the basis of one of the first to third auxiliary requests filed with letter of 4 February 2011.

Reasons for the Decision

1. Patent Proprietor's main request

1.1 *Article 123(2) EPC*

Claim 1 as granted is based on the general disclosure of the invention contained in paragraph 7 of the application as originally filed (reference being made to the published A1 document) with the specification of the preferred chelating agent of formula (I), disclosed in paragraph 14, as component (a).

As regards the additional features of dependent claims 2 to 5, claim 2 concerns the preferred average degree of neutralization of the used chelating agent (paragraph 9, page 2, lines 40 to 41), claim 3 the preferred alkali agent to be used as component (b) and its preferred amount (paragraphs 20 and 25), claim 4 the preferred additional optional component (d) (paragraph 29) and claim 5, the preferred chelating agents of formula (I) (paragraph 15).

The Board thus finds that the skilled person, taking into account the overall disclosure of the original application, would have understood that the above mentioned preferred features were all applicable to the generic disclosure of the invention and were not bound to the use of a specific combination of technical features. Therefore, claims 2 to 5 comply with the requirements of Article 123(2) EPC.

As regards claim 6 as granted, it is clear from the overall teaching of the original application, in particular from the discussion of the drawbacks of detergents for clothes of the prior art (paragraphs 2 to 4) and of the examples, which include a detergency test for washing stained clothes (paragraphs 57 to 60), that the therein disclosed detergent compositions can be used for cleaning clothes.

Therefore also claim 6 complies with the requirements of Article 123(2)EPC.

1.2 *Article 83 EPC 1973*

As regards the alleged unclarities contained in the wording of claim 1 as granted, which have been addressed to by the Appellant, the Board remarks the following:

- the term "powdery detergent composition" in the first line of the claim clearly defines a granular detergent composition; in fact, the description of the patent in suit refers explicitly to both terms "powdery" and "granular" in relation to the same subject-matter; this

is clear from the comparison of paragraphs 1 and 48 or from the examples (see paragraphs 57 and 58); the description also specifies the suitable size of such a powdery or granular composition (paragraph 48); therefore, its preparation does not constitute in this respect any problem for the skilled person;

- the wording "a chelating agent composed of a compound" means clearly that the chelating agent is made of one or more of the chelating agents according to the given formula (I);

- the average degree of neutralization is defined in paragraph 11 of the patent in suit; in the given equation the term "overall component (a)" relates obviously to all the chelating agents of formula (I); therefore, there would have been no difficulty for the skilled person to calculate the average degree of neutralization of component (a) by knowing the chelating agents of formula (I) used and their neutralization degree;

- it is clear from the structural formula (I) that the molecular weight of the chelating agent cannot be 600 but only much lower; therefore, it would have been clear to the skilled person that the wording "a molecular weight of 600 or less" is inappropriate and redundant and that only a molecular weight of less than 600 is encompassed by claim 1;

- the term "maximum pH" is defined in paragraph 19 of the patent in suit; this definition is incorporated also in the wording of claim 1; moreover, the wording "10 or more" is clearly identical to "at least 10".

The Board thus finds that the alleged unclarities invoked by the Appellant would have been understood without difficulty by the skilled person who would have been able to understand what is claimed and the extent of the claim.
Moreover, the examples show how to prepare a composition according to claim 1.

Therefore, there is no doubt that the invention is sufficiently disclosed.

1.3 *Novelty*

Claim 1 as granted requires that the chelating agent of formula (I) has an average degree of neutralization of 20 to 70%.

It is undisputed that the granular detergent composition disclosed in example II of document (1) contains the tetrasodium salt of N,N-di(carboxymethyl)-aspartic acid, i.e. a chelating agent of formula (I) having a neutralization degree of 100%. Moreover, even though the neutralization degree might change by dissolving the composition in water, the neutralization degree present in the solution is not relevant for the evaluation of novelty of the granted claims, which concerns only a solid detergent composition and its use.

The passage on column 2, lines 37 to 39 of document (1) teaches that it is possible to use as alternative the corresponding acid or a partially neutralized free acid of the chelating agent; however, the document does not contain any disclosure of a specific partial degree of

neutralization for the used chelating agent. Also the indication in the description that the detergent composition provides in aqueous solution a pH of 8 to 12 (column 2, lines 44 to 45) cannot give any indication of a possible neutralisation degree since the pH in the aqueous solution will depend mainly on the amount of the used alkali agent.

Therefore, document (1) does not contain any explicit or implicit disclosure of a neutralisation degree for the chelating agent of formula (I) used.

The granted claims 1 to 6 thus are novel over the disclosure of document (1).

1.4 *Inventive step*

1.4.1 The invention of the patent in suit relates to a powdery detergent composition having a high detergency and excellent storage stability in terms of caking resistance (see paragraph 1 of the patent in suit).

As explained in the description, it is usual to use detergent builders having sequestering capacity in the detergent compositions for cleaning clothes (see paragraph 2). In particular, the prior art had already provided organic builders for detergent compositions having an excellent biodegradability and an excellent sequestering performance. However, when a detergent was blended with these specific organic builders, there was a problem in the caking resistance of the detergent composition (paragraph 4).

Therefore, the technical problem underlying the invention is formulated in the patent in suit as the provision of a granular detergent composition containing organic water-soluble builders which is excellent in caking resistance while having a high detergency (paragraph 7).

1.4.2 Both parties chose document (1) as suitable starting point for the evaluation of inventive step.

In fact, document (1), which is not disputed to differ from the claimed subject-matter only in the degree of neutralization of the used chelating agent of formula (I), addresses in part the technical problem of the patent in suit, i.e. the provision of a granular detergent composition containing organic water-soluble builders and having excellent detergency (column 1, lines 45 to 49).

Therefore, the Board chooses also document (1) as the most suitable starting point for the evaluation of inventive step.

1.4.3 The Appellant submitted that the technical problem underlying the invention had to be formulated, starting from document (1), as the provision of a detergent composition having superior detergency and caking resistance.

The Board remarks that the patent in suit refers only to high detergency and excellent caking resistance but does not suggest that these properties should be both superior to those of the closest prior art. To the contrary, it is clear from paragraph 11 that the

invention aims to obtain a powder detergent having at least a satisfactory washing ability and not being difficult to handle (see page 2, lines 39 to 41).

Therefore, the Board is convinced that the technical problem underlying the invention, starting from the teaching of document (1), has to be formulated as suggested by the Respondent during oral proceedings, i.e. as the optimisation of the detergency and caking resistance of a detergent composition containing such an organic sequestering agent as builder.

1.4.4 The comparative tests submitted during examination with the letter of 30 September 2005 show that a composition according to the invention, wherein the chelating agent has a degree of neutralisation of 50%, has the same sebaceous soil detergency as the comparative composition A, wherein the chelating agent is fully neutralized (degree of neutralisation of 100%), and a good caking resistance shown in terms of the values for rate of increase in weight (RIW) (16%) and rate of passage through sieve (RPTS) (61%), which caking resistance is much better than that of said comparative composition A, wherein RIW and RPTS are very bad (83% and 0%, respectively). Moreover, the composition of the invention is slightly worse than the comparative composition B containing the chelating agent in its acid form (0% degree of neutralisation) in terms of caking resistance (RIW of 16% vs. 9% and RPTS of 61 vs.79%, respectively), but better in detergency (59% vs. 54%). Therefore, it shows a good caking resistance and high detergency, i.e. an optimization of both properties.

Similar results are also shown in the patent in suit, for example, by the comparison of example 13 with comparative example 9, relating to the use of a chelating agent of the type used in document (1). For the composition of the invention the tested values are RIW: 15%, RTPS: 64%, detergency: 58% whilst those of the comparison are the following: RIW: 11%, RTPS: 68%, detergency 55%.

It is apparent from the tests in the patent in suit that the fully neutralised chelating agents or the partially neutralised chelating agents having a degree of neutralisation above the limits of claim 1 have very bad caking resistance (see also comparative examples 2, 10 and 11) whilst this is not the case for the compositions of the invention (see examples 13 and 14 and also examples 10 and 12 having a neutralisation degree of 67%). In all cases shown in the examples for compositions of the invention the caking resistance remains good and the detergency is excellent as taught in paragraph 9 of the patent in suit.

1.4.5 The Appellant submitted that the detergency effect of the claimed compositions had not to be considered since it was obtained by means of the composition dissolved in water, wherein the chelating agent had no longer the same neutralization degree of the initial powder but had been further neutralized in the alkaline environment.

The Board remarks that the tests of the patent in suit and those of 30 September 2005 show clearly that the detergency of a powder containing a chelating agent which originally has a degree of neutralization as claimed is better than one having a chelating agent in

the free acid form. Therefore, if the Appellant's submission would be correct, one had to expect similar detergency results for both compositions because of the neutralisation of the free acids in alkaline medium. This is not the case as explained also in paragraph 9 of the patent in suit, which indicates that below the degree of neutralisation of 20% the solubility of the powder is reduced too much, so affecting the detergency.

The further submission of the Appellant that the difference in detergency could be explained by the different pH in use was not supported by any evidence and cannot be accepted by the Board.

The Board thus concludes that it has been convincingly shown that the claimed subject-matter solved the above mentioned technical problem.

1.4.6 Document (1) suggests in column 2, lines 37 to 43, the possibility of using the free acid form of a chelating agent of formula (I) or its partially neutralized form, since the free acid groups will be converted to the appropriate salt in the alkaline environment. However, the fully neutralized form is regarded as being the preferred one because of its low cost and enhanced effectiveness (column 2, lines 34 to 37).

Document (1) is silent about the caking resistance of the detergent powder and about the possibility of optimizing detergency and caking resistance at once.

Moreover, this document does not recognise any difference in the properties of such acids and partially or fully neutralised salts.

Therefore, document (1) did not contain any pointer for the skilled person to select a chelating agent having a neutralisation degree as claimed in the patent in suit in the attempt of optimizing the detergency and caking resistance of the detergent composition.

The Board thus concludes that the subject-matter of claim 1 involves an inventive step.

The same applies to the dependent claims 2 to 5 and to the claim 6 concerning the use of the composition of claims 1 to 5 in washing clothes.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano P.-P. Bracke