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Datasheet for the decision of 30 April 2010

Case Number: T 1312/08 - 3.3.06

Application Number: 00105328.9

Publication Number: 1036840

IPC: C11D 3/386

Language of the proceedings: EN

Title of invention:
Detergent composition

Patentee:
KAO CORPORATION

Opponent:
The Procter and Gamble Company
Unilever N.V.

Headword:
Proteases containing detergent composition/KAO

Relevant legal provisions:
EPC Art. 56, 88

Relevant legal provisions (EPC 1973):
-

Keyword:
"Validity of priority date (Main Request): no"
"Inventive step (Main Request): no"
"Extension of protection (First and Second Auxiliary Requests): yes"

Decisions cited:
G 0002/98, T 0596/99, T 2017/07

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1312/08 **-** 3.3.06

D E C I S I O N
of the Technical Board of Appeal 3.3.06
of 30 April 2010

Appellants:
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 14 May 2008 rejecting the opposition filed against European patent No. 1036840 pursuant to Article 102(2) EPC 1973.**

Composition of the Board:

Chairman: P.-P. Bracke
Members: L. Li Voti
J. Van Moer

Summary of Facts and Submissions

I. The present appeal is from the decision of the Opposition Division to reject the oppositions against the European patent no. 1 036 840 concerning a detergent composition.

II. In their notices of opposition the Opponents 01 and 02 sought revocation of the patent on the grounds of Articles 100(a) and (b) EPC.

The Opponents and the Patent Proprietor referred during the opposition proceedings *inter alia* to the following documents:

(20): certified English translation of JP-A-7149399 (priority document of the patent in suit);
(21): WO99/18218;
(HE2): Handbook of Detergents in Surfactant Science Series, vol. 82, pages 639 to 647.

III. The Opposition Division found in its decision *inter alia* that

- the invention was sufficiently disclosed;

- the claimed subject-matter was novel over the cited documents;

- the definition of PU for the protease enzymes of claim 1 used in the patent in suit was different from the definition given in the priority document (20); even though the skilled person could have realized by reworking the examples of document (20) that there was

a contradiction between the measured α-keratin-hydrolyzing activity values for the protease of type (d) and that required by claim 1 and that there could have been an error of 10^5 in the definition of PU in document (20), he would not have been able to realize the presence of an error and how the erroneous figure had to be correctly interpreted simply by reading document (20); therefore, the patent in suit was not entitled to the claimed priority date;

- the comparison of examples 1 and 2 with example 3 of the patent in suit showed that the presence of a nonionic surfactant having the required HLB further increased the enzyme stability in a laundering bath;

- starting from the teaching of document (21), disclosing in example 11 compositions differing from the claimed ones only insofar as they contained a nonionic surfactant having an HLB lower than claimed, the skilled person would not have found in this document or in any of the other cited documents a teaching or suggestion that the nonionic surfactants selected in the patent in suit can have the stabilizing effect towards proteases shown in the patent in suit;

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

IV. Appeals were filed against this decision by both Opponents (Appellants).

Oral proceedings were held before the Board on 30 April 2010.

The Respondent (Patent Proprietor) submitted during oral proceedings two auxiliary requests.

V. Claim 1 of the set of claims according to the **main request,** corresponding to the set of claims as granted, reads as follows:

"1. A detergent composition comprising

(a) 15 to 40% by weight of an anionic surfactant,
(b) 0.5 to 5% by weight of a chlorine scavenger,
(c) a protease whose α-keratin-hydrolyzing activity at 10°C is not less than $0.09x10^{-3}$ µg/mPU·min and
(d) a protease whose α-keratin-hydrolyzing activity at 10°C is less than $0.09x10^{-3}$ µg/mPU·min,

wherein (c)+(d)=0.01 to 0.5% by weight (as powdered enzyme product), (c)/(d)=1/5 to 5/1 and [(c)÷(d)]/(b)=1/100 to 1/2 (weight ratio as powdered enzyme product), and a polyoxyalkylene alkyl or alkenyl ether whose HLB (Griffin's method) is 11.5 to 17."

Claim 1 according to the **first auxiliary request** reads as follows:

"1. A detergent composition comprising

(a) 15 to 40% by weight of an anionic surfactant,
(b) 0.5 to 5% by weight of a chlorine scavenger,
(c) a protease whose α-keratin-hydrolyzing activity at 10°C is not less than $0.09x10^{-3}$ µg/mPU·min and
(d) a protease whose α-keratin-hydrolyzing activity at 10°C is less than $0.09x10^{-3}$ µg/mPU·min,

wherein (c)+(d)=0.01 to 0.5% by weight (as powdered enzyme product), (c)/(d)=1/5 to 5/1 and [(c)÷(d)]/(b)=1/100 to 1/2 (weight ratio as powdered enzyme product), and a polyoxyalkylene alkyl or alkenyl ether whose HLB (Griffin's method) is 11.5 to 17, and wherein protease (c) is produced from a microorganism that is

(I) Bacillus sp. KSM-KP 43,

(II) Bacillus sp. KSM-KP 1790

(III) Bacillus sp. KSM-KP 9860

(IV) a mutant of Bacillus sp. KSM-KP 43, Bacillus sp. KSM-KP 1790 or Bacillus sp. KSM-KP 9860, or

(V) a transformant containing a gene from Bacillus sp. KSM-KP 43, Bacillus sp. 1790 or Bacillus sp. KSM-KP 9860 coding said protease."

Claim 1 according to the **second auxiliary request** differs from claim 1 according to the first auxiliary request insofar as the protease (d) is selected from Alcalase®, Savinase®, Durazym®, Everlase®, Purafect®, Maxapem® and KAP.

VI. The Appellants submitted in writing and orally *inter alia* that

- the patent in suit was not entitled to the claimed priority date because of the difference in the definition of PU;

- the comparative tests contained in the patent in suit were not apt to show that the selected nonionic surfactants were able to improve the stability of proteases with respect to the composition 29 disclosed

in example 11 of document (21) containing a nonionic surfactant having a lower HLB;

- it was known to the skilled person, for example from document (HE2), that nonionic surfactants did not affect the stability of proteases; therefore, starting from the composition 29 of document (21), it would have been obvious for the skilled person to replace the nonionic surfactant used in this composition with other conventional nonionic surfactants such as those used, for example, in the laundry compositions of table 9 of the same document, which nonionic surfactants had an HLB as required in the patent in suit;

- the additional characteristics contained in claim 1 according to both auxiliary requests were already disclosed or suggested in the prior art;

- therefore, the claimed subject-matter according to any request would not involve an inventive step;

- moreover, the protection conferred by each claim 1 according to the first and second auxiliary requests had been extended with respect to that of granted claim 1.

VII. The Respondent submitted in writing and orally ***inter alia*** that

- the skilled person would have immediately noticed by reworking the examples of the priority document (20) that the α-keratin-hydrolyzing activity measured for the protease of type (d) by following the method indicated in the description did not correspond with

the requirements of the claims and that the measured value was higher than that indicated in the examples by a factor of 10^5; therefore, the skilled person would have understood that this error derives from the erroneous definition of PU and would have been able to derive the definition of PU used in the patent in suit directly and unambiguously from the whole content of document (20) by using common general knowledge; the claimed priority date thus was valid;

- the tests contained in the patent in suit showed that the nonionic surfactant used in the patent in suit having a selected HLB improved the stability of the proteases; the Appellants did not submit any counter-evidence and did not prove that the subject-matter of claim 1 was unable to solve the technical problem underlying the invention; therefore, the comparative tests contained in the patent in suit were apt to show the presence of an unexpected technical advantage (reference was made to the decision T 596/99);

- starting from the teaching of document (21), it would not have been obvious for the skilled person to prepare a composition as claimed with the expectation of obtaining an increased stability of the proteases; moreover, the skilled person would not have had any hint for replacing the nonionic surfactant of composition 29 of document (21) with another nonionic surfactant used in different compositions of the same document;

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

- moreover, the amended claims 1 according to the first and second auxiliary requests would comply with the requirements of Article 123(3) EPC.

VIII. The Appellants request that the decision under appeal be set aside and that the patent be revoked.

The Respondent requests that the appeals be dismissed or, in the alternative, that the patent be maintained on the basis of any of the first or second auxiliary requests submitted during oral proceedings.

Reasons for the Decision

1. *Respondent's main request (patent as granted)*

1.1 Validity of the claimed priority date

1.1.1 It is established jurisprudence of the Boards of Appeal of the EPO that the priority of a previous application in respect of a claim in a European patent application in accordance with Article 88 EPC is to be acknowledged only if the skilled person can derive the subject-matter of the claim directly and unambiguously, using common general knowledge, from the previous application as a whole (see G 2/98, OJ 2001, 413, headnote).

It is undisputed that claim 1 as granted reads as the combination of claims 1 and 3 of document (20), which is the certified English translation of the Japanese priority document of the patent in suit.

However, it is also undisputed that PU, one of the units contributing to the value of the α-keratin-hydrolyzing activity expressed as µg/mPU·min, which characterizes in claim 1 both proteases (c) and (d), is defined differently in the patent in suit and in document (20). Precisely, the patent in suit defines 100PU as the amount of protease that produces acid-soluble peptides equivalent to **one micromole** of L-tyrosine per minute in the measurement of casein-hydrolyzing activity of the description whilst document (20) defines for the same measurement 1 PU as the amount of enzyme that produces acid-soluble peptides equivalent to **one millimole** of L-tyrosine per minute.

Therefore, because of this different definition of PU, the α-keratin-hydrolyzing values of a protease measured by using the respective definition of PU differ of the factor 10^5, i.e. the limits of the α-keratin-hydrolyzing activity which characterize proteases (c) and (d) in each claim 1 of the patent in suit and of the priority document, even though numerically apparently identical, differ in reality of a factor 10^5 because of the different definition of PU.

Since the Respondent submitted that the definition of PU in the patent in suit is correct and that the definition in the priority document is erroneous and should have been the same, it should be evaluated if the skilled person would have derived the definition of PU used in the patent in suit directly and unambiguously, using common general knowledge, from the whole content of document (20) as a whole.

1.1.2 It has not been contested by the Respondent during oral proceedings that the skilled person would not have been able to notice that the definition of PU in document (20) is erroneous by simply reading the content of this document.

In fact, the Board remarks that both the measurements of the α-keratin-hydrolyzing activity and of the casein-hydrolyzing activity of the description in which the definition of PU is used are not recognized standard methods but are methods set up by the Respondent for the specific needs of the present invention. Moreover, there did not exist at that priority date any widely recognised standard values for the α-keratin-hydrolyzing activity or the casein-hydrolyzing activity or a recognised standard definition for the PU belonging to the common general knowledge of the skilled person.

Therefore, the skilled person, even considering his common general knowledge, would not have been able to recognise any error in the definition of PU or in the values of α-keratin-hydrolyzing activity simply by reading document (20).

1.1.3 The Respondent submitted that the skilled person, in applying his common general knowledge to the teaching of document (20), for example by repeating the examples of the priority document and controlling the α-keratin-hydrolyzing activity of the proteases used in these examples, would have noticed that the values of α-keratin-hydrolyzing activity measured by means of the method indicated in the description of document (20) making use of the definition of PU given hereinabove do

not correspond with the values indicated in the examples and would not satisfy at once the requirements of the claim for both proteases (c) and (d). Moreover, by comparing the measured results with those of the example, he would have found that the value had to be corrected by a factor of 10^5 in order to comply with the requirements of the claim for both proteases (c) and (d) and that the error could arise from the erroneous definition of PU.

However, the Board remarks that according to the established jurisprudence of the Boards of Appeal of the EPO the common general knowledge of a skilled person is normally represented by encyclopaedias, textbooks, dictionaries and handbooks on the subject in question or even patent specifications and scientific publications in the case that the field of research is so new that technical knowledge was not available from textbooks (see case law of the Boards of Appeal of the EPO, 5th edition 2006, I.C.1.5). Therefore, it cannot encompass the application of tests like the measurement of the α-keratin-hydrolyzing activity of document (20) which is an integrative part of the invention itself and relates to parameters which are not standard in the prior art as explained hereinabove.

Therefore, the reworking of an example and especially of a method which is not a standardized one and is not reported in encyclopaedias, textbooks, dictionaries and handbooks cannot be considered to be the application of common general knowledge.

As a consequence, the mere fact that it is necessary to carry out a test, which is not part of common general

knowledge, in order to find out whether the definition of PU in document (20) is erroneous makes clear that the different definition of PU used in the patent in suit is not derivable directly and unambiguously, using common general knowledge, from the whole content of document (20).

Therefore, the Board concludes that claim 1 of the patent in suit relates to an invention which is different from that disclosed in document (20) and cannot benefit from the claimed priority date of 17 March 1999.

1.2 Inventive step

1.2.1 As explained in the patent in suit, it was common practice to incorporate enzymes like proteases into a detergent composition. However, since the enzymatic activity is lowered under laundering conditions at low temperature, a satisfactory washing performance cannot be obtained; this problem is particularly remarkable in protein-related dirt such as that of soiled socks or necks. Moreover, even though it is known that sulphite is able to stabilize such enzymes, its use is not sufficient to solve satisfactorily the two problems of enzyme deactivation and washing performance at low temperature (paragraph 2 of the patent in suit).

Accordingly, the technical problem underlying the invention is formulated in the patent in suit as the provision of a detergent composition which is almost free from enzyme deactivation, which is excellent in detergency under the laundering conditions at a lower

temperature, and which is effective particularly onto protein-related dirt (paragraph 3).

Both parties as well as the Opposition Division chose document (21) and, in particular, the composition 29 of example 11, as the closest prior art.

In fact, this document, published on 15 April 1999, after the invalid priority date but before the filing date of the patent in suit, has to be considered as relevant state of the art under Article 54(2) EPC for the evaluation of inventive step and is representative for a proteases containing laundry detergent composition which is almost free from enzyme deactivation, is excellent in detergency at a lower temperature and is effective onto protein-related dirt (page 2, lines 20 to 25; page 3, lines 20 to 22 and page 4, last line to page 5, line 2; page 33, last two lines to page 34, line 4 in combination with page 45, lines 1 to 3 under the notes of table 13).

Therefore, this document represents an objectively reasonable starting point for the evaluation of inventive step.

The Board has no reason to depart from this finding and takes also the composition 29 of document (21) as the most suitable starting point for the evaluation of inventive step.

1.2.2 Since the composition 29 of document (21) differs from that of claim 1 according to the patent in suit only insofar as it contains a polyoxyalkylene ether having an HLB below 11.5 as nonionic surfactant instead of one

having an HLB between 11.5 and 17 but achieves all the technical advantages mentioned above, the Respondent submitted that the claimed invention would provide an increased protease stability due to the presence of the specific polyoxyalkylene ether nonionic surfactant having an HLB between 11.5 and 17.

In particular, in the Respondent's view, this technical advantage had been accepted by the Opposition Division and would have been confirmed by the text of the description and by a comparison of examples 1 and 2 with example 3 of the patent in suit.

The Board agrees that the text of the patent in suit teaches to include this specific nonionic surfactant for contributing to the stability of the enzymes (paragraph 17) and that both the compositions of examples 1 and 2 containing such a nonionic surfactant are better in stability than the composition of example 3 not containing any nonionic surfactant.

However, it is the established jurisprudence of the Boards of Appeal of the EPO that a surprising effect demonstrated in a comparative test can be taken as an indication of inventive step if it shows convincingly that the effect arises from the distinguishing feature(s) of the invention with respect to the closest prior art (see Case Law of the Boards of Appeal of the EPO, 5th edition 2006, I.D.9.8).

The Board remarks, that neither the addressed comparative tests of the patent in suit nor the description of the patent in suit suggest or show that the selection of a polyoxyalkylene ether having an HLB

between 11.5 and 17 would provide any increased stability of the enzymes with respect to the use of a similar nonionic surfactant having a lower HLB as that used in said example of document (21).

Therefore, the patent in suit cannot be considered to show any surprising technical advantage arising from the distinguishing feature of the invention over the closest composition of document (21).

In the decision T 596/99, invoked by the Respondent, it had been decided that even if the Opponent had been successful in its effort to cast serious doubt on the persuasiveness of the evidence submitted by the Patent Proprietor, the burden of proof remained with the Opponent to actually prove that the claimed subject-matter was unable to solve the technical problem underlying the invention and that to that effect convincing counter-evidence would have to be submitted (see point 7.2.9 of the reasons). However, also in this case the experimental evidence submitted by the Patent Proprietor had tried to show the presence of a surprising technical advantage arising from the distinguishing feature of the invention over the closest prior art (see points 5.2; 7.2 and 7.2.2 to 7.2.4 of the reasons).

Therefore, the conclusion of this decision cannot apply to the present case in which the alleged technical advantage has not been convincingly shown with respect to the closest prior art for the reasons mentioned above.

Therefore, the Respondent's argument that the Appellants did not bring any counter-evidence is not relevant to the present case and has to be disregarded.

1.2.3 In the absence of any evidence that the technical problem indicated by the Respondent has been effectively solved by means of the claimed subject-matter, the Board finds that, in the light of the teaching of document (21), the technical problem underlying the invention can only be formulated as the provision of an alternative detergent composition having similar properties.

The Board has no reason to doubt that the subject-matter of claim 1 solved the above mentioned technical problem.

1.2.4 Faced with the above mentioned technical problem, the skilled person would have tried to provide alternative compositions by modifying the components which are not expected to affect the stability in the laundering bath.

As convincingly shown in document (HE2), which is a textbook and thus part of the common general knowledge of the skilled person, it was known that whilst cationic and anionic surfactants may destabilize detergent enzymes in the wash water, nonionic surfactants do not destabilize them (see document (HE2), page 643, part D, lines 12 to 16).

Therefore, it would have been obvious for the skilled person to try to replace the specific nonionic surfactant used in the granular composition 29 of document (21) with other nonionic surfactants commonly

used in granular laundry detergent compositions; for example, the skilled person would have found in document (21) itself other examples of nonionic surfactants suitable for use in granular laundry detergent compositions as the compositions 5 to 7 and 9 to 10 listed in table 9 contain nonionic surfactants AE-4 or AE-5 which are C_{12-15} alkyl ethoxylates containing 7 moles EO (see page 39, lines 15 to 17 below the table), i.e. polyoxyalkylene ethers having an HLB above 11.5 of 12.5 and 12, respectively, as submitted by the Appellants in writing and not contested by the Respondent, which is an HLB in accordance with the range of claim 1 of the patent in suit.

Therefore, it would have been obvious for the skilled person to replace the polyoxyalkylene ether of composition 29 with one of these different nonionics and to provide as alternative composition one having all the features of claim 1.

The Board thus concludes that the subject-matter of claim 1 does not involve an inventive step.

2. *Respondent's first auxiliary request*

2.1 Article 123(3) EPC

Claim 1 according to the first auxiliary request differs from claim 1 according to the main request, which is claim 1 as granted, substantially insofar as protease (c) having an α-keratin-hydrolyzing activity at 10°C of not less than 0.09×10^{-3} µg/mPU·min is produced from a microorganism that is

(I) Bacillus sp. KSM-KP 43,
(II) Bacillus sp. KSM-KP 1790
(III) Bacillus sp. KSM-KP 9860
(IV) a mutant of Bacillus sp. KSM-KP 43, Bacillus sp. KSM-KP 1790 or Bacillus sp. KSM-KP 9860, or
(V) a transformant containing a gene from Bacillus sp. KSM-KP 43, Bacillus sp. 1790 or Bacillus sp. KSM-KP 9860 coding said protease (see point V above).

The Board remarks that claim 1 as granted did not contain any limitation as to the specific type of protease (c) apart from the required α-keratin-hydrolyzing activity at 10°C that had to be not less than $0.09x10^{-3}$ µg/mPU·min.
Moreover, claim 1 as granted required ***inter alia*** an amount of proteases (c)+(d) equal to 0.01 to 0.5% by weight (as powdered enzyme product).

The amended claim 1 allows because of its wording "A detergent composition comprising..." the presence of arbitrary amounts of additional components apart from those specifically listed as components (a) to (d).

Moreover, the wording of this claim, by requiring that the composition comprises as component (c) a protease whose α-keratin-hydrolyzing activity at 10°C is not less than $0.09x10^{-3}$ µg/mPU·min and that the protease (c) is selected from the classes (I) to (V), does not exclude the possible presence of additional proteases having an α-keratin-hydrolyzing activity at 10°C that is not less than $0.09x10^{-3}$ µg/mPU·min apart from those specifically listed in the claim as component (c),

which additional proteases were part of the original protease (c) in the claim as granted but are no longer part of this specific component in the amended claim.

As a consequence, claim 1 according to the first auxiliary request allows an amount of, for example, 0.5% by weight, of proteases (c) plus (d) and an additional amount of 0.1% by weight of additional proteases having an α-keratin-hydrolyzing activity at 10°C that is not less than $0.09x10^{-3}$ µg/mPU·min not belonging to the five classes specifically listed in the claim.

In such a case, the amended claim 1 would encompass compositions containing a total amount of proteases (c) and (d) as defined in the granted claim of 0.6% by weight, i.e. an amount of proteases greater than the upper limit of granted claim 1.

Consequently, the extent of protection of amended claim 1 according to the first auxiliary request has been extended with respect to that of the granted claim 1 (see, for example, T 2017/07, headnote).

Consequently, this request contravenes the requirements of Article 123(3) EPC.

3. *Respondent's second auxiliary request*

Since claim 1 according to the second auxiliary request differs from claim 1 according to the first auxiliary request only insofar as it specifies that protease (d) is selected from specific enzymes but it still contains the same limitation with regard to the protease (c),

the extent of protection of this amended claim 1 has been also necessarily extended with respect to that of the granted claim 1 for the same reasons put forward above.

Therefore, also this request contravenes the requirements of Article 123(3) EPC.

4. Since all Respondent's requests fail already on these grounds there is no need to discuss all the other objections raised by the Appellants.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The patent is revoked.

The Registrar: The Chairman:

G. Rauh P.-P. Bracke