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**Datasheet for the decision
of 7 October 2021**

Case Number: T 2759/17 - 3.3.02

Application Number: 07742566.8

Publication Number: 2009993

IPC: A01N63/00, A01P15/00, A01N31/02

Language of the proceedings: EN

Title of invention:
COMPOSITION OF BIOFILM CONTROL AGENT

Patent Proprietor:
Kao Corporation

Opponent:
Henkel AG & Co. KGaA

Headword:

Relevant legal provisions:
EPC Art. 83, 54, 56

Keyword:
Sufficiency of disclosure
Novelty
Inventive step

Decisions cited:

G 0002/88, T 0254/86, T 0710/97, T 1307/12, T 2148/14,
T 0855/15, T 1450/16, T 2114/16, T 1241/18

Catchword:

A disclosure within a prior art document can only be considered to represent a suitable starting point for assessing inventive step if the skilled person would have realistically started from it. An important consideration in this assessment generally is whether this disclosure aims at the same or a similar purpose or effect as that underlying the patent in question (see in particular 5.3 to 5.6 of the Reasons).



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Case Number: T 2759/17 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 7 October 2021

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
3 November 2017 concerning maintenance of the
European Patent No. 2009993 in amended form.**

Composition of the Board:

Chairman M. O. Müller
Members: A. Lenzen
R. Romandini

Summary of Facts and Submissions

- I. This decision concerns the appeal filed by the opponent (appellant) against the opposition division's interlocutory decision (decision under appeal) according to which European patent No. 2 009 993 (patent) in amended form meets the requirements of the EPC.
- II. The following documents, cited during the proceedings before the opposition division, are referred to in this decision:
- E1 WO 98/50512 A1
E2 WO 03/022752 A1
- III. The decision under appeal is based on the patent as granted and a first auxiliary request, which was filed at the oral proceedings before the opposition division. According to the decision under appeal, the claimed subject-matter of the patent as granted was not novel. The first auxiliary request was held to meet the requirements of Articles 84, 123(2), 83, 54 and 56 EPC.
- IV. In preparation for the oral proceedings, scheduled at the parties' request, the board issued a communication pursuant to Article 15(1) RPBA 2020.
- V. Oral proceedings before the board were held by videoconference on 7 October 2021 in the presence of both parties.
- VI. The parties' final requests were as follows.

The appellant requested that the decision under appeal be set aside and the patent be revoked in its entirety.

The patent proprietor (respondent) requested that the appeal be dismissed, implying that the decision under appeal be confirmed and the patent be maintained in amended form as held allowable by the opposition division.

VII. The appellant's appeal case, where relevant for the present decision, can be summarised as follows.

Sufficiency of disclosure

- Example compositions 6, 12 and 38 of the patent comprised not only components (A) and (B) according to claims 1 and 6 but also an additional surfactant (C). It could not be assumed that an already-formed biofilm could also be removed using a composition lacking an additional surfactant.
- The effects mentioned in claims 1 and 6 did not restrict the composition or the enzymes to those which actually achieved these effects. Consequently, for the disclosure to be sufficient, each composition or enzyme, provided they were as defined in the claims, had to achieve the desired effects. However, the respondent had not shown that they could indeed be achieved with virtually any hydrase or lyase. Even the decision under appeal had acknowledged that certain types of hexosaminidase enzymes could not remove an already-formed biofilm.
- Therefore, the inventions as stipulated in claims 1 and 6 of the main request were not sufficiently disclosed.

Novelty

- The claimed subject-matter of the main request was not novel over the detergent compositions 1-I to 1-III, 2-I to 2-III or 5-II of E1. More specifically, the hexosaminidase enzyme contained in these compositions had antimicrobial activity. Hence, these compositions were used for suppressing biofilm formation.
- Furthermore, the fact that claims 1 and 6 referred to removing an already-formed biofilm as an additional effect could not establish novelty over E1. The alleged difference between the two effects mentioned in claims 1 and 6 did not exist in reality. It was rather formal and could be attributed to the use of "patent drafting language". This point notwithstanding, for the skilled person, using an antimicrobial component in the detergent compositions in question inevitably meant that the compositions were also used to remove an already-formed biofilm.
- The hexosaminidase enzymes used in E1 could have the ability to remove biofilms.
- The claims could not simultaneously fulfil the requirements of Article 83 and Article 54 EPC. For the disclosure to be sufficient, both hexosaminidase and amylase, i.e. enzymes according to (B) in claims 1 and 6, would have to achieve both effects, and in particular the effect of removing an already-formed biofilm. Because the compositions of E1 contained these enzymes, the subject-matter of the claims was not novel over E1.
- The patent had shown experimentally that the amylase used had the ability to remove an already-formed biofilm. This also had to apply to the

amylase used in E1 as it was the same as in the patent.

- It was common general knowledge that compositions containing detergents could be used to remove an already-formed biofilm. Therefore, the skilled person would have understood that the detergent compositions in question were also intended to achieve this effect.

Inventive step

- E1 was the closest prior art and each of its detergent compositions 1-I to 1-III, 2-I to 2-III or 5-II could serve as a starting point for assessing inventive step.
- The subject-matter of claims 1 and 6 differed from each of these compositions at most in that the hexosaminidase enzyme had to be suitable for removing an already-formed biofilm and in that the use was also directed to this purpose. The objective technical problem, therefore, was to provide a composition which could also remove an already-formed biofilm.
- Since E1, in a preferred embodiment, also described hexosaminidase enzymes which were suitable for removing an already-formed biofilm, to arrive at the subject-matter of claims 1 and 6 the skilled person would merely have had to swap the hexosaminidase enzyme contained in the detergent compositions in question for one which also had activity against an already-formed biofilm. However, doing so did not require any inventive skill. The main request did not involve an inventive step.

VIII. The respondent's appeal case, where relevant for the present decision, can be summarised as follows.

Sufficiency of disclosure

- Example compositions 21 and 22 in Table 1-2 did not contain an additional surfactant (C). Their performance was fully comparable with compositions which contained an additional surfactant.
- Attaining the two desired effects of claims 1 and 6 was a technical feature of their inventions. Interpreted correctly, it was clear that it was a functional feature of the claims that the composition or the enzymes actually achieved these effects. The extensive experimental data in the patent gave the skilled person enough guidance on how to provide a composition with which these effects could be achieved.
- Hence, the inventions as stipulated in claims 1 and 6 were sufficiently disclosed.

Novelty

- E1 did not disclose that the detergent compositions 1-I to 1-III, 2-I to 2-III or 5-II were used for removing an already-formed biofilm. The claimed subject-matter of the main request was novel over E1.
- The board was right to say that the two effects mentioned in the claims were different. Furthermore, the mere fact that a detergent composition contained an antimicrobial component did not tell the skilled person that the composition was necessarily used for removing an already-formed biofilm. This followed from E1 and was corroborated by the patent.

- According to preferred embodiments of E1, the hexosaminidase enzymes had antimicrobial activity and/or the ability to remove biofilms. However, in the context of the detergent compositions in question and the hexosaminidase enzymes they contained, E1 only disclosed the antimicrobial activity of the enzymes.
- E1 did not attribute any effect to using amylase in the detergent compositions in question, let alone any of the effects mentioned in the claims.
- The board was right to say that it was not credible that any surfactant in any detergent composition was capable of removing an already-formed biofilm.

Inventive step

- The appellant's line of reasoning starting from one of the detergent compositions 1-I to 1-III, 2-I to 2-III or 5-II for the assessment of inventive step was artificial. To conclude that there was no inventive step, precisely one of these compositions would have had to be selected beforehand as they were the only ones which contained a component according to (A) in claims 1 and 6. The appellant's argument was based on knowledge of the invention and thus on hindsight.
- In the case in hand, the skilled person would have considered the only suitable starting point to be the hexosaminidase enzymes that are disclosed in E1 in a general form as having antimicrobial activity and the ability to remove biofilms. The subject-matter of claims 1 and 6 differed from this general disclosure in that the composition comprised component (A).
- As was clear from the experimental data in the patent, e.g. a comparison of examples 4 and 14 with

comparative examples 29 and 36, the effect linked to the presence of component (A) was improved composition performance, in terms of both suppressing biofilms and removing an already-formed biofilm. Consequently, the objective technical problem had to be considered that of providing a composition which better suppressed biofilms and better removed an already-formed biofilm. The solution to this objective technical problem in the form of the subject-matter of claims 1 and 6 was not obvious. The main request involved an inventive step.

Reasons for the Decision

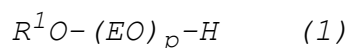
1. The respondent's main request on appeal was that the appeal be dismissed. This implied upholding the decision under appeal and maintaining the patent in the form of the first auxiliary request which the opposition division had held allowable.
2. Independent claims 1 and 6 of the main request on appeal (i.e. the first auxiliary request on which the decision under appeal is based) read as follows:

Claim 1:

"Use of a composition for suppressing biofilm formation and removing an already-formed biofilm the composition comprising the following component (A) and component (B):

(A) one or more compounds represented by the general formula (1):

[F1]



wherein R^1 represents a linear or branched alkyl group or alkenyl group having 8 to 14 carbon atoms; EO represents an ethyleneoxy group; p represents an integer of 0 to 3 and
(B) one or more enzymes selected from the group consisting of hydrase and lyase."

Claim 6:

"A method for suppressing biofilm formation by bringing a composition as defined in any one of claims 1 to 5 into contact with a microorganism and removing an already-formed biofilm."

Thus, claim 1 relates to the use of a composition comprising components (A) and (B) for two purposes, namely "for suppressing biofilm formation" and "for removing an already-formed biofilm". This is tantamount to saying that the composition is used to achieve the corresponding effects, i.e. to suppress biofilm formation and to remove an already-formed biofilm. Similarly, by reference to claim 1, method claim 6 uses the same composition for the same purposes/effects.

The composition referred to in these claims comprises a linear or branched alkyl or alkenyl alcohol having 8 to 14 carbon atoms as component (A), which may be ethoxylated with up to 3 ethyleneoxy groups, and a hydrase and/or a lyase as component (B).

3. Sufficiency of disclosure (Article 83 EPC)

3.1 According to the appellant, the patent did not sufficiently disclose how to obtain the effects recited in claims 1 and 6.

3.2 The board does not agree with this contention.

In the experimental part of the patent, compositions comprising components (A) and (B) as defined in claims 1 and 6 are examined with regard to their ability to suppress biofilm formation and remove an already-formed biofilm. These investigations are carried out on three different bacteria (*Pseudomonas aeruginosa*, *Serratia marcescens* and *Klebsiella pneumonia*). The compositions are evaluated on a scale from A to D, with A being the best and D the worst. More specifically, the patent lists eleven different compounds which can be used as component (A) and six different enzymes which can be used as component (B) in the claims (paragraphs [0046] and [0048]). It also gives detailed protocols on how to set up the experiments and evaluate their results in terms of the desired technical effects (paragraphs [0053], [0054], [0056], [0057], [0059] and [0060]). Consequently, in the board's view, the patent provides enough guidance about how to obtain the effects recited in claims 1 and 6.

It is true that the majority of the compositions, such as compositions 6, 12 and 38, to which the appellant explicitly referred in this context, also contain a surfactant (C) in addition to components (A) and (B). However, contrary to the appellant's submission, this does not mean that the desired effects could not be achieved specifically using compositions that do not contain component (C). Compositions 21 (wrongly designated as 11) and 22 in Table 1-2 comprise components (A) and (B) but no component (C). These two compositions are consistently rated B, a rating that is fully comparable with that of other compositions comprising an additional surfactant (C).

3.3 The appellant also argued that the effects recited in claims 1 and 6 did not restrict the claimed subject-matter to compositions which actually achieved these effects. Therefore, for the disclosure to be deemed sufficient, any composition comprising components (A) and (B) as defined in the claims had to achieve the desired effects. Since these effects had to be attributed to the enzyme component (B), they had to be achieved with any hydrase or lyase. However, as defined in the claims, the enzyme component (B) encompassed a large number of different wild-type and mutant enzymes, and the respondent had not shown that the desired effects could be achieved with those types of enzymes. The decision under appeal had even acknowledged that certain hexosaminidase enzymes, i.e. enzymes according to component (B) in claims 1 and 6, could not remove an already-formed biofilm. Therefore, the desired effects could not be achieved with every enzyme and thus not with every composition as defined in claims 1 and 6. Hence, the invention as stipulated in claims 1 and 6 of the main request was not sufficiently disclosed.

The board does not agree with this contention. In the case in hand, attaining the two desired effects is a technical feature of claims 1 and 6. Hence, these claims protect the use of compositions which use actually achieves the desired technical effects. In turn, this means that components (A) and (B) in the claims, and in particular the enzyme component (B) if one were to accept the appellant's argument that the effects could only be attributed to component (B), must be such as to achieve the effects set out in the claims (G 2/88 (OJ EPO 1990, 93), point 9 of the reasons). Components, and in particular enzymes, which do not achieve the two desired technical effects when used

according to the use of claim 1 or the method of claim 6 are outside the scope of the claims in hand.

In view of the above, the question is whether determining which composition/enzyme achieves the desired technical effects set out in the claims amounts to an undue burden. As pointed out by the board during the oral proceedings, this is not the case in view of the extensive experimental data provided in the patent (see point 3.2 of this decision). This was not challenged by the appellant.

3.4 Thus, it is to be concluded that the inventions as stipulated in claims 1 and 6 of the main request are sufficiently disclosed.

4. Novelty (Article 54 EPC)

4.1 The appellant's novelty objections were based on E1, more specifically the detergent compositions 1-I to 1-III, 2-I to 2-III and 5-II.

Each of these compositions comprises:

- (a) a C₁₂₋₁₅ predominantly linear primary alcohol condensed with an average of 3 moles of ethylene oxide
- (b) hexosaminidase, amylase and protease

Both parties agreed that (a) and (b) are components according to (A) and (B) in claims 1 and 6.

Furthermore, the hexosaminidase contained in these compositions is stated as having a minimum inhibitory concentration (MIC) for antimicrobial activity of less than about 0.125% (E1: page 28, paragraph 4).

In view of this explicit teaching of a component having antimicrobial activity, both parties agreed that the above detergent compositions (hereinafter: "the detergent compositions in question") are used for suppressing biofilm formation. However, the parties disagreed on whether they were also used for removing an already-formed biofilm.

- 4.1.1 First of all, it should be noted that the two effects mentioned in both claim 1 and claim 6 differ from each other. While one involves preventing biofilm formation, the other involves removing that biofilm once formed. It is undisputed between the parties that the detergent compositions disclosed in E1 are used for suppressing biofilm formation. By contrast, E1 does not at any point mention that the same compositions could be or are also used for removing an already-formed biofilm; the document is silent about the presence of a biofilm in connection with the detergent compositions in question.

Nor can the presence of a component having antimicrobial activity (in this case the hexosaminidase enzyme) lead to the conclusion that the detergent compositions in question are necessarily used to remove an already-formed biofilm. This follows from the very fact that E1 clearly distinguishes between antimicrobial activity and the ability to remove biofilms (see below).

- 4.1.2 It is true that the hexosaminidase enzymes according to a preferred embodiment of E1 have the ability to remove biofilm (see page 1, penultimate line to page 2, line 1; page 7, lines 11 to 12; claim 3). However, E1 also discloses antimicrobial activity as being advantageous

for these enzymes and clarifies that the two do not necessarily go hand in hand but may in fact be alternative properties (see for instance E1, claim 3: "*wherein said hexosaminidase enzymes are hexosaminidases having MIC for antimicrobial activity of less than 0.125%, ..., **and/or** the ability to remove biofilm*"; emphasis added). As regards the detergent composition in question, E1 explicitly and exclusively refers to one of these two alternative properties, namely the antimicrobial activity of the hexosaminidase enzyme. It thus cannot be concluded that these compositions are also used for what is implied by the other property, namely removing an already-formed biofilm.

- 4.1.3 The appellant also argued that claims 1 and 6 could not simultaneously fulfil the requirements of Article 83 and Article 54 EPC. Sufficient disclosure for claims 1 and 6 could only be acknowledged if the desired effects could be achieved with all conceivable enzymes according to (B). Thus, for the disclosure to be sufficient, both hexosaminidase and amylase, i.e. enzymes according to (B) in claims 1 and 6, would also have to achieve these effects, in particular the effect of removing an already-formed biofilm. Since the compositions of E1 contained these enzymes, the subject-matter of claims 1 and 6 could not be novel over E1.

This line of reasoning is not convincing. As explained in point 3.3 of this decision, claims 1 and 6 are to be interpreted to the effect that the desired effects are technical features of the claims, limiting the use/method to the applied components with which these effects are in fact achieved.

Furthermore, it cannot be derived directly and unambiguously from E1 that precisely this is the case for the detergent compositions in question. For their enzyme component hexosaminidase, this has already been concluded above. The same holds true for the enzyme component amylase, irrespective of whether the amylase contained in the detergent compositions in question has the ability to remove an already-formed biofilm, as argued by the appellant. This is simply because any such ability - which might be an inherent ability - is not disclosed anywhere in E1, either in general terms or in the context of the detergent compositions in question. In line with established case law, the disclosure of a substance that is inherently suitable for achieving a certain effect does not anticipate the use of that substance or a composition comprising it to achieve that technical effect.

- 4.1.4 The appellant also pointed out that using compositions containing detergents to remove an already-formed biofilm was known from the common general knowledge. Therefore, the skilled person would have understood that the detergent compositions in question were also intended to achieve this effect.

The board cannot agree with this contention. The appellant's reference to the common general knowledge was not substantiated at all. In addition, during the oral proceedings, the board explained that it was not credible that any surfactant of any detergent composition would be able to remove an already-formed biofilm. The appellant did not comment further on these doubts expressed by the board.

- 4.2 Lastly, the appellant also relied on a number of board decisions in support of its view that the synergistic

effect, allegedly described in the patent as occurring between components (A) and (B), could not be decisive for acknowledging novelty (letter dated 14 June 2018, page 3, paragraph 2 to page 4, paragraph 2). However, the arguments based on these decisions are irrelevant for the case in hand since effects occurring between (A) and (B) are not relevant for acknowledging novelty.

4.3 Thus, the subject-matter of independent claims 1 and 6, and thus also that of dependent claims 2 to 5, is novel over E1.

5. Inventive step (Article 56 EPC)

5.1 The appellant relied exclusively on E1 as the closest prior art and the board has assumed below, in the appellant's favour, that this assumption is correct.

5.2 The appellant essentially argued that each of the detergent compositions disclosed in E1 was an embodiment of the invention of that document. Consequently, any of them could be considered separately from the rest of the disclosure of E1 and taken as a starting point for assessing inventive step. Therefore, the detergent compositions in question discussed under novelty above, i.e. compositions 1-I to 1-III, 2-I to 2-III and 5-II of E1, could also be considered a suitable starting point. Were novelty over these detergent compositions to be acknowledged, the subject-matter of claims 1 and 6 could differ from them at most in that the hexosaminidase enzyme was suitable for removing an already-formed biofilm and in that the use was also directed to this purpose. The objective technical problem, therefore, was to provide a composition which also removed an already-formed biofilm. Since E1, in a preferred embodiment, also

disclosed hexosaminidase enzymes which had the ability to remove biofilms, to arrive at the subject-matter of claim 1 the skilled person merely had to swap the hexosaminidase enzyme contained in the detergent compositions in question for the one which had the ability to remove biofilms. Doing so did not require any inventive skill.

5.3 The board agrees with the implicit premise underlying the appellant's argument, namely that the "closest prior art" is not a document but a piece of information or technical teaching. Therefore, where the same document discloses a number of different technical teachings, each of them represents a potential starting point against which the inventive character of the invention may be assessed. In the case at issue, however, there is disagreement about which of these different technical teachings within document E1 represents the correct starting point. This question will be addressed below. With regard to the choice of the starting point, there are two different approaches in the case law.

5.3.1 In a first approach, it is the deciding body which selects the closest prior art (T 1241/18, point 2.1 of the reasons; T 1450/16 point 2.1.4 of the reasons; T 855/15 point 8.2 of the reasons). Under this approach, the skilled person and their expectations, prejudices, knowledge and abilities do not play any role in this selection (T 1241/18, *Ibid.*). The skilled person does not come into play until later on when the closest teaching has been identified and the problem formulated. Consequently, it would not be possible under this approach to disregard a technical teaching on the ground that the skilled person would not have considered it to be the most promising - or at least an

otherwise realistic - starting point. If parties have diverging views over the right springboard, the examination of inventive step under this approach should in principle be repeated for each of the technical teachings invoked since the invention has to be inventive over the entirety of the prior art. Transferred to the question before the board, this approach would imply that each and every disclosure within a document can be selected as the starting point for assessing inventive step.

5.3.2 In a second approach, the skilled person comes into play as early as when the closest prior-art disclosure is being selected. The technical teaching from which the skilled person would have realistically started as the most promising springboard towards the invention therefore needs to be determined (see e.g. T 254/86, point 15 of the reasons; T 2148/14, point 2.2.1 of the reasons). Under this approach, the skilled person is held to generally look for a disclosure that aims at a purpose or effect that is the same as or at least similar to the one underlying the patent in question (see e.g. T 710/97, point 3.2.1 of the reasons). Following this approach, it is possible to reject an inventive-step attack on the ground that the skilled person would have not realistically selected the specific disclosure on which the attack in hand relies as a starting point (see T 1307/12 point 3.1.3 of the reasons; T 2114/16, point 5.3.4 of the reasons).

5.4 In the board's view, the first approach is not applicable at least in the present case. First of all, in line with the established case law (see e.g. the decisions cited in relation to the second approach), it is the board's firm conviction that the skilled person is the relevant point of reference right from the start

of any inventive-step assessment. Determining whether an invention is inventive involves technical considerations, and those have to be made through the eyes of the skilled person. Excluding the skilled person for part of the inventive-step assessment would lead to artificial and thus technically meaningless results. Under this premise, at least in the field of chemistry, with which the case in hand is concerned, the skilled person normally does not arbitrarily pick any existing prior-art disclosure and only then starts to think about the technical field in which it might be applied and what effect it could possibly achieve. This approach would be unrealistic and artificial.

Furthermore, the consequence of selecting any disclosure within a prior-art document as the starting point, as is possible under the aforementioned first approach, would be that the disclosure coming structurally closest to the claimed subject-matter might always be chosen. However, starting from that disclosure and then possibly denying inventive step on this basis would imply the use of hindsight. More specifically, selecting the disclosure that is structurally closest to the claimed invention would presuppose knowledge of this invention, e.g. in terms of the structure of a claimed compound (see again T 1307/12, point 3.1.3 of the reasons; T 2114/16, point 5.3.4 of the reasons).

For these reasons, in the board's view, the first approach should not be applied in the case in hand.

- 5.5 Unlike the first approach, the second approach is based on a technically meaningful and thus realistic scenario. More specifically, the skilled person is normally confronted with a certain purpose or effect to

be achieved in a certain technical field, e.g. as the goal formulated within a research project. With this in mind, the skilled person would then look for a prior-art disclosure that is in the same technical field and aims at the same or a similar purpose or effect. This, in the board's view, is what is meant by the "most promising springboard" formulated in the above-cited well-established case law. While the same or similar purpose or effect is not necessarily the only consideration the skilled person would make, other considerations, such as the greatest possible structural similarity between the composition described within the closest prior art and that defined in the relevant claim, are of less importance (Case Law of the Boards of Appeal of the European Patent Office, ninth edition, 2019, I.D.3.3). Applying this second approach thus avoids the above-discussed drawback of using hindsight when selecting the starting point for assessing inventive step.

5.6 For the above reasons, the board follows the second approach. Hence, a disclosure within a prior-art document can only be considered to represent a suitable starting point for assessing inventive step if the skilled person would have realistically started from it. An important consideration in this assessment is generally whether this disclosure aims at the same or a similar purpose or effect as that underlying the patent in question.

5.6.1 In the case in hand, there are various embodiments within E1 which could represent a potential starting point for the assessment of inventive step, including:

- (i) Any of the seven detergent compositions in question, i.e. compositions 1-I to 1-III,

2-I to 2-III and 5-II, as argued by the appellant.

These compositions contain a component (A) as claimed and hexosaminidase enzymes which have antimicrobial activity, which is why these compositions are used for suppressing biofilm formation. However, these compositions are not disclosed as having the ability to remove biofilms.

- (ii) All the other 22 example compositions disclosed in E1 (i.e. 3-I to 3-IV, 4-I to 4-VIII, 5-I, 6-I to 6-IV, 7-A, 7-B and 8-A to 8-C) not containing any component (A).
- (iii) The hexosaminidase enzymes disclosed in the description of E1 in general form, as argued by the respondent.

However, it is only embodiment (iii) that is disclosed in E1 in relation to the purpose and effect to be achieved by the claimed invention. The enzymes concerned are disclosed as preferably having antimicrobial activity and the ability to remove biofilms (page 1, penultimate line to page 2, line 1; page 7, line 12; claim 3). This is the reason why they can be used for both suppressing biofilm formation and removing an already-formed biofilm. Consequently, the board is of the opinion that the skilled person would have realistically started only from this embodiment. This holds even truer since achieving the two effects, namely suppressing biofilm formation and removing an already-formed biofilm, is a technical feature of the inventions of claims 1 and 6.

Starting from any of the seven detergent compositions mentioned under (i) above, as the appellant did because of their structural closeness to the claimed subject-matter, presupposes knowledge of the present invention, i.e. of the structure of component (A) according to claims 1 and 6. The line of reasoning starting from (i) above therefore amounts to an *ex post facto* approach and is based on hindsight. The board thus does not agree with the appellant's view that the skilled person would have started from (i) above.

- 5.6.2 The problem/solution approach will thus start from the hexosaminidase enzymes disclosed in E1 in general form (i.e. (iii) above).
- 5.6.3 The subject-matter of claims 1 and 6 differs from these hexosaminidase enzymes (disclosed in E1 as having antimicrobial activity and the ability to remove biofilm) in that the composition further comprises component (A).
- 5.6.4 The board is convinced that, as argued by the respondent at the oral proceedings on the basis of the experimental data in the patent, adding a component (A) to a component (B) as defined in claims 1 and 6 results in a composition with improved properties in terms of both suppressing biofilm formation and removing an already-formed biofilm. This was not disputed by the appellant at the oral proceedings.

In its statement of grounds of appeal (point 5.2), the appellant put forward the same inventive-step argument as that already dealt with above under point 3.2, namely that it could not be accepted that compositions without a surfactant (C) could achieve the effect of removing an already-formed biofilm. However, as already

set out above, the desired effects are technical features of claims 1 and 6, the subject-matter of which is consequently limited to a use/method in which the effects are achieved. For this reason alone, the argument is not convincing.

Therefore, the objective technical problem can be considered that of providing a composition which better suppresses biofilm formation and better removes an already-formed biofilm.

5.6.5 E1 cannot suggest the solution to this objective technical problem in the form of the subject-matter of claims 1 and 6. Although E1 mentions specific representatives of component (A) of claims 1 and 6, it does not in any way point out that adding them to enzymes such as, in particular, those representative of component (B) in claim 1 improves the suppression of biofilm formation and the removal of an already-formed biofilm. Since the appellant did not rely on any other document as regards obviousness, the board concludes that the subject-matter of claims 1 and 6 involves an inventive step. This applies *mutatis mutandis* to the subject-matter of dependent claims 2 to 5.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated