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**D E C I S I O N**  
**of 24 January 2002**

**Case Number:** T 0765/97 - 3.3.6

**Application Number:** 89302882.9

**Publication Number:** 0335584

**IPC:** C11D 3/395

**Language of the proceedings:** EN

**Title of invention:**  
Bleaching composition

**Patentee:**  
UNILEVER PLC, et al

**Opponent:**  
PROCTER & GAMBLE EUROPEAN TECHNICAL CENTER N.V

**Headword:**  
Foam-depressing agent/UNILEVER

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

**Keyword:**  
"Novelty (main and auxiliary requests - yes) - residues of decomposed foam-depressing agent provide distinguishing feature"  
"Inventive step (main and auxiliary requests - no) - solution suggested by the prior art"

**Decisions cited:**  
-

**Catchword:**  
-





Case Number: T 0765/97 - 3.3.6

**D E C I S I O N**  
**of the Technical Board of Appeal 3.3.6**  
**of 24 January 2002**

**Appellant I** (and Respondent): PROCTER & GAMBLE  
(Opponent) EUROPEAN TECHNICAL CENTER N.V.  
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**Appellants II** (and Respondents): UNILEVER PLC  
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and

UNILEVER N.V.  
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**Representative:** Ford, Michael Frederick  
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**Decision under appeal:** Interlocutory decision of the Opposition Division  
of the European Patent Office posted 20 May 1997  
concerning maintenance of European patent  
No. 0 335 584 in amended form.

**Composition of the Board:**

**Chairman:** P. Krasa  
**Members:** G. N. C. Rath  
M. B. Tardo-Dino

## Summary of Facts and Submissions

I. These appeals are from an interlocutory decision of the Opposition Division concerning the maintenance of European patent No. 0 335 584 in amended form on the basis of a second auxiliary request submitted by the patent proprietors in their letter of 29 April 1996 as "first auxiliary request" and containing 8 claims. Said patent was directed to a bleaching composition. The independent claims 1, 5 and 6 as maintained read:

"1. A bleaching composition obtained by including a foam-depressing agent in an aqueous mixture of a bleaching agent and a foaming synthetic detergent, which foam-depressing agent is a silicone which is not stable therein, packing the composition in containers and optionally then storing the containers.

5. A container having therein bleaching composition according to any one of the preceding claims.

6. A process for the production of an aqueous bleaching composition comprising an aqueous mixture of a bleaching agent and a foaming synthetic detergent, characterized by including a foam-depressing agent which is a silicone which is not stable in the mixture, and packing the composition in containers while foaming is inhibited by the presence of the foam-depressing agent."

Both the opponent and the proprietors - hereinafter called appellant I and appellants II, respectively - appealed from this decision.

II. Appellant I had based its opposition on the ground that

the patent in suit contained non-admissible amendments (Article 100(c) EPC) and on lack of novelty and inventive step (Articles 100(a), 54 and 56). In the notice of opposition the following documents were cited:

- (1) EP-A-0 021 581
- (2) Samia Hameedi, "Silicone foam control agents", HAPPI, vol. 25, 3, 1988, 39, 40;
- (3) GB-A-1 019 353
- (4) FR-A-1 579 168
- (5) FR-A-2 232 344
- (6) EP-A-0 047 630.

III. During the opposition proceedings both appellant I and appellants II had submitted experimental reports.

IV. In its decision, the Opposition Division held that the patent in suit as amended complied with the requirements of Article 123(2) and (3) EPC, since "a desired alkaline pH" replacing "a required alkaline pH" was not to be objected to, as both expressions were not much different in scope (page 5, line 13 of the application as filed; page 3, line 21 of the patent in suit). In a passing remark it was also said that the invention was sufficiently disclosed in accordance with Article 83 EPC. It was further held that the claimed subject-matter was novel over the cited prior art since none of the documents (2) to (6) disclosed an aqueous bleaching composition. Document (1) did not disclose

compositions containing a foam-depressing agent. Thus, the compositions of the patent in suit differed from those of document (1) by the presence of the species resulting from the degradation of the foam-depressing agent. Assessment of inventive step was, inter alia, based on documents (1) and (2). Documents (3) to (6) could not represent common general technical knowledge; the gist of the invention was based on the instability of the silicone foam-depressing agents towards bleach; the foam-depressing agent avoided foaming during filling containers, but after storage, once the foam-depressing agent was degraded, the composition recovered its foaming property.

V. Appellant I argued in essence as follows:

The patent as amended violated Article 123(2) EPC as did the patent as granted, since the claimed compositions now could be acidic, neutral and alkaline, whereas originally they could only be alkaline according to the application as filed.

The patent in suit violated Article 83 EPC since it contained no instructions how to execute the invention under neutral and acidic conditions and since it was impossible to identify the decomposition products of the foam-depressing agent, in particular of the non-stable silicones.

The claimed subject-matter was anticipated by the state of the art as disclosed in document (1).

The claimed subject-matter was not inventive, taking document (2) as the starting point for evaluating inventive step in view of the disclosure of

citations (3) to

(7) US-A-3 113 930,

this latter document having been submitted by appellant I with the letter dated 21 December 2001.

VI. Appellants II argued in essence as follows:

Document (2) did not identify the liquid products containing high foaming anionic surfactants; further it did not indicate when or how the foam control might be delivered. A distinction was made between a defoaming agent knocking down foam quickly and an antifoam agent having an enduring action. The decision of the Opposition Division ignored that some defoamers might after a period of time still be capable of interfering to some extent with foam generation, because they did not decompose completely and thus preserved some of their foam-depressing property, so that they were not able to solve credibly the problem of the patent in suit. However, according to the patent in suit, the bleaching composition had to recover its foaming property. Document (2) therefore would not give useful hints to the skilled person.

VII. At the beginning of the oral proceedings, the Chairman requested that the parties clarified their requests, in particular with respect to Articles 83 and 123 EPC; thereupon, appellants II replaced all the requests by a main and an auxiliary request; the set of claims of the main request was identical with the set of claims as maintained. Claim 1 of the set of 6 claims of the auxiliary request was identical with claim 6 of the main request; they also submitted an amended page 3 of

the patent in suit valid for both requests, on which the word "desired" was replaced by the word "required" as originally disclosed (application as originally filed, page 5, line 13; patent in suit, page 3, line 21). Appellant I withdrew the objections raised under Articles 83 and 123 EPC.

VIII. Appellant I requests that the decision under appeal be set aside and that the patent No. 335 584 be revoked.

Appellants II request that the decision under appeal be set aside, and that the patent be maintained, on the basis of the main request, or alternatively, on the basis of the auxiliary request, both submitted during oral proceedings, together with amended page 3 of the description, valid for both requests.

IX. At the end of the proceedings the chairman announced the decision of the Board.

## **Reasons for the Decision**

1. *Main request*

1.1 Article 100(b)(c) EPC

Appellant II deleted the word "desired" from the description and reinstated the word "required" as originally used; this amendment restored the initial expression "required pH" (application as originally filed, page 5, line 13; patent in suit, page 3, line 21) which does not leave room for interpretation; the basis for the objection under Article 100(c) EPC was thereby removed.



The Board is satisfied that the patent in suit meets the requirements of Articles 83. Since the respective objection was withdrawn no further details need to be given.

1.2 Novelty

1.2.1 Claim 1

Claim 1 concerns a bleaching composition obtained by including a foam-depressing agent in an aqueous mixture of a bleaching agent and a foaming synthetic detergent, which foam-depressing agent is a silicone which is not stable therein, packing the composition in containers and optionally then storing the containers.

Appellant I contested novelty as against document (1) which disclosed a bleaching composition containing, inter alia, an aqueous solution of alkali metal hypochlorite, ie a bleaching agent, and surfactants, inter alia, amine oxide, ie a foaming detergent but no foam-depressing agent. It argued that this bleaching composition could not be distinguished from the bleaching composition of Claim 1 since the foam-depressing agent, because of its instability, was no more present. A foam-depressing agent representing a technical feature which would disappear could not be retained for establishing novelty.

According to appellants II the foam-depressing agent decomposed into degradation products which could be identified by known analytical methods such as gas chromatography and mass spectroscopy. The residues resulting from the degradation of the foam-depressing agent would amount to a distinctive feature in respect

to the composition disclosed by document (1). There was no dispute about the following findings concerning the degradation products: document (1) did not describe degradation products of the foam-depressing agent and degradation products of the foam-depressing agent were present in the bleaching composition of Claim 1 which could be identified by the above mentioned methods. The residues are a function of the formula of the foam-depressing agent and thus may degrade in residues being different from each other and may not be defined by a single expression encompassing all of them.

In the Board's judgement the degradation products represent a product feature which distinguishes the bleaching composition from the bleaching composition of document (1).

Therefore, the subject-matter of Claim 1 meets the requirements of Article 54(1)(2) EPC.

#### 1.2.2 Claims 5 and 6

The subject-matter of Claim 5 is directed to a container and refers back to Claim 1. Independent Claim 6 is directed to a process comprising the addition of a silicone foam-depressing agent, which is not stable in the mixture.

Therefore the reasoning at point 1.2.1 applies mutatis mutandis to the subject-matter of Claims 5 and 6. Hence the subject-matter of Claims 5 and 6 meets also the requirements of Article 54(1)(2) EPC.

#### 1.3 Inventive step

1.3.1 Claim 1 concerns a bleaching composition obtained by including a foam-depressing agent in an aqueous mixture of a bleaching agent and a foaming synthetic detergent, which foam-depressing agent is a silicone which is not stable therein, packing the composition in containers and optionally then storing the containers.

Such bleaching compositions were disclosed by document (1) which concerned an aqueous thickened bleaching composition containing aqueous hypochlorites tending to flow off sloping surfaces too quickly to ensure efficacious cleansing (page 1, lines 10 and 11). Document (1) did not explicitly address the problem defined in the patent in suit. However, marketing, storage and usage of such compositions were mentioned which inevitably encompass the problem of foaming when filling containers and of the recovery of the foaming property after storage (see page 7, line 1, page 8, line 20; page 15, lines 18 and 20). Therefore, document (1) is taken as the starting point for evaluating inventive step.

1.3.2 In the light of document (1) the problem to be solved can be defined as providing a further bleaching composition.

1.3.3 The examples of the patent in suit (see table page 3) prove that the technical problem as defined under 1.3.2 was solved.

The question remains to be decided whether or not the solution to this technical problem involved an inventive step.

1.3.4 The composition according to Claim 1 differed from the

composition according to document (1) by the degradation products of the foam-depressing agent. This product feature however had no technical effect, and thus did not contribute an inventive step.

- 1.3.5 Providing a further bleaching composition differing from the bleaching composition of document (1) by the presence of degradation products which however were immaterial in terms of technical contribution did not involve an inventive step. The Board can neither accept the appellants II's argument that the claimed bleaching compositions derive their patentability from that of the process for their preparation be it only for the reason that the latter is not patentable either (see points 2.2.1 to 2.2.10).

The subject-matter of Claim 1 did not meet the requirements of Article 56 EPC, and hence the set of claims of the main request is not allowable.

## 2. *Auxiliary request*

### 2.1 Novelty

Claim 1 is identical with Claim 6 of the patent as maintained ie Claim 6 of the main request.

Claim 1 concerns a process for the production of an aqueous bleaching composition comprising, inter alia, a silicone foam-depressing agent, which is not stable in the bleaching composition.

The arguments put forward by both appellants were the same as set out at point 1.1.2.

As already stated at 1.2.1 and 1.2.2, the Board recognizes the degradation products of the foam-depressing agent as a distinguishing feature (see 1.2.1 and 1.2.2).

Hence, the subject-matter of Claim 1 meets the requirements of Article 54(1)(2) EPC.

## 2.2 Inventive step

2.2.1 Claim 1 concerns a process for the production of an aqueous bleaching composition comprising, inter alia, packing the bleaching composition in containers while foaming is inhibited by the presence of a silicone foam-depressing agent which is not stable in the mixture.

2.2.2 Such bleaching compositions were known from document (1) (see 1.3.1) which the Board takes as the starting point for evaluating inventive step.

The problem as defined in the patent in suit was to avoid foam formation when filling containers as well as foaming out of the bottles, resulting in messy bottles not filled with the proper filling weight; moreover a bleaching composition should be obtained which recovers its foaming property after storage (page 2, lines 12 to 21, 35 to 37).

2.2.3 In the light of document (1) the technical problem as defined in the patent in suit need not be reformulated.

2.2.4 The examples in the table of the patent in suit (page 3) prove that the technical problem as defined under 2.2.2 was solved.

The question remains to be decided whether or not the solution involves an inventive step.

2.2.5 Appellants II were of the opinion that silicones were known to be stable and contested the statements in the decision of the Opposition Division (page 7, paragraph 2) and in the appellant I's letter of 21 December 2001 (page 5, paragraph 1, last sentence) relating to the instability of silicones. Further, when applying the problem-solution approach, according to T 0442/93 (headnote 2) "... the technical problem addressed by an invention must be so formulated as not to anticipate the solution,....". The avoidance of foam was already a feature of the solution, but other measures could also have been envisaged like the avoidance of bubble formation during filling. None of the cited documents related to foaming in relation with packaging. Only after conception of the invention the skilled person, with the benefit of hindsight, would have looked at documents (2) to (6). Furthermore, some of these documents related to mechanical foam destruction of the antifoaming agents (see document (3)(high speed mixer, page 2, right-hand column, line 114), document (5)(vigorous agitation, page 1, line 13) and document (6) (vigorously agitated solutions, page 1, line 9). As to document (4), even if instability was mentioned, attention was drawn to the time scale factor. A one week aging result, as exemplified in document (4) (see tables I and III), was not relevant for the patent in suit since the consumer gets the product only after a delay of two to four weeks. Also, no evidence was provided that the instability of silicones in an alkaline medium was common general knowledge.

2.2.6 The Board does not agree with the reasoning of appellants II.

(a) In the introductory section of document (4) it was said that foam-depressing agents develop their highest activity at the moment of addition or immediately after addition for a short period of time but lose their efficiency after a longer contact with the foam generating medium; this short-term activity was known to be useful when packing liquid compositions; the foam-depressing agents under discussion were silicones (page 1, lines 9 to 15; page 2, lines 31 and 32). Hence the use of silicones as foam-depressing agents which degrade was known. As they lose their activity after a certain period of time, the foaming property reappears, what was the objective of the patent in suit.

Appellants II had argued that the skilled person had looked at documents (2) to (6) with the benefit of hindsight and that it was not allowable to introduce a feature of the solution in the definition of the problem (see T 0442/93, headnote 2), in this case the temporary suppression of the foaming property. In the light of the disclosure of document (4) however, the argument of Appellants II relating to hindsight does not hold. The use of silicones for the purpose of the problem at stake derives unambiguously from document (4). Also the temporary suppression of the foaming property was disclosed. T 0442/93 (headnote 2) has no bearing on the present case.

Therefore, the incorporation of silicones as foam-depressing agents did not involve an inventive step.

(b) But also when relying on documents (1) and (2) the

Board arrives at the same conclusion. Faced with the problem of filling a bleaching composition, as disclosed in document (1), in containers, the skilled person certainly would have consulted document (2) which dealt, *inter alia*, with laundry detergents. It was also said that consumers perceive a certain level of foam as a proof of cleaning, which was a hint to the wish to have the foaming property recovered (second page, column 2, paragraph 3); this is in line with another aspect of the invention providing a foam-depressing agent disappearing because of its instability, thus allowing the foaming property to reappear (patent in suit, page 2, lines 36 and 37).

The problem of foam suppression was explicitly addressed in document (2); defoamers were added to a formulation during packaging when the objective was to immediately eliminate foam (document (2), column 1, paragraph 4); silicones could be used as defoamers (column 3, paragraph 2, lines 12 to 14).

The question is whether the skilled person knew about the instability of silicones which is a requirement for getting the foaming property of the bleaching composition to reappear after storage.

2.2.7 At the priority date of the patent in suit it was known from a number of documents that silicones decompose in alkaline systems.

The introductory portions of these documents, each one originating from a different author, disclose the instability of detergents in detergent compositions at alkaline pH (see document (3) (column 1, lines 13 to 22); document (4) (page 1, lines 1 to 32 in combination



with page 3, lines 24 to 26); document (5) (page 1, lines 1 to 14); and document (6) (page 1, line 1 to page 2, line 5).

In the present case, the Board considers that the concurring disclosures of the introductory portions of documents (3) to (6) together prove the existence of common general knowledge since the authors of these documents are different. Accordingly, it was commonly known at the priority date that silicones could act as foam-depressing agents which were not stable in an alkaline composition and, therefore, decompose and allow the composition to regain its foaming property.

2.2.8 In view of the state of the art as evidenced by documents (3) to (6), it was obvious to use silicones known as foam-depressing agents from document (2) when filling containers with bleaching compositions as disclosed by document (1); hence the claimed solution to the technical problem as defined under point 2.2.2 was obvious.

2.2.9 The test results of 4 February 1997 submitted by appellants II comprised a composition according to the invention (with silicone oil as foam-depressing agent) and a control sample without silicone oil: the height of foam generated by the composition was determined twice, once immediately and once after four weeks. In case of the claimed composition, the foaming character had partially recovered after four weeks storage whereas in case of the control sample, the foaming power was diminished. However, these results only confirm what could be expected by a skilled person after having read documents (1), (2) and (4) and are therefore not appropriate for proving an inventive

step.

2.2.10 For these reasons, the subject-matter of claim 1 does not meet the requirements of Article 56 EPC. Hence the set of claims of the auxiliary request is not allowable.

## **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. Krasa