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**Datasheet for the decision  
of 22 August 2006**

**Case Number:** T 0681/03 - 3.3.06

**Application Number:** 97942412.4

**Publication Number:** 0931135

**IPC:** C11D 3/39

**Language of the proceedings:** EN

**Title of invention:**

Low foaming automatic dishwashing compositions

**Applicant:**

THE PROCTER & GAMBLE COMPANY

**Opponent:**

-

**Headword:**

Automatic dishwashing composition/PROCTER

**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

"Inventive step of all requests (no): alleged effects not credibly demonstrated to have been achieved over the whole claimed area"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0681/03 - 3.3.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.06  
of 22 August 2006

**Appellant:** THE PROCTER & GAMBLE COMPANY  
One Procter & Gamble Plaza  
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**Representative:** Jones, Helen M.M.  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 30 January 2003  
refusing European application No. 97942412.4  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** P.-P. Bracke  
**Members:** P. Ammendola  
U. Tronser

## Summary of Facts and Submissions

- I. This appeal is from the decision of the Examining division dated 30 January 2003 refusing European patent application No. 97 942 412.4, published as WO 98/11190, on the ground that the subject-matter of claims 1 to 11 according to the then pending sole request did not comply with the requirements of Article 52(1) EPC in combination with Article 56 EPC.
- II. In its decision the Examining Division referred to the automatic dishwashing detergent compositions (hereinafter "ADD compositions") based on low cloud point, low foaming nonionic surfactants (hereinafter "LCLFNI surfactants") disclosed in
- document (1) = WO 96/23861.
- III. The Applicant (hereinafter "Appellant") appealed this decision and filed with the grounds of appeal a technical report containing experimental data (hereinafter "the additional experimental data").
- IV. The Appellant filed under cover of a letter dated 9 August 2006 two sets of amended claims respectively labelled as "**main request**" and "**first auxiliary request**" as well as correspondingly amended description pages.
- V. Only claim 1 of the main request and claim 1 of the first auxiliary request are relevant for this decision.

Claim 1 of the main request reads

- "1. An automatic dishwashing detergent comprising:
- (a) from 5% to 90%, preferably from 5 to 75%, by weight of the composition of a builder;
  - (b) from 0.5% to 10% by weight of the composition of a mixed surfactant system, wherein said mixed surfactant system comprises one or more low cloud point non-ionic surfactants having a cloud point of less than 30°C and one or more charged surfactants selected from the group consisting of C<sub>8-18</sub> amine oxides, the ratio of low cloud point non-ionic surfactant to charged surfactant being within the range of from about 20:1 to about 1:1;
  - (c) optionally, from 0.1% to 40% by weight of the composition of a bleaching agent; and
  - (d) adjunct materials."

Claim 1 of the auxiliary request differs from claim 1 of the main request only in that the initial wording "*An automatic dishwashing detergent comprising*" has been replaced by "*An automatic dishwashing detergent composition comprising*" and in that the expression "*C<sub>8-18</sub> amine oxides*" has been replaced by "*sulpho betaines*".

- VI. Oral proceedings took place before the Board as scheduled.
- VII. In respect of inventive step the Appellant argued in writing and orally substantially as follows.

The technical problem addressed in the application was to provide ADD compositions displaying improved removal of greasy stains, such as lipstick marks. The most

relevant prior art would be that disclosed in document (1), whose ADD compositions were however only disclosed to display excellent cleaning of several kinds of stains different from typical greasy stains such as lipstick.

The subject-matter of claim 1 of both main and auxiliary requests would not be rendered obvious by the disclosure of document (1), as this citation suggested the optional use of amine oxides in low amounts only to improve silver care and cited sulpho betaines in a manifestly erroneous sentence.

Instead, examples 1 and 9 to 11 of the application as originally filed and published, as well as the experimental data annexed to the grounds of appeal demonstrated that the claimed combination of LCLFNI surfactants with long chain amine oxides according to the main request surprisingly provided greasy soil benefits whilst maintaining an acceptable level of sudsing, whereas the additional experimental data demonstrated that the ADD compositions specifically disclosed in document (1), all containing no amine oxides, provided insufficient removal of these greasy stains.

Similarly, original examples 6 to 8 demonstrated the cleaning benefits of the surfactant mixtures according to the auxiliary request.

VIII. The Appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the set of claims according to the main request or alternatively according to the auxiliary request, all

requests submitted under cover of the letter dated 9 August 2006.

## **Reasons for the Decision**

*Article 123(2) EPC and Article 52(1) in combination with Article 54 EPC*

1. The Board is satisfied that the subject-matter of claim 1 of the main request and that of claim 1 of the first auxiliary request (see above point V) are based on the application as originally filed and novel vis-à-vis the cited prior art. Detailed reasoning needs not to be given because of the negative finding on inventive step (see here after).

*Inventive step (Articles 52(1) and 56 EPC)*

2. Claim 1 of the main request
  - 2.1 This claim (see above point V) defines ADD compositions characterised by the presence of a mixed surfactant system comprising LCLFNI surfactant and C<sub>8-18</sub> amine oxide in certain amount ratios.
  - 2.2 The Board concurs with the Appellant that the ADD compositions of document (1) represent a reasonable starting point for the assessment of inventive step, because they have been found to provide excellent cleaning performance (see document (1) the last paragraph on page 44) and are structurally very similar to the claimed ones.

In particular, this document describes ADD compositions containing e.g. 1.5%, 2% or 3% by weight of LCLFNI surfactants and from 10% to 80% by weight of builders (see in document (1), all the examples in combination with page 7, lines 10 to 25, page 13, lines 6 to 15, page 15, lines 10 to 18, and page 26, lines 3 to 14). It also discloses, although only in general terms, the possible presence therein of low foaming amine oxides, such as e.g. octadecyldimethylamine oxide (see page 35, lines 20 to 25, reading "*Levels of the suds suppressor depend to some extent on the sudsing tendency of the composition, for example, an ADD for use at 2000 ppm comprising 2% octadecyldimethylamine oxide may not require the presence of a suds suppressor. Indeed, it is an advantage of the present invention to select cleaning-effective amine oxides which are inherently much lower in foam-forming tendencies than the typical coco amine oxides.*").

- 2.3 The description of the refused application, after having recalled that ADD compositions of the prior art have been based on LCLFNI surfactants in order to achieve the low sudsing level required for automatic dishwashing (see the application as internationally published, page 1, lines 19 to 28, and page 2, lines 9 to 14), states that these compositions however only provide limited cleaning performance because of their low solubility in the washing liquor (page 2, lines 14 to 18) and identifies the technical problem addressed (see page 2, lines 20 to 28) as that of **providing ADD compositions with improved cleaning of greasy soils, such as lipstick stains.**

2.4 The Appellant has argued that (as also confirmed by the comparative sample "B" of the additional experimental data) the **specific** compositions actually disclosed in the examples of document (1) (i.e. those containing only LCLFNI surfactants but no amine oxides) would provide an insufficient removal of typical greasy stains such as lipstick marks.

On the contrary, sample "C" of the additional experimental data and the original examples 1 and 9 to 11 of the application as originally filed would demonstrate the superior removal of lipstick marks achieved by the claimed ADD compositions.

2.4.1 The Board notes that the cleaning performance of the claimed ADD compositions against lipstick stains has been experimentally evaluated only in example 1 of the application (see the international publication, page 41, lines 12 to 19) and in sample "C" of the additional experimental data (see the technical report annexed to the grounds of appeal, Table 2), i.e. when using either a not further specified "*C<sub>13</sub> Amine Oxide*" (see the table of example 1 of the application international publication) or a not further specified "*C<sub>14</sub> amine oxide*" (see page 3, lines 14 to 15, of the Appellant's letter of 9 August 2006).

Instead examples 9 to 11 (based on a not further specified "*C<sub>16/18</sub> Amine Oxide*") contain no indication of an experimental evaluation of the achieved level of lipstick removal.

2.4.2 On the other hand, the Board notes that the amine oxide ingredient of the ADD compositions according to the present claim can be any of these compounds whose longer alkyl pendant contains from 8 to 18 carbon atoms.



However, these amine oxides are well known to differ significantly in their relevant properties. For instance, some of them are considerably less foaming than others. This fact has been conceded by the Appellant at the oral proceedings and is also confirmed by the above-mentioned wording of document (1) (see point 2.3), explicitly recognising that octadecyldimethyl amine oxide (i.e. C<sub>18</sub> amine oxide) is lower foaming than the conventional cocoamine oxides (i.e. mixtures of amine oxides, mainly C<sub>12</sub>).

Thus, the assumption (implicit in the Appellant's reasoning on inventive step) that the same level of lipstick removal only experimentally observed for C<sub>13</sub> or C<sub>14</sub> amine oxides (in example 1 and in the additional experimental data) might also be expected when using any other amine oxide with C<sub>8-18</sub> alkyl pendants, lacks sufficient supporting evidence.

2.4.3 Hence, the Appellant has not credibly proven that the alleged improvement of removal of greasy soils has actually been achieved over the whole area claimed.

2.4.4 Under these circumstances the only technical problem credibly solved by the claimed compositions vis-à-vis the prior art disclosed in document (1) is that of providing **further** ADD compositions.

2.5 Since document (1) (see above point 2.2), besides disclosing ADD compositions containing builders and LCPLF surfactants in the amounts required by present claim 1, also suggests the possible optional presence therein of low foaming amine oxides, the subject-matter of claim 1 of the main request differs from this prior

- art only by the requirement that the amine oxide and the LCLFNI surfactant must be present at a specific ratio.
- 2.6 Hence the problem posed (as defined in point 2.4.4) has been solved by arbitrarily selecting a previously undisclosed ratio for the amounts of these ingredients in the ADD compositions already disclosed in general in document (1).
- 2.7 It is self-evident that no inventive activity of the skilled person is required for selecting the ratio of LCLFNI surfactants to C<sub>8-18</sub> amine oxides in order to provide further ADD compositions.
- 2.8 Hence, the subject-matter of claim 1 of the main request is not based on an inventive step and, therefore, this request does not comply with the provisions of Article 56 EPC.
3. Claim 1 of the first auxiliary request
- 3.1 This claim (see above point V) defines ADD compositions characterised by the presence of a mixed surfactant system comprising LCLFNI surfactant and sulpho betaines in certain amount ratios.
- 3.2 The Board concurs with the Appellant that the ADD compositions of document (1) represent the reasonable starting point also for the assessment of inventive step of claim 1 of the auxiliary request (see also above point 2.2).

3.3 It is undisputed that neither the examples in the application containing sulpho betaines (i.e. examples 6 to 8 of the original application) nor the additional experimental data (wherein no sample contains sulpho betaines) indicate the actual experimental observation of an improved removal of lipstick stains (or of other similarly greasy soils).

3.3.1 Accordingly, the Appellant has presented no evidence possibly supporting the improved removal of greasy soils allegedly achievable also by the presently claimed ADD compositions.

3.3.2 Under these circumstances the only technical problem credibly solved by the presently claimed compositions vis-à-vis the prior art disclosed in document (1) is that of providing **further** ADD compositions.

3.4 The Board observes that the disclosure provided by document (1) (see also above point 2.2) encompasses the mention of sulpho betaines among the optional anionic co-surfactants listed at page 15, lines 19 to 27.

3.4.1 The Appellant has stressed the manifest contradiction existing in this portion of document (1), since sulpho betaines are normally considered amphoteric or zwitterionic surfactants and not anionic surfactants. Hence, in the Appellant's opinion, the skilled person would have considered this portion of document (1) as disclosing no reliable technical teachings.

3.4.2 However, the skilled person would consider that the above-mentioned portion of document (1) unambiguously identifies certain specific optional co-surfactants and,

thus, discloses the possible use of sulpho betaines (as well as of the other correctly specified surfactants listed therewith) regardless as to whether or not it was correct to qualify all these specified ingredients as conventional anionic surfactants.

- 3.5 Therefore, the Board concludes that, similarly to the ADD compositions claimed in the main request (see above point 2.5), also the ADD compositions according claim 1 of the auxiliary request differ from those disclosed in document (1) only in the requirement that the sulpho betaine and the LCLFNI surfactant must be present at a specific ratio.
- 3.6 Hence the problem posed (as defined above in point 3.3.2) has been solved by arbitrarily selecting a previously undisclosed ratio for the amounts of these ingredients in the ADD compositions already disclosed in general in document (1).
- 3.7 It is self-evident that no inventive activity of the skilled person is required for selecting the ratio of LCLFNI surfactants to sulpho betaines in order to provide further ADD compositions.
- 3.8 Hence, the subject-matter of claim 1 of the sole auxiliary request is not based on an inventive step and, therefore, this request does not comply with the provisions of Article 56 EPC.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

G. Rauh

P.-P. Bracke