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Aktenzeichen

File Number

Numéro du dossier

T 435 191 -3.3.1

In der Anlage erhalten Sie

eine Kopie des Berichtigungsbeschlusses

ein korrigiertes Vorblatt (Form 3030)

einen Leitsatz / Orientierungssatz (Form 3030)

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Please find enclosed

a copy of the decision correcting errors

a corrected covering page (Form 3030)

a headnote / catchword (Form 3030)

\_\_\_\_\_

Veillez trouver en annexe

une copie de la décision rectifiant des erreurs

une page de garde (Form 3030) corrigée

un sommaire / une phrase vedette (Form 3030)

\_\_\_\_\_

Anmeldung Nr. / Patent Nr.:

\_\_\_\_\_

(soweit nicht aus der Anlage ersichtlich)

Application No. / Patent No.:

85301297.9

(if not apparent from enclosure)

Demande n° / Brevet n°:

\_\_\_\_\_

(si le n° n'apparaît pas sur l'annexe)

**Headnote:**

The disclosure of an invention relating to a composition of matter, a component of which is defined by its function (in the present case an additive which forces a detergent composition into the hexagonal liquid crystal phase), is not sufficient if the patent discloses only isolated examples, but fails to disclose, taking into account, if necessary, the relevant common general knowledge, any technical concept fit for generalisation, which would enable the skilled person to achieve the envisaged result without undue difficulty within the whole ambit of the claim containing the "functional" definition (point 2.2.1 of the Reasons).

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**Internal distribution code:**

- (A)  Publication in OJ  
(B)  To Chairmen and Members  
(C)  To Chairmen

**D E C I S I O N**  
of 9 March 1994

**Case Number:** T 0435/91 - 3.3.1

**Application Number:** 85301297.9

**Publication Number:** 0153857

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**  
Detergent compositions

**Patentee:**  
Unilever N.V.

**Opponent:**  
Henkel Kommanditgesellschaft auf Aktien

**Headword:**  
Detergents/UNILEVER

**Relevant legal norms:**  
EPC Art. 83, 100(b), 56, 123(2)

**Keyword:**  
"Sufficiency of disclosure (main request and auxiliary requests 1 and 2, (no) "  
"Inadmissible generalisation (auxiliary request 3) "  
"Inventive step, unobvious alternative (auxiliary request 4) "

**Decisions cited:**  
T 0013/84, T 0226/85, T 0292/85, T 0301/87, T 0019/90,  
T 0182/89, T 0060/89, T 0212/88, T 0409/91

Headnote follows

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EPC Art. 83, 100(b), 56, 123(2)

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"Inventive step, unobvious alternative (auxiliary request 4) "

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T 0182/89, T 0060/89, T 0212/88, T 0409/91



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Boards of Appeal

Chambres de recours

Case Number: T 0435/91 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 9 March 1994

**Appellant:**  
(Opponent)

Henkel  
Kommanditgesellschaft auf Aktien  
TFP/Patentabteilung  
D-40191 Düsseldorf (DE)

**Representative:**

Härle, Horst, Dr.  
c/o Henkel KGaA  
TFP/Patentabteilung  
D-40191 Düsseldorf

**Respondent:**  
(Proprietor of the patent)

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Weena 455  
NL-3013 AL Rotterdam (NL)

**Representative:**

Ford, Michael Frederick  
Mewburn Ellis  
2 Cursitor Street  
London WC4A 1BQ (GB)

**Decision under appeal:**

Interlocutory decision of the Opposition Division  
of the European Patent Office concerning  
maintenance of European patent No. 0 153 857 in  
amended form, announced orally on 24 January 1991,  
with written reasons delivered on 15 April 1991.

**Composition of the Board:**

**Chairman:** A. Jahn  
**Members:** R.K. Spangenberg  
J.A. Stephens-Ofner

In application of Rule 89 EPC the decision announced at the end of the oral proceedings held on 9 March 1994 is hereby corrected as follows:

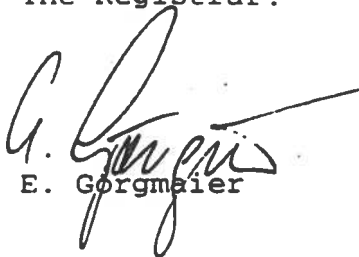
Point 2 of the order reads as follows :

"The case is remitted to the Opposition Division with the order to maintain the patent on the basis of Claim 1 of auxiliary request 4, after adaptation of the remaining claims and after appropriate amendment of the description."

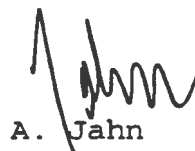
**Reason:**

Auxiliary request 4 submitted during the oral proceedings consisted of an amended Claim 1, followed by the sentence "Claims 2 onwards unchanged". However, the scopes of Claims 4 to 6, 8, 9 and 31 of the claims as granted, the maintenance of which was thereby requested, extend beyond the subject-matter of the allowed Claim 1 of that request. Thus the announced order, implying maintenance of the patent with these claims, contains an obvious mistake.

The Registrar:

  
E. Gorgmeier

The Chairman:

  
A. Jahn

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**Internal distribution code:**

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(B) [ ] To Chairmen and Members  
(C) [X] To Chairmen

**D E C I S I O N**  
**of 14 March 1994**

**Case Number:** T 0435/91 - 3.3.1

**Application Number:** 85301297.9

**Publication Number:** 0153857

**IPC:** C11D 17/00

**Language of the proceedings:** EN

**Title of invention:**  
Detergent compositions

**Patentee:**  
Unilever N.V.

**Opponent:**  
Henkel Kommanditgesellschaft auf Aktien

**Headword:**  
-

**Relevant legal norms:**  
EPC R. 89

**Keyword:**  
"Correction of the announced order"

**Decisions cited:**  
-

**Catchword:**  
-



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Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0435/91 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 14 March 1994  
correcting errors in the decision  
of the Technical Board of Appeal 3.3.1  
announced on 9 March 1994

**Appellant:**  
(Opponent)

Henkel  
Kommanditgesellschaft auf Aktien  
TFP / Patentabteilung  
D - 40191 Düsseldorf (DE)

**Representative:**

Härle, Horst, Dr  
c/o Henkel KGaA  
TFP / Patentabteilung  
D - 40191 Düsseldorf (DE)

**Respondent:**  
(Proprietor of the patent)

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NL - 3013 AL Rotterdam (NL)

**Representative:**

Ford, Micheal Frederick  
Mewburn Ellis  
2 Cursitor Street  
London EC4A 1BQ (GB)

**Decision under appeal:**

Interlocutory decision of the Opposition Division  
of the European Patent Office dated 15 April 1991  
concerning maintenance of European patent  
No. 0 153 857 in amended form.

**Composition of the Board:**

**Chairman:** A.K.A. Jahn  
**Members:** R.K. Spangenberg  
J.A. Stephens-Ofner



### Summary of Facts and Submissions

I. The appeal, filed on 14 June 1991, accompanied by the payment of the appropriate fee, lies against the decision of the Opposition Division of the EPO, which was announced orally on 24 January 1991 and with written reasons delivered on 15 April 1991. This decision concerned the maintenance in amended form of European patent No. 0 153 857, which was granted in response to European patent application No. 85 301 297.9, filed on 26 February 1985, claiming priority of 29 February 1984 from an earlier application in the UK, and contained 31 claims. The decision was based on an amended Claim 1 and Claims 2 to 31 as granted. Amended Claim 1 read as follows:

"An aqueous detergent composition comprising a gel, characterised in that the gel is wholly or predominantly in hexagonal liquid crystal form, and comprises:

- (a) a surfactant system having a Krafft point below ambient temperature, said system being incapable of forming hexagonal phase spontaneously, and consisting of:
  - (i) 30 to 100% by weight of an anionic or cationic surfactant, having a polar head group and one or more linear or branched aliphatic or araliphatic hydrocarbon chains containing in total at least 8 aliphatic carbon atoms, the polar head group being positioned non-terminally in a single hydrocarbon chain or carrying more than one hydrocarbon chain; or two or more such surfactants of the same charge type; and

- (ii) optionally 0 to 70% by weight of a further surfactant selected from surfactants of the same charge type as (i) but having a polar head group positioned terminally in a linear or branched aliphatic or araliphatic hydrocarbon chain containing at least 8 aliphatic carbon atoms; nonionic surfactants; and mixtures thereof;
- (b) an "additive" which is a water-soluble non-micelle-forming or weakly micelle-forming material capable of forcing the surfactant system (a) into hexagonal phase, the additive being nonionic or of the same charge type as the surfactant (a)(i); and
- (c) water;

but excluding a composition which contains by weight 27 % of alkylbenzene sulphonate as surfactant (a)(i) with 13 % of alkyl ether sulphate as surfactant (a)(ii) with 12 % urea and 4 % ethanol."

In the decision under appeal *inter alia* the following documents were considered:

- (1) DE-A-2 231 304
- (2) US-A-2 580 713
- (3) EP-A-0 112 047

II. The Opposition Division held that the requirement of sufficient disclosure was met, since the description and the claims of the contested patent contained sufficient information to select suitable components for the desired compositions and during the preparation of the mixture a skilled person would have easily recognised the point at which a gel as claimed was formed. In

respect of inventive step, document (2) was considered to represent the closest state of the art. The technical problem in respect of this state of the art was seen to consist in providing further surfactant compositions in the form of a hexagonal phase gel, based on a surfactant system which did not spontaneously form a hexagonal phase, and the solution of this problem by incorporating in the composition hydrotropic compounds was held inventive, since none of the cited documents contained a suggestion in this direction.

III. A Statement of Grounds of appeal was received on 15 August 1991 and oral proceedings were held on 9 March 1991.

IV. In his written submissions and during the oral proceedings, where he additionally relied upon Decision T 226/85, the Appellant (Opponent) submitted that it followed from the specification of the patent in suit as well as from the content of documents (1) and (3) that the concentration ranges in which desired hexagonal gel phase existed were very narrow and depended strongly on the chemical nature of the components. Thus, he concluded that the great majority of compositions containing components according to Claim 1 in the concentration ranges specified therein would not be able to form a hexagonal gel phase, so that it was not possible to obtain gels falling within the broad definitions of Claim 1, other than those described in the worked examples, without the undue burden of performing an excessive number of experiments, or without further inventive activity.

In addition, the Appellant submitted that the broadly defined compositions according to the patent in dispute were not inventive, since it was already stated in document (1) that the addition of hydrotropic compounds

such as urea to surfactant compositions caused a marked increase in viscosity, so that it was obvious to try whether this increase was sufficient to prepare compositions having a similar viscosity as the compositions described in document (2).

- V. The Respondent (the patent Proprietor) relied on Decisions T 292/85, T 301/87, T 19/90, T 182/89, T 60/89, and T 212/88 of the Boards of Appeal, and submitted that the subject-matter of present Claim 1 was sufficiently disclosed in the description in order to be carried out by a skilled person who was capable to perform some routine experimentation. In particular, the patent contained not only one, but several examples which demonstrated how the desired hexagonal gel phase could be obtained. In addition he submitted that it was not possible, without loss of adequate protection, to describe the invention without "functional" definitions, since the concentration ranges for obtaining the hexagonal phase were defined by irregular areas in the phase diagram and depended strongly on the chemical nature of the components. In his submission the question whether or not further invention was necessary in order to carry out the invention in some areas covered by the claim but outside the area of the worked examples was not relevant, or, in other words, the possibility to make selection inventions did not impair the sufficiency of the disclosure. Concerning inventive step, he submitted that, even if document (1) would suggest to increase the viscosity of certain surfactant compositions, it would certainly not suggest to produce a hexagonal liquid crystal phase. Thus the combined information of documents (2) and (1) would not help the skilled person to solve the problem of providing compositions in the form of hexagonal liquid crystals containing surfactant compositions which are not capable of forming such crystals spontaneously. Since the state

of the art was completely silent as to the possibility of obtaining gels in the hexagonal liquid crystal phase from surfactants which did not form such a phase spontaneously, the Patentee was entitled to obtain a monopoly for all compositions containing surfactants which would form such a gel phase in the presence of any suitable additive, without specifying the exact chemical nature of the latter component.

At the end of the oral proceedings the Respondent submitted six amended sets of claims, marked main request and first to fifth auxiliary request. The main request and Auxiliary Requests 1 to 4 were filed in the form of copies of the main request allowed by the decision under appeal, carrying further handwritten amendments. Claim 1 marked main request was identical with Claim 1 underlying the decision under appeal, save the replacement of "and 4 % ethanol" at its end by "4 % ethanol and balance water".

In Claim 1 marked "First auxiliary request" the definition of component (b) was replaced by the following:

- (b) an "additive" which is a water-soluble non-micelle-forming or weakly micelle-forming material **which is a hydrotrope** capable of forcing the surfactant system (a) into hexagonal phase, the additive being nonionic or of the same charge type as the surfactant (a)(i). (Emphasis added by the Board.)

In Claim 1 marked "Second auxiliary request" the above expression "which is a hydrotrope" was replaced by "selected from compounds having a polar head group having the same charge type as surfactant a(i) and optionally an aliphatic or araliphatic hydrocarbon chain containing at most 6 aliphatic carbon atoms".

In Claim 1 marked "Third auxiliary request" the above expression "which is a hydrotrope" was replaced by "selected from urea, methyl urea, thiourea, formamide, acetamide and compounds with a polar head group having the same charge type as surfactant a(i) and a hydrocarbon group containing at most 6 aliphatic carbon atoms".

In Claim 1 marked "Fourth auxiliary request" the above expression "which is a hydrotrope" was replaced by "selected from urea, methyl urea, ethyl urea, thiourea, formamide, acetamide, toluene sulphonates and xylene sulphonates".

In Claim 1 marked "Fifth auxiliary request" component (b) was defined as in the above claim marked "Fourth auxiliary request" and, in addition, the concentration limits of components a(i) and a(ii) were amended to read "a major proportion, up to 100 %" and "a minor proportion", respectively. Further, the surfactants a(i) and a(ii) were limited to "anionic" and "non-soap anionic" surfactants, respectively.

VI. The Appellant requested that the decision under appeal be set aside and the patent revoked.

The Respondent requested that the patent be maintained on the basis of the main request submitted in the course of oral proceedings or on the basis of one of Auxiliary Requests 1 to 5, also filed during oral proceedings.

At the end of the oral proceedings the decision was announced to allow the fourth auxiliary request. The announced order was corrected pursuant to Rule 89 on 14 March 1994.

## Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
  - 2.1 Claim 1 according to this request differs from Claim 1 allowed by the decision under appeal in respect of an obvious correction in the disclaimer which excludes the known composition of Example F of document (3). This amendment is not objectionable under Article 123(2) and (3) EPC.
  - 2.2 The main issue that was argued in respect of this request was whether or not its subject-matter met the requirement of Article 100(b) EPC, i.e. whether or not the patent disclosed the claimed invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
    - 2.2.1 There is no dispute that a skilled person can establish whether or not a surfactant composition exists in the hexagonal liquid crystal phase (see the patent specification, page 6, lines 3 to 8). Furthermore the feasibility of the worked examples, in which the "additive" is either urea or sodium toluenesulfonate, remained unchallenged. Thus it is clear that the patent discloses at least one way to carry out the invention and that it is possible to determine whether or not any particular composition meets the definition of the invention as set out in Claim 1.

There is dispute, however, as to whether or not the subject-matter of Claim 1 as a whole can be carried out by the person skilled in the art, because one of its

essential technical features, the "additive" (b), is defined only by its function.

In the Board's judgment the criteria for determining the sufficiency of the disclosure are the same for all inventions, irrespective of the way in which they are defined, be it by way of structural terms of their technical features or by their function. In both cases the requirement of sufficient disclosure can only mean that the whole subject-matter that is defined in the claims, and not only a part of it, must be capable of being carried out by the skilled person without the burden of an undue amount of experimentation or the application of inventive ingenuity.

The peculiarity of the "functional" definition of a component of a composition of matter resides in the fact that this component is not characterised in structural terms, but by means of its effect. Thus this mode of definition does not relate to a tangible component or group of components, but comprises an indefinite and abstract host of possible alternatives, which may have quite different chemical compositions, as long as they achieve the desired result. Consequently, they must all be available to the skilled person if the definition, and the claim of which it forms a part, is to meet the requirements of Article 83 or 100(b) EPC. This approach is based on the general legal principle that the protection covered by a patent should correspond to the technical contribution to the art made by the disclosure of the invention described therein, which excludes that the patent monopoly be extended to subject-matter which, after reading the patent specification, would still not be at the disposal of the skilled person (see also points 3.4 and 3.5 of Decision T 409/91 of 18 March 1993 (to be published in OJ EPO; for Headnote see OJ 11/93, page XVII)).



There cannot, of course, be a clear-cut answer to the question of how many details in a specification are required in order to allow its reduction to practice within the comprehensive whole ambit of the claim, since this question can only be decided on the basis of the facts of each individual case. Nevertheless, it is clear that the available information must enable the skilled person to achieve the envisaged result within the whole ambit of the claim containing the respective "functional" definition without undue difficulty, and that therefore the description with or without the relevant common general knowledge must provide a fully self-sufficient technical concept as to how this result is to be achieved.

It has therefore to be established whether or not the present specification discloses a single embodiment or a technical concept fit for generalisation which makes available to the skilled person the host of variants encompassed by the respective "functional" definition of the said claim. In this respect, the Respondent had admitted during the oral proceedings that it was not possible to identify, on the basis of the information contained in the patent specification and taking into account the common general knowledge, other compounds than those specifically mentioned, i.e. "hydrotropes", which could reasonably be expected to bring about the desired effect.

Thus, it is clear that the above definition of the additive is not more than an invitation to perform a research programme in order to find other "additives" which meet the "functional" requirement set out in Claim 1. In other words, through this definition in the present claim the Respondent tries to claim not only the solution of the technical problem of providing surfactant compositions in the form of a hexagonal

liquid crystal gel phase made available to the person skilled in the art by the disclosure in the patent specification, but, in addition, all other possible solutions of this problem which are based on the "principle" of mixing a surfactant composition (a) as defined in Claim 1 with a "suitable additive" and water, without giving any or any useful technical guidance as to how to obtain, with a reasonable expectation of success, further suitable "additives" which are not "hydrotropes". Neither the patent specification nor the relevant common general knowledge provide guidance as to how these further additives may be traced out or according to which criteria they might be selected. Therefore the Board holds that the patent does not disclose a self-sufficient technical concept which adequately corresponds to the "functional" definition used for the "additive" (b) in the present Claim 1. Thus, pursuant to Article 100(b) EPC, the patent cannot therefore be maintained on that basis.

2.2.2 The Respondent referred to several earlier decisions of the Boards of Appeal, which, in his opinion, supported the legal proposition that the requirement of Article 100(b) EPC would, as a matter of principle, always be satisfied by the disclosure of only one way of carrying out the invention, e.g. by a worked example, the repetition of which resulted in obtaining an embodiment of that invention. However, the decisions referred to do not support such a broad proposition, since the Respondent has not relied on the whole content of these decisions but only on selected parts of them.

In particular, it is not adequate to take the finding in point 3.1.5 of Decision T 292/85 (OJ EPO 1989, 275) out of its context. It is not only stated there, as quoted by the Respondent, that an "invention is sufficiently disclosed if at least one way of carrying out the

invention is clearly indicated enabling the skilled person to carry out the invention", but in the next sentence it is made clear that "any non-availability of **some particular** variants of a functionally defined component feature of the invention is immaterial to sufficiency **as long as there are suitable variants known** to the skilled person through the disclosure or common general knowledge which provide the same effect for the invention" (emphasis added). Accordingly, this decision is *inter alia* based on the finding of fact that the application concerned made enough choice of suitable variants of the specifically disclosed embodiments available (point 3.1.3 of the reasons). Moreover, in respect of the "functional" expression "suitable bacterium" it was pointed out that the applicability of the claimed method to any kind or most species of bacteria has not been effectively challenged (point 3.2.2 of the reasons). Similar findings of fact concerned the remaining "functional" definitions in the considered claim (see e.g. point 3.4.3 of the reasons). Thus this decision does not support the Respondent's much broader legal proposition. Similarly, the reasons given in chapter 4 of Decision T 301/87 (OJ EPO 1990, 335) as well as in Chapter 3 of Decision T 19/90 (OJ EPO 1990, 476) imply that the respective Boards were satisfied that all variations comprised by the claims under consideration would - possibly with a few exceptions - give the desired result. Nothing else can be derived either from the corresponding reasoning in Decision T 60/89 (OJ EPO 1992, 268), points 2.2.2 to 2.2.7 of the reasons. In point 2 of the reasons of Decision T 182/89 (OJ EPO 1991, 391) the sufficiency of the disclosure was confirmed, since it was *inter alia* found that " there was **no** evidence or argument ... to suggest that a skilled reader of the patent would not be able to carry out the invention **in any embodiment**" (emphasis added). Decision T 212/88 (OJ EPO 1992, 28)

concerns the repeatability of the worked examples. The question whether or not all products falling in the ambit of a "functional" definition could be obtained, was not at issue.

- 2.2.3 Therefore, in the Board's judgment there is no conflict between these decisions and Decision T 226/85 (OJ EPO 1988, 336), where it was held that the disclosure was insufficient, since the description did not contain adequate instructions which would allow the skilled person to perform random experiments with an acceptable statistical expectation of success (see points 7 and 8 and T 14/83, OJ EPO 1984, 105). On the contrary, these decisions are all based on the common ground that the disclosure of an invention is only sufficient if the skilled person can reasonably expect that substantially all embodiments of a claimed invention which this skilled person would envisage on the basis of the corresponding disclosure and the relevant common general knowledge can be put into practice. In other words, only exceptional failures can be tolerated. In the present case, however, the possibility of failure is far from being exceptional. Thus, the Respondent's submission that he is entitled to a broader protection because the knowledge of the disputed patent would provide an incentive for those skilled in the art to entertain **further research activities** which might lead to the discovery of further suitable compositions, has no basis in the EPC, nor is it supported by the cited jurisprudence of the Boards of Appeal.

3. *First auxiliary request*

- 3.1 The further definition of the "additive" according to Claim 1 of this request as a "hydrotrope" is supported by the patent specification, page 4, lines 60 to 64.

3.2 The above description indicates that **some** materials useful as hydrotropes **in light-duty detergent compositions may** behave as "additives". It is further stated that these are generally compounds having in their molecules a large polar group and, optionally, a small hydrophobic group. During the oral proceedings both parties agreed that for a person skilled in the art in the technical field of manufacturing detergent compositions the expression "hydrotrope" defines chemical compounds which increase the water-solubility of surfactants which are themselves not sufficiently soluble, and that this expression did not imply a particular chemical structure, although the most common products were urea, sodium toluene sulfonate, and ethanol. Therefore, the amended Claim 1 still seeks to define the "additive" by its desired activity rather than by structural parameters. Moreover, it is not stated that **all** compounds which a skilled person would envisage for use as "hydrotropes" were also suitable "additives" according to the present claim, but only **some** of them. Thus, even if the Board would admit, for sake of argument, that the open-ended expression "hydrotrope" would give the skilled person a useful hint as to which type of compounds might be suitable, it would still require a roving experimental search with a quite uncertain expectation of success to find suitable "hydrotropes" not belonging to the groups of compounds specifically mentioned in the patent as "additives". In other words, the disclosure is still not sufficient to ensure that, with an adequate statistical rate of success, the desired hexagonal liquid crystal phase will be obtained with the "additives" the skilled person would envisage according to the above definition.

Therefore, in respect of the disclosure of the invention defined by this claim, substantially the same considerations apply as for the invention defined by the

claim according to the main request, i.e. that not all embodiments of the invention were, after reading the patent specification, at the disposal of the person skilled in the art. Consequently, this request must likewise fail.

4. *Second auxiliary request*

4.1 According to the sole claim of this request the definition of the "additive" is further limited to the group mentioned in the first sentence of point 3.2 above. This amendment is therefore not objectionable under Article 123 EPC, paragraphs (2) and (3).

4.2 The definition of the "additive" now contains not only the result to be achieved but, in addition, an indication of which structural requirements must be met in order to obtain this result. However, having regard to the fact that the Respondent was unable during the oral proceedings to indicate, on the basis of the patent specification, any other possibility for the skilled person to avoid failure in the attempt to carry out the invention than to use those "additives" which were specifically recommended therein, the situation remains substantially the same as that in respect of the first auxiliary request. The structural definition still comprises a practically unlimited number of individual compounds and the patent does not provide any guidance according to which a skilled person could identify the suitable individual compounds without undue effort. This identification would in the present case require him to establish for each individual compound in combination with a practically equally unlimited number of possible surfactant compositions (a) a complete phase diagram. However, the phase diagrams contained in the patent, which relate to the worked examples, in particular the comparison of Figures 1 to 5 (where the "additive" is

urea) with Figure 6 (where the "additive is sodium toluene sulfonate), demonstrate that the area in which a hexagonal phase exists may become very small. In addition, the Respondent's assertion that, although the concentration range in which the desired hexagonal phase may exist varies unsystematically and thus unpredictably depending on the chemical structure of the components, the skilled person could still reasonably expect that with other suitable "additives" a hexagonal liquid crystal phase would be formed if concentrations similar to those corresponding to the "middle" of the area applicable for components according to the worked examples were chosen, is not supported by the above figures. Thus the person skilled in the art has no chance to perform some quick "screening" test in order to check whether an individual compound that meets the above broadly defined structural requirements will most likely force a mixture of a surfactant composition (a) and water into the desired hexagonal phase, if suitable concentrations are chosen. In the absence of such a possibility, the skilled person is in the present case confronted with the burden not only of selecting a suitable additive but also of choosing a corresponding surfactant composition and the suitable concentration, and yet he is provided with nothing more than a method to determine whether or not a certain individual composition is in the hexagonal liquid crystal phase. In addition, it follows from the figures mentioned above that in the present case the person skilled in the art cannot reasonably predict which "additives" with chemical structures considerably different from urea or sodium toluenesulfonate would be capable to force the surfactant compositions (a) of Claim 1 in the desired hexagonal liquid crystal phase, since the replacement of urea by sodium toluenesulfonate already strongly reduces the area in which such a phase exists. Thus the Board is still not satisfied that in respect of the present

Claim 1 the skilled person is enabled by the description and the common general knowledge to conceive, with a reasonable expectation of success, suitable variants of the specifically described embodiments of the claimed invention.

For this reason the disclosure in the patent specification still remains insufficient in respect of most of the embodiments covered by the present Claim 1 and this request must also fail.

5. *Third auxiliary request*

5.1. According to the Respondent's submission the amendment which distinguishes the sole claim according to this request from the sole or first claims of the preceding requests finds its basis in the description as granted, page 5, lines 6 to 8 and lines 21 to 25. According to the disclosure page 5, lines 6 to 8 one preferred type of "additives" has the same or a similar polar head group as the surfactant a(i) but has a relatively small hydrocarbon chain containing at most 6 aliphatic carbon atoms. However, in the present Claim 1 the word "chain" was replaced by "group" in an attempt to extend the meaning of this expression in such a way that it covers compounds where the polar head group is not linked to an aliphatic but to an aromatic carbon atom, such as in toluene sulfonic acid. However, this amendment has no basis in the description as filed, which is, save a few clerical amendments, identical with the granted text. Therein, on page 5, line 2 to 4, it is stated that lower aryl or alkylaryl sulfonates, such as toluene and xylene sulfonates, may be used as "additives" for compositions based on detergent-chain-length alkylbenzene sulfonates. Thus the description as filed does not support the Respondent's submission that later on in the description the word "chain" has inadvertently been used where the



use of the word "group" has been intended. Nor is there basis for the above amendment which creates a new sub-group or sub-generic definition of suitable "additives" which was not foreshadowed by the description as filed. Thus the subject-matter of the sole claim according to this request extends beyond the content of the application as filed, and does therefore not meet the requirement of Article 100(c) EPC. Consequently, this request must fail for this reason alone, so that there is no room for considering whether or not its subject-matter would have met the requirement of Art 100(b) EPC.

6. *Fourth auxiliary request*

6.1 Claim 1 of this request is based on Claims 1, 6, 7 and 9 as filed and granted in combination with the description as filed and granted (see page 5, lines 2 to 4 and lines 21 to 25 of the patent specification, which have already been discussed in respect of the third auxiliary request) and does not extend the scope of protection conferred by Claim 1 as granted. Therefore the amendment meets the requirements of Art 123(2) and (3) EPC.

6.2 According to the present Claim 1 the "additive" is selected from a limited list of individual chemical compounds which are structurally very similar to the "additives" used in the worked examples. Therefore, the "double burden" imposed on the skilled person by the broad and "functional" definitions of the suitable additives, namely to establish by trial and error which compounds are in principle suitable and at the same time to determine the suitable concentrations of all components of the compositions claimed according to the main and the first two auxiliary requests, no longer exists. It was not disputed by the Appellant that it is highly likely that for all "additives" now claimed a concentration range exists in which, depending on the

chemical nature of the surfactant (a), a hexagonal liquid crystal phase is formed. In addition, having regard to the fact that the additives listed in the present Claim 1 which are not used in the examples are structurally very closely related to either urea or sodium toluene sulfonate, for which suitable concentration ranges can be derived from Figures 1 and 6, the exact determination of the concentration limits within which the desired hexagonal liquid crystal phase is formed when the other "additives" are used, cannot be regarded as an undue burden upon the skilled person. On the contrary, since he could reasonably expect that in these cases about the same concentrations will be applicable as those which are used in the above figures, only some routine experiments would be called for. Thus the Board holds that in respect of the subject-matter now claimed the requirement of Article 83 EPC is met and that, consequently, Article 100 b) EPC does not prejudice the maintenance of the disputed patent on the basis of the present Claim 1.

- 6.3 The Board is satisfied that the subject-matter of the present Claim 1 is novel. This was not disputed by the Appellant.
- 6.4 It remains to be decided whether or not the subject-matter of the present claim 1 involves an inventive step.
  - 6.4.1 According to the printed patent specification detergent compositions in gel form were known at the priority date of the disputed patent. These gels were relatively soft gels based on lamellar phase liquid crystals. On the basis of this background art the technical problem derivable from the patent specification is to provide stable, transparent, translucent or opaque surfactant gels of high viscosity. Such gels are disclosed in

document (2) which describes a transparent or translucent "liquid crystalline" plastic surfactant composition (column 1, lines 9 to 14). This plastic form is said to be comparable with the "middle phase" or "gum-soap" occurring in the manufacturing of sodium soaps of ordinary soap-making fatty acids (column 2, lines 1 to 44). Thus it was common ground between the parties in these appeal proceedings that the compositions described in document (2) were in the "hexagonal liquid crystal phase" as defined in the disputed patent. The known compositions contain a surfactant system which forms the desired gel phase spontaneously, see Example 5, column 6, line 50 to column 7, line 2. Having regard to this state of the art, the technical problem underlying the disputed patent can therefore be seen in providing further surfactant compositions in the form of a stiff gel as defined above.

6.4.2 The disputed patent essentially proposes to solve this problem by using a surfactant system (a) as defined in the present Claim 1, which differs from the surfactant used according to document (2) and which is not capable of forming the desired gel phase spontaneously, together with an "additive" (b) selected from the group indicated in the present Claim 1, which forces the surfactant system in the desired phase. Having regard to the worked examples the Board is satisfied that the above-defined technical problem has thereby been effectively solved.

6.4.3 Document (2) is silent about the possibility to force a surfactant composition in the desired gel form if this gel is not spontaneously formed. The disclosure of this document cannot therefore provide any hint of the above solution of the present technical problem. Document (1) relates to a detergent composition in liquid form, which may contain lower aliphatic alcohols and urea for the

adjustment of the viscosity and the transparency (see Claims 1 and 4). The technical problem which this document sets out to solve is to produce liquid detergent compositions which are highly concentrated and remain stable and transparent at low temperatures. These compositions may further contain hydrotropic compounds such as xylenesulfonates in order to reduce the viscosity (page 11 of the description, lines 17 to 23). Thus this document teaches how to avoid a high viscosity of a detergent composition and a skilled person would not have considered this document when looking for further surfactant compositions in the form of a stiff gel. Document (3) was published after the priority date of the present patent and belongs to the state of the art which is excluded from consideration by virtue of Article 56 EPC, second sentence.

- 6.4.4 Thus the cited state of the art does not render the subject-matter of the present Claim 1 obvious to the person skilled in the art. The patent can therefore be maintained on the basis of that claim.
7. In these circumstances it is not necessary to consider the fifth auxiliary request.

Order

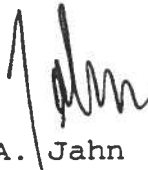
For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent on the basis of Claim 1 of auxiliary request 4, after adaptation of the remaining claims and after appropriate amendment of the description.

The Registrar:

  
E. Gorgmaier

The Chairman:

  
A. Jahn