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D E C I S I O N
of 11 October 1994

Case Number: T 0240/92 - 3.3.1

Application Number: 84201579.4

Publication Number: 0149264

IPC: C11D 3/12

Language of the proceedings: EN

Title of invention:

Stable, free-flowing particulate adjuncts for use in detergent compositions

Patentee:

UNILEVER N.V., ET AL

Opponent:

Degussa AG, Frankfurt - Zweigniederlassung Wolfgang Henkel Kommanditgesellschaft auf Aktien

Headword:

Zeolite absorbers/UNILEVER

Relevant legal provisions:

EPC Art. 56, 111(2), 123(2)(3)

Keyword:

"Change of category (allowed)"

"Inventive step (yes)"

"Necessary extent of amendments to the description"

Decisions cited:

T 0005/90, T 0127/85, T 0550/88

Catchword:

-



Case Number: T 0240/92 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 11 October 1994

Appellant: Henkel
(Opponent 02) Kommanditgesellschaft auf Aktien
TFP / Patentabteilung
D-40191 Düsseldorf (DE)

Representative: -

Other party: Degussa AG, Frankfurt
(Opponent 01) - Zweigniederlassung Wolfgang-
Postfach 13 45
D-63403 Hanau (DE)

Representative: -

Respondents: UNILEVER N.V.
(Proprietor of the patent) Weena 455
NL-3013 AL Rotterdam (NL)

UNILEVER PLC
Unilever House Blackfriars
P.O. Box 68
London EC4P 4BQ (GB)

Representative: Fransella, Mary Evelyn
Unilever PLC
Patent Division
Colworth House
Sharnbrook
Bedford MK44 1LQ (GB)

Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office dated 30 January
1992 concerning maintenance of European patent
No. 0 149 264 in amended form.

Composition of the Board:

Chairman: R. K. Spangenberg
Members: P. P. Bracke
J. A. Stephens-Ofner

Summary of Facts and Submissions

I. European patent No. 0 149 264 was granted on the basis of European patent application No. 84 201 579.4 on 15 April 1987 (cf. Bulletin 87/16) with 7 claims related to particulate adjuncts having a liquid, viscous-liquid, oily or waxy component absorbed in a granular zeolite material and detergent compositions containing such adjuncts.

II. Notices of Opposition were filed on 26 October 1987 by Degussa AG and on 14 January 1988 by Henkel KgaA, both requesting the revocation of the patent on the grounds of lack of novelty and lack of inventive step. The oppositions were supported by several documents, including:

D2: DE-B-2 507 926;

D9: DE-A-2 752 984; and

D11: EP-A-0 021 267.

III. By a decision delivered on 30 January 1992, the Opposition Division maintained the patent in amended form with Claim 1 as granted save a further specification of the chemical structure of the carrier material and of the way the liquid, viscous-liquid, oily or waxy component is incorporated in the carrier.

In this decision it was held that the claimed adjuncts, which differed from the closest state of the art, D11, essentially in that the zeolite carrier material contained sodium sulphate and water instead of a silicate, were inventive.

The principal reason for the above finding was that the incorporation of sodium sulphate in a granular spray-

dried zeolite carrier material was nowhere suggested in the prior art and that it could not be foreseen that such granules would be capable of giving rise to a higher loading of liquid than was achieved in the prior art, while still retaining free-flowing characteristics.

IV. An appeal was lodged against this decision by Henkel KgaA (Appellant) on 20 March 1992 with payment of the prescribed fee. A Statement of Grounds of Appeal was received on 28 April 1992. In response to a communication of the Board, accompanying the summons to oral proceedings, the Respondent filed on 5 October 1994 eleven sets of claims marked first to eleventh auxiliary request.

Oral proceedings took place on 11 October 1994 in the presence of representatives of the Appellant and of the Respondents (Unilever NV and Unilever PLC). Degussa AG, which was also a party as of right, was not represented, as announced by the letter of 23 August 1994, nor did it file any observations or requests during the appeal proceedings. During the oral proceedings the Respondents maintained the third of the above auxiliary requests as main request and the seventh, ninth and eleventh as auxiliary requests Nos 1 to 3. Claim 1 of the set of claims being presented as main request reads as follows:

"1. Use of a granular, spray-dried zeolite carrier material which comprises from 65 to 85 wt% of zeolite A and from 15 to 35 wt% of sodium sulphate and water, and has a particle size distribution of between 50 and 500 µm and a bulk density of 450 - 600 g/litre for absorbing a liquid, viscous-liquid, oily or waxy component which is incorporated in the granular zeolite carrier material by spraying thereon in liquid or liquefied form, so as to form a stable, free-flowing particulate adjunct for mixing with particulate detergent compositions, the

adjunct consisting essentially of the liquid, viscous-liquid, oily or waxy component absorbed on the zeolite carrier material."

- V. The Appellant submitted that a skilled man being aware of the stable, free-flowing adjuncts for use in detergent compositions described in D11 and looking for a further possibility to obtain such adjuncts would use, instead of the zeolite-based carriers disclosed in D11, a zeolite carrier as defined in the above Claim 1, such as the commercially available zeolite HAB A40, in the expectation that such a carrier, which differs from those known from D11 only by the fact that sodium sulphate instead of sodium silicate is incorporated as a filler, would also have good absorption properties for liquid, viscous-liquid, oily or waxy components. He would do so, particularly, since it was known from D9 that nonionic detergents may be absorbed by zeolite particles possibly containing sodium sulphate and since sodium sulphate as well as sodium silicate are described in D2 as possible carriers useful for absorbing nonionics.

The Appellant also submitted that the adjuncts formed by using the carriers according to Claim 1 were not inventive for the additional reason that the known sodium silicate and sodium sulphate were initially disclosed in the contested patent as equally useful fillers for granular spray-dried zeolite carrier materials intended for being loaded with liquids, so that, for this reason alone, these adjuncts could be no more than obvious alternatives to those described in D11.

- VI. The Respondent submitted that the subject-matter of Claim 1 was inventive, because it was not obvious to replace sodium silicate by sodium sulphate, since these

salts behaved differently and had differing functions in detergents and, further, because neither D9 nor D2 suggested the use of the carriers defined in the present claims for absorbing liquids so as to form a free-flowing adjunct.

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

The Respondent requested that the appeal be dismissed and the patent maintained on the basis of the set of claims submitted during the oral proceedings as the main request or, alternatively, according to any of the sets of claims submitted during the oral proceedings as the first, second or third auxiliary request.

VIII. At the conclusion of the oral proceedings the Board's decision to maintain the patent with the set of claims according to the main request was announced.

Reasons for the Decision

1. The appeal is admissible.
2. *Main request*
 - 2.1 Amendments

The set of claims according to the main request differs from the granted set of claims in three respects. Firstly, the use of a granular carrier for absorbing a liquid, viscous-liquid, oily or waxy component instead of an adjunct consisting essentially of that carrier and that absorbed component is being claimed. Secondly, the chemical composition of the suitable carrier material is

more narrowly defined. Thirdly, the manner of administering the liquid, viscous-liquid, oily or waxy component to the carrier material is also specified.

The amended claims are therefore directed to a particular way of obtaining a limited number of the compositions of matter claimed in the patent as granted. This amendment clearly does not extend the protection conferred by the patent (see e.g. T 5/90 of 27 November 1992) and therefore satisfies Article 123(3) EPC.

The particular chemical structure of the carrier material was disclosed in original Claims 2 and 3. Furthermore, since in the originally filed application it was said that a known method of incorporating the adjunct in the carrier consisted in spraying it in liquid or liquefied form onto the said carrier material, which is then mixed with the detergent composition, (page 2, lines 26 to 29) and that it was the purpose of the invention to provide a general-purpose carrier material, which can be suitably mixed with any particulate detergent composition (page 2, lines 39 to 43), the particular use of the carrier for absorption by spraying the absorbent onto it is considered to be supported by the originally filed application. Moreover, according to any of the examples 1 to 7 and 9 the liquid or liquefied adjuncts were sprayed on the granular zeolite material. Finally, Claims 2 to 4 according to the main request are based on originally filed Claims 4 to 6. Consequently, the set of claims according to the main request does not contain subject-matter extending beyond the content of the application as filed.

Therefore, the set of claims according to the main request also meets the requirements of Article 123(2) EPC.

2.2. Novelty

The Board has reached the conclusion that the claimed use is not disclosed in any of the cited prior art documents. Since the novelty of the subject-matter of the present set of claims has no longer been contested during the appeal proceedings, it is not necessary to give detailed reasons for this finding.

2.3. Inventive step

2.3.1. In the patent as granted it is stated that it was known to produce a particulate material suitable for being mixed with the spray-dried detergent base formulation by spraying a liquid or liquefied adjunct onto a suitable carrier material, *inter alia* zeolite. These known carrier materials were found to have insufficient absorption capacity (page 2, lines 32 to 38). The technical problem set out was therefore the provision of a general-purpose carrier material having an absorption capacity for liquid, waxy or oily components much higher than any finely divided zeolite type normally used as substitute of phosphates in detergent compositions and being able to form stable, free-flowing particulate adjuncts, which can be suitably mixed with particulate detergent compositions without caking (see the granted patent, page 2, lines 39 to 43 and the paragraph bridging pages 2 and 3).

D11 describes agglomerates of optionally spray-dried alkali metal silicate particles and zeolite particles (claim 1 and page 2, lines 23 to 30) which can be used for absorbing up to 50 % of their weight of liquid nonionic surfactants (page 2, lines 9 to 13 and page 7, lines 18 to 30).

Both parties submitted during the oral proceedings that this document should be regarded as the closest state of the art and therefore as the starting point for assessing inventive step. Since it is the only document cited in the opposition and appeal proceedings which is concerned with the absorption capacity of a carrier material consisting predominantly of zeolites, the Board accepts this joint submission.

- 2.3.2. Starting from the teaching of D11 the technical problem which the contested patent sets out to solve can be seen as being the provision of further general-purpose carriers to be used for absorbing high amounts of liquid, waxy or oily components, and which have an absorption capacity for liquid, waxy or oily components much higher than that of any finely divided zeolite type normally used as substitute of phosphates in detergent compositions and are able to form stable, free-flowing particulate adjuncts.
- 2.3.3. The patent in dispute claims to solve this problem essentially by using the zeolite based carrier materials identified in the present Claim 1. Having regard to the absorption data provided in examples 1 to 7 and 9 and the comparative example described in the first paragraph of page 4 of the contested patent the Board is satisfied that the above technical problem has thereby been effectively solved.
- 2.3.4. Consequently, there remains to be decided whether, in the light of the cited state of the art, a person skilled in the art would have chosen the carrier materials specified in the present Claim 1 with a view to solving this technical problem.
- 2.3.5. The Appellant argued that a skilled person would have done so in view of the teachings of D11, D9 and D2.

As already mentioned above, D11 concerns agglomerates of optionally spray-dried alkali metal silicate particles and zeolite particles which can be used for absorbing up to 50 % of their weight of liquid nonionic surfactants. This document does not suggest that any other zeolite-based material may exist which have a similarly high or even higher absorption capacity for liquid materials such as nonionic surfactants, let alone any kind of modification which may lead to such materials.

D9 relates to a detergent composition containing spray-dried particles consisting of an inorganic builder and, possibly, sodium sulphate as a filler, onto which 5 to 17 % of a nonionic detergent is sprayed (see page 16, line 10 to page 17, line 15 and page 20, lines 1 to 4). However, D9 does not disclose builders consisting of zeolite A and sodium sulphate, let alone those having the chemical composition indicated in the present Claim 1, but is concerned with builders consisting for at least 50 % of water-soluble inorganic compounds, such as sodiumtripolyphosphate, sodium silicate or sodium carbonate and optionally water-insoluble inorganic builders, such as zeolite A (see page 19, lines 6 to 8 and lines 18 to 22). Furthermore, it is the essence of the teaching of D9 (see page 12, line 17 to page 17, line 15) that, by the presence of hydrotropic compounds in the mixture to be spray-dried, particles having decreased bulk density may be obtained. This document is thus neither concerned with the improvement of the absorption of liquid, waxy or oily components by carrier materials normally used as substitute of phosphates in detergent compositions, nor with carrier materials consisting predominantly of zeolites. Therefore, it is the Board's finding that D9 does not suggest that by incorporating sodium sulphate in spray-dried zeolite particles the absorption capacities of such particles would be increased, let alone that such particles should

have a particle size and a bulk density as defined in the present Claim 1.

From D2 it is known that nonionic detergents may be sprayed upon water-insoluble aluminosilicate builder particles instead of phosphate containing particles (the paragraph bridging columns 4 and 5). It also describes that the nonionic detergents may be sprayed onto mixtures of such builders with other common particulate components of detergent compositions, such as microdispersed silica or perborate. These mixtures may also contain water-soluble fillers, such as sodium sulphate, and alkaline compounds, inter alia alkalisilicates (column 5, lines 36 to 54). The Appellant argued that from this teaching it was clear that sodium sulphate was equivalent to silicate in the carrier described in D11. The Board cannot accept this conclusion nor the reasoning upon which it is based.

D2 discloses no more than the possibility of spraying nonionic detergents onto mixtures of certain zeolite particles and sodium sulphate or sodium silicate, but says nothing about the influence of silicates or sulphates on the absorption capacities of the zeolites or about the possibility to improve the latter by forming particles consisting of from 65 to 85 % by weight of a zeolite and from 15 to 35 % by weight of sodium sulphate and water and having a size and bulk density as required according to the contested patent. More particularly and as distinct from the requirements of Claim 1 of the contested patent, which specify that the spray-dried carrier material must have a particle size distribution of between 50 and 500 μm , this document states in column 4, lines 13 to 15, that the aluminosilicates preferably consist at least for 80 % by weight of particles having a particle size of less than 10 μm . Thus, the fact that the particle size is a

relevant feature, as shown by the comparison described in the first paragraph on page 4 of the contested patent, could not be deduced from D2. On the contrary, in the Board's judgment the particles described in D2 belong rather to the group of carriers, namely the zeolites normally used as phosphate substitutes, which the contested patent sets out to improve, so that a skilled person would not have considered that this document would contain any suitable information when searching for a solution to the present technical problem.

Therefore in the Board's judgment the Appellant's argument is based on hindsight.

2.3.6. Since D9 and D2 relate to technical problems different from that underlying the disputed patent, the skilled person had no reason to combine their teachings with that of D11 with a view to solving the above-defined technical problem. Consequently, in the Board's judgment, the cited state of the art does not suggest that by using the carrier materials defined in the present Claim 1 instead of the silicate agglomerates described in D11 the above-defined technical problem would have been solved.

2.3.7. The Appellant also argued that it would have been obvious to replace the silicate of the carrier described in D11 by sodium sulphate since **in the contested patent** both compounds are cited as equivalent fillers. The Board cannot, however, agree with this argument, because the citation of both compounds in the same list in the contested patent cannot be considered as evidence that both components were **obvious** equivalents for the purpose of solving the present technical problem. It is not allowable to refer to the description of the claimed invention for the purpose of demonstrating obviousness,

since obviousness can only follow from considerations based on the state of the art including common general knowledge. However, none of the cited documents describes sodium silicate as a filler, but rather as a builder or a compound providing alkalinity (see D9, page 18, lines 1 to 4 from the bottom and D2, column 5, lines 49 to 53). The existence of common general knowledge relevant to the equivalence of sodium sulphate and alkali metal silicate in the present context, however, was strongly disputed by the Respondents and no evidence was provided by the Appellant to demonstrate the contrary. In these circumstances the above argument is also based on hindsight.

2.3.8. Furthermore, the Board finds that the mere fact that a material that meets the requirements set out in the present Claim 1 has been commercially available is not sufficient to preclude the inventiveness of proposing a new use for such a material. The Appellant's submission to this effect means that it would have been "obvious to try" any of the commercially available zeolite containing materials in order to find out whether they would be suitable for solving the present technical problem. In the Board's judgment, a skilled person would only have tried new products if he would have had good reasons to expect that they would solve the said technical problem. In the present case, however, the Appellant has not disputed the correctness of the statement in the contested patent that a great number of conventional and commercially available materials had been found to be unsuitable or had shown insufficient performance. This statement is further confirmed by the fact that D11 provides a specifically designed material, containing alkali silicates, without any suggestion that other materials with comparable performance may exist. In these circumstances there was no incentive to try, with an expectation of success, other commercially

available materials, including that provided by DEGUSSA under the trade name HAB A40.

- 2.3.9. Therefore, in the Board's judgement, the proposed solution to the technical problem is inventive. Thus, Claim 1 and Claims 2 to 4, which relate to preferred embodiments of the subject-matter according to Claim 1, are allowable.

3. *Auxiliary requests*

In the light of the above findings, it is not necessary to consider the Respondent's auxiliary requests.

4. *Description*


The description is not yet adapted to the allowable claims, and the Board accordingly remits the case for the purpose of this adaptation to the Opposition Division (Article 111 (1) EPC). However, with respect to some objections raised by the Appellant in the opposition proceedings in respect of the text of the description underlying the decision under appeal, the Board wishes to observe that any amendment of a granted patent during opposition and subsequent appeal proceedings, including amendments to the description, should be strictly limited to what is necessary and appropriate in order to meet the grounds of opposition duly raised during such proceedings (see e. g. T 127/85, OJ EPO 1989, 271, No. 7.1 of the reasons and T 550 /88, OJ EPO 1992, 117, No. 4.5 of the reasons). Therefore, amendments to the description of the granted patent should be limited to the deletion of subject-matter no longer comprised by the amended claims.

Order

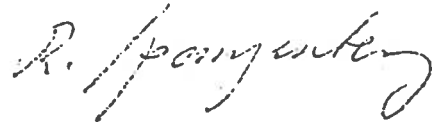
For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Opposition Division with the order to maintain the patent with the claims set out in the main request, orally submitted in the course of the oral proceedings, with corresponding amendments to the description.

The Registrar:


E. Gorgmaier

The Chairman:


R. Spangenberg