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D E C I S I O N
of 6 June 2000

Case Number: T 0378/97 - 3.3.6

Application Number: 87309570.7

Publication Number: 0270240

IPC: C11D 11/02

Language of the proceedings: EN

Title of invention:

Detergent powders and process for preparing them

Patentee:

UNILEVER PLC, et al

Opponent:

PROCTER & GAMBLE EUROPEAN TECHNICAL CENTER N.V.
Henkel Kommanditgesellschaft auf Aktien

Headword:

Detergent Powders/UNILEVER

Relevant legal provisions:

EPC Art. 83

Keyword:

"Sufficiency of disclosure - yes"

Decisions cited:

T 0492/92

Catchword:

-



Case Number: T 0378/97 - 3.3.6

D E C I S I O N
of the Technical Board of Appeal 3.3.6
of 6 June 2000

Appellant:
(Proprietor of the patent)

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 5 February 1997
revoking European patent No. 0 270 240 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Krasa
Members: G. Dischinger-Höppler
M. J. Vogel

Summary of Facts and Submissions

I. The appeal is from a decision of the Opposition Division to revoke European patent No. 0 270 240, Claim 1 of which reads:

"1. A process for the preparation of zero-phosphate detergent powder which comprises spray-drying an aqueous slurry to form a powder, the slurry comprising:

- (a) from 5 to 60% by weight, based on the powder, of one or more anionic detergent-active compounds;
- (b) from 0 to 30% by weight, based on the powder, of one or more nonionic detergent-active compounds;
- (c) from 15 to 86% by weight, based on the powder, of crystalline or amorphous sodium aluminosilicate builder;
- (d) from 2 to 40% by weight, based on the powder, of a polymeric polycarboxylate;
- (e) optionally other salts;
- (f) optionally conventional minor ingredients;

characterised in that the slurry comprises from 2 to 20% by weight, based on the powder, of sodium carbonate, the powder has a total electrolyte level not exceeding 20% by weight and a particle porosity not exceeding 0.40, and if the amount of anionic detergent-active compound (a) exceeds 14.5% by weight the weight ratio of sodium carbonate to anionic detergent-active compound (a) does not exceed 1.1:1."

Independent Claim 16 refers to a detergent composition comprising at least 10% by weight of the spray-dried powder prepared by the process of Claim 1.

II. The oppositions were filed by the two Respondents against the patent in its entirety on the grounds of Articles 54 and 56 EPC (Article 100(a) EPC) and Article 83 EPC (Article 100(b) EPC).

- III. In its decision, the Opposition Division found that the invention was insufficiently disclosed (Article 83 and 100(b) EPC) since the skilled person would not be able to determine the porosity of the detergent powder particles on the basis of the disclosure of the patent in suit.
- IV. With two letters the Appellant (Proprietor) filed documents (8) to (18). With his second letter dated 8 May 2000, he also filed experimental results to show that the porosity of a spray-dried detergent powder obtained by the process as claimed can be measured by mercury porosimetry and, further amended sets of claims in the form of two auxiliary requests.
- V. Oral proceedings were held on 6 June 2000, in the course of which the parties only relied upon the following documents as being of particular relevance:
- (7) Polke, Herrmann, Sommer; "Charakterisierung von Agglomeraten"; Chem.-Ing.-Tech. 51 (1979), No. 4, pages 283 to 288;
 - (12) Palmer, Rowe; "The Application of Mercury Porosimetry to Porous Polymer Powders", Powder Technology, 9 (1974), pages 181 to 186; and
 - (13) Webb, Orr; "Analytical Methods in Fine Particle Technology", Micromeritics Instrument Corp. USA, 1997, pages 155 to 161 and 172 to 191.
- VI. The Appellant's arguments submitted in writing and orally can be summarized as follows:
- It was known before the priority date of the patent in suit that mercury porosimetry was suitable for measuring intra-particle porosity of spray dried powders;

- the patent in suit was not restricted to the mercury technique for measuring the porosity, but also included methods such as air permeability which yielded comparable results; and
- a person skilled in the art knew which method was appropriate for measuring the porosity of a particular powder and how to interpret the results obtained.

VII. The Respondents' arguments can be summarized as follows:

- Mercury porosimetry was the only method disclosed in the patent in suit which - under standard conditions - was unsuitable for use with particles smaller than 1 mm in diameter;
- any results obtained from measuring the porosity of a powder were dependent upon the particular method and measuring conditions used; and
- in the absence of an indication of the precise measuring conditions a skilled person was not able to carry out the disclosure of the patent in suit.

VIII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as granted (main request); alternatively, in amended form according to one of the auxiliary requests submitted 8 May 2000.

The Respondents requested that the appeal be dismissed.

Reasons for the Decision

Procedural issue

1. Admissibility of late-filed documents

Documents (12) and (13) were filed late by the Appellant, i.e. after termination of the four-month period set out in Article 108 EPC for filing the statement of grounds of appeal. They were cited in support of the Appellant's submissions already presented during the opposition proceedings and reiterated in his statement of grounds of appeal to rebut the alleged insufficiency of disclosure. Consideration of these documents, which contain relevant information on the issue to be decided, does not, therefore, change the factual framework of the case. For these reasons, the Board has admitted these documents into the proceedings, exercising its discretion under Article 114(2) EPC. For the sake of completeness it is noted that the Respondents did not request exclusion of these documents but, instead, used them in support of their own line of argument.

Substantive issue

2. *Sufficiency of disclosure: main request*

- 2.1 The patent in suit claims a spray-drying process which results in a product of a particular porosity. In more concrete terms, Claim 1 relates to a process for preparing a detergent powder by spray-drying a particular slurry composition which process is characterized by features concerning the product obtained, including a powder particle porosity of ≤ 0.40 .

2.2 The objection under Article 100(b) EPC and the revocation of the patent in suit were based on the argument that the detergent powder's porosity of 0.4 or less was an essential feature of the claimed process. However, in the absence of further information, this feature was insufficiently defined since the measured porosity value varied depending on the particular method of measuring and the conditions under which the method was applied. No objections were raised against the other features of Claim 1.

2.2.1 It is to be decided, therefore, whether or not the porosity feature was disclosed sufficiently clearly and completely in the patent in suit so as to enable a person skilled in the art to carry out the claimed invention.

2.2.2 The Respondents submitted the following line of argument:

The only method mentioned in the patent in suit as being suitable for determining the porosity was mercury porosimetry (page 3, line 7 and page 5, line 7). As was known from document (7) at the priority date of the patent in suit, mercury porosimetry was only suitable for powders having a particle size of at least 1 mm (see page 285, Figure 4; page 286, left-hand column, lines 7 to 17 and Figure 5). According to the patent in suit, the size of the particles varied, however, from 350 to 800 μm and was, hence below the minimum size required for application of the mercury technique.

Even if mercury porosimetry was nevertheless applied, different porosity values were obtained under different measurement conditions. Pressure conditions (see document (13), page 158, first full paragraph) and uniform particle size distribution (see document (12), page 185, right-hand column first full paragraph and

page 186, first paragraph) were, for instance, essential parameters to be specified so as to enable a person skilled in the art to reduce to practice the teaching of Claim 1 and of the examples of the patent in suit. However, no particular conditions for applying the proposed mercury porosimetry were indicated in the patent in suit. Moreover, any measured values were further falsified by the fact that the powder composition contained organic materials which were compressible (document (13), lines 8 to 10). It was further contested that any conclusions could be derived from the experiments filed by the Appellant during the appeal proceedings since the product formulation did not represent the claimed subject-matter.

- 2.3 The Board cannot accept the Respondents' argument that the passage "the particle porosity **may** be determined by mercury porosimetry" (see patent in suit, page 3, line 7 and page 5, line 7) disclosed mercury porosimetry as the only appropriate measuring method to be applied. On the contrary, the Board finds the Appellant's argument convincing that this passage did not confine the porosity measurement to the mercury technique but mentions it as an example only.

The Appellant admitted that different methods and conditions for measuring the porosity may, in fact, result in varying values, but asserted that mercury porosimetry was suitable for determining the porosity also of particles of less than 1 mm in size. He submitted that two different methods existed using mercury for measuring the porosity of particles, namely mercury pycnometry, referred to in document (7), where at constant pressure conditions mercury is displaced by the particle volume but does not penetrate into the

intra-particle pores and, secondly, the method forcing the mercury into the pores by increasing the pressure and whereby the whole pore volume is cumulatively measured as a function of the pressure.

As was shown in document (12), the second method, also named mercury intrusion porosimetry, provided characteristic pressure-volume graphs which allow not only to distinguish between but also to calculate the respective volume of the inter- and intra-particle void spaces, independently from the pressure values actually applied and even for polymeric particles (see page 182, right-hand column, first full paragraph, to page 184, right-hand column, line 19).

The Appellant further indicated that the experiments he submitted during the appeal proceedings were only meant to confirm the known feasibility of this technique on the basis of a commercial particulate detergent composition. As rightly pointed out by the Respondent, these experiments have no direct bearing on the claimed subject-matter if only for the reason that the measured composition is not defined because the ingredients of the base formulation amount to more than 100%. Therefore, they do not strengthen the Appellant's case.

- 2.4 The Board, however, notes that the Respondents - although contesting the suitability of the mercury method - never denied the existence, at the priority date of the patent in suit, of several other methods of which a skilled person could use for measuring the porosity of a detergent powder as disclosed in the patent in suit.

2.4.1 Indeed document (7) discloses several such methods (see e.g. page 285, Figure 4). Normally, it is a matter of routine for a skilled person to select the appropriate measuring method considering the prevailing technical circumstances and his needs (see T 0492/92 of 18 January 1996, not published in the OJ EPO, point 3.3 of the Reasons for the Decision, in relation to the selection of an analytical method). As long as such methods are available to him such a selection could only in very exceptional cases be said to create an undue burden.

The Board agrees that the different available methods of measuring the porosity can give different results. However, the Respondents did not provide any evidence that for the particles produced according to the patent in suit such differences, if they were indeed encountered, would be substantial and of technical importance. The situation resembles, therefore, rather one in which error margins are concerned and where a skilled person has to consider the accuracy of a measurement. In this respect it is noted that sufficiency of disclosure addresses the practitioner who reduces the invention to practice but does not stick to any precise theoretical values. Varying results do not, therefore, necessarily disable a person skilled in the art to carry out the invention (Article 83 EPC) but, instead, could be a matter of definition of the invention in the sense of Article 84 EPC. The latter not being a ground of opposition, the Board has no power to decide on this issue in view of the fact that the claims as granted remain unamended.

Consequently, the Respondents' argument that a skilled person could not - without precise a indication of the kind and conditions of the porosity measurement - carry out the claimed process, is not convincing.

2.5 But even if one accepted for the sake of argument that a skilled person reading the patent in suit would turn only to the mercury porosimetry, this would not change the situation.

Document (12) describes in detail mercury intrusion porosimetry. As an example, particles of well below 1 mm in size were used in document (12), namely a fraction of 75 to 90 μm (page 182, left-hand column, last full paragraph). It is further shown how to overcome uncertainties arising from powders with broad particle size distributions by simply fractionating the powder into samples with a known and narrow particle size distribution (page 185, right-hand column, last paragraph) and how deviations arising from compressible samples or pore collapsing and particle deformation under high pressure can be taken into account (page 184, right-hand column, last paragraph to page 185, right-hand column, first paragraph). It follows that the mercury intrusion method was at the notional skilled person's disposal at the priority date of the patent in suit together with clear guidance on how to make allowance for factors possibly interfering with the measurement.

Whereas the Respondents accepted that the mercury intrusion method could be applied to the particles obtained by the claimed process, they emphasized that the technical meaning of the measured values would be obscure and could not be equated to the true particle porosity.

The Board cannot accept this argument since, as already explained above, a practitioner would have availed himself of this method at the priority date of the patent in suit for characterizing the respective product.

2.6 Consequently, the Board concludes that a person skilled in the art was in a position to prepare a detergent powder by conventional spray-drying of a slurry composition as defined in Claim 1 and, thereafter, apply one of the known particle porosity measurement methods to the resulting product.

It is also noted that the Respondents did not present any experimental results in support of their allegation of insufficiency of disclosure. They did not even show that products existed of the claimed composition which under conventional spray-drying conditions did not fulfill the required particle porosity when measured according to one of the respective methods available to a skilled person at the priority date of the patent in suit.

3. For these reasons, the Board decides that the invention as set out in accordance with the main request is sufficiently disclosed in the patent in suit to enable a person skilled in the art to carry it out. Therefore, the auxiliary requests need not be considered by the Board.

The contested decision is, consequently, set aside. Since the ground for opposition under Article 100(a) EPC has not yet been considered by the Opposition Division, the Board exercises its discretion under Article 111(1) EPC and remits the case to the latter for further prosecution on the basis of the main 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 for further prosecution on the basis of the patent as granted.

The Registrar:



G. Rauh

The Chairman:



P. Krasa

