BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen

D E C I S I O N
of 30 March 1999

Case Number: T 0941/98 - 3.3.1

Application Number: 94117530.9

Publication Number: 0647643

IPC: C07D 493/04

Language of the proceedings: EN

Title of invention:
Bis(3,4-dialkylbenzylidene) sorbitol acetals and compositions containing same

Applicant:
MILLIKEN RESEARCH CORPORATION

Opponent:
-

Headword:
Sorbitol acetals/MILLIKEN

Relevant legal provisions:
EPC Art. 54

Keyword:
"Novelty of an individual chemical compound (yes) - inadmissible combination of an example with a specific feature found in the same prior art document - prior art product not clearly defined by chemical name, melting point and yield"

Decisions cited:
T 0012/81, T 0666/89, T 0565/90, T 0007/86, T 0056/87, T 0511/92

Catchword:

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0941/98 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 30 March 1999

Appellant: MILLIKEN RESEARCH CORPORATION
920 Milliken Road
Spartanburg
South Carolina 29304 (US)

Representative: Hansen, Bernd, Dr. Dipl.-Chem.
Hoffmann, Eitle
Patent- und Rechtsanwälte
Postfach 81 04 20
D-81904 München (DE)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 10 August 1998 refusing European patent application No. 94 117 530.9 pursuant to Article 97(1) EPC.**

Composition of the Board:

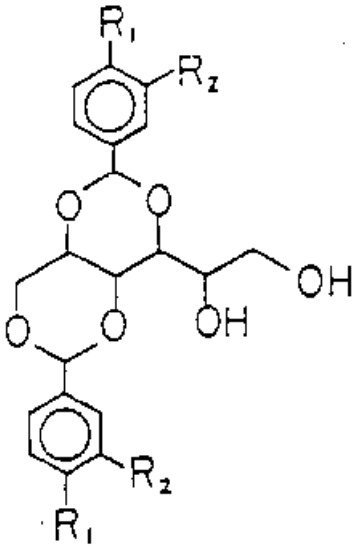
Chairman: A. J. Nuss
Members: J. M. Jonk
S. C. Perryman

Summary of Facts and Submissions

I. This appeal lies from the decision of the Examining Division refusing the European divisional patent application No. 94 117 530.9, published under number 0 647 643, and relating to bis(3,4-dialkyl-benzylidene)sorbitol acetals and compositions containing the same.

II. The decision was based on Claims 1 to 13 submitted on 29 April 1998, Claims 1 and 2 reading as follows:

"1. Bis(3,4-dialkylbenzylidene)sorbitol acetals of the formula:



in which R_1 and R_2 are each methyl or together form a carbocyclic ring containing up to 5 carbon atoms (7 carbon atoms including the two carbon atoms on the phenyl rings)."

"2. The bis(3,4-dialkylbenzylidene)sorbitol acetals of

Claim 1 wherein R_1 and R_2 are each methyl."

III. The Examining Division held, that the subject-matter of these Claims 1 and 2 lacked novelty in view of document

(B) JP-B-61-5497.

IV. The Appellant defended in his statement of grounds of appeal that the subject-matter of said set of claims was novel. Moreover, by a letter submitted on 8 March 1999, as well as three experimental reports attached to this letter, he also argued that the subject-matter of the present claims involved an inventive step.

V. Observations under Article 115 EPC were filed on 13 October 1998 and on 23 March 1999 on behalf of New Japan Chemical Co., Ltd. According to these observations, the claimed subject-matter lacked novelty in view of said document (B), because the product of the preparation example having a melting point of 247°C corresponded to the compound 3,4-DMDBS of the patent application in suit. This novelty objection was supported by a test-report submitted on 15 May 1996 in case number T 54/98 concerning the parent patent application for the claimed subject-matter, namely the experimental report made by the Osaka Municipal Technical Research Institute, i.e. the so-called OMTRI-report.

VI. The Board communicated to the Appellant by telephone on 26 March 1999, that it had come to the provisional conclusion that the subject-matter of the present claims was novel, and that it contemplated remitting the case to the first instance for further prosecution.

VII. By a letter filed on 29 March 1999, the Appellant submitted in reply that he hoped that the examination on inventive step could be done by the Board. In this context, he submitted essentially that the Applicant was very interested in an early final decision in view of widespread commercial activities of unauthorised third parties.

VIII. Oral proceedings before the Board were held on 30 March 1999.

IX. During these oral proceedings the Appellant requested finally that the decision under appeal be set aside and that the application be remitted to the EPO's competent Examining Division on the basis of the claims submitted on 29 April 1998.

X. At the conclusion of the oral proceedings the Board's decision was pronounced.

Reasons for the Decision

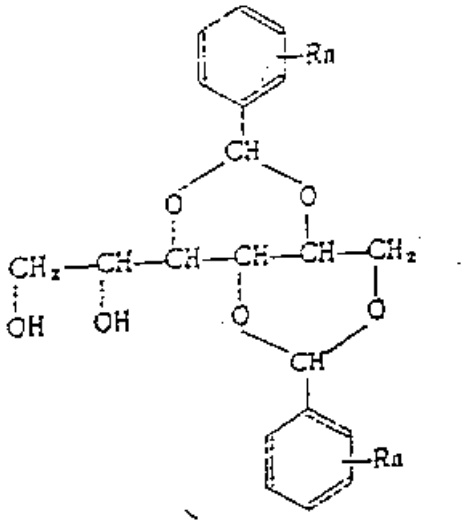
1. The appeal is admissible.

2. The substantive issue to be dealt with is whether the subject-matter of Claims 1 and 2 is novel in view of document (B).

3. In this context, the Examining Division concluded in view of document (B) that the group of compounds as claimed in the patent application in suit, in which R_1 and R_2 of the general formula together form a carboxylic ring, were novel. Since the Board sees no reason to

disagree with this point of view, the only question to be answered is whether document (B) takes away the novelty of the compound 1,3:2,4-bis-O-(3,4-dimethyl-benzylidene)sorbitol (3,4-DMDBS) as claimed in Claims 1 and 2.

4. Document (B) discloses a group of compounds of the formula



wherein R is an alkyl group having 1 to 3 carbon atoms and n is an integer of 2 to 3 (see page 3, line 21 to page 4, line 2), which compounds are suitable as nucleating agents in a crystalline polypropylene or propylene copolymer.

In this context, it further discloses:

(i) that the kind, number and positions of the alkyl groups in the general formula are not limited (see page 4, lines 3, 4, 6 and 7),

(ii) that examples of compounds falling under the scope of the general formula are 2,4-, 2,5-, 3,4- or 3,5-disubstituted compounds, 2,4,5-, 2,4,6- or 3,4,5-trisubstituted compounds, etc. (see page 4, lines 4 to 6), and

(iii) that the compounds of the formula include the so-called asymmetric compounds (see page 4, lines 8 and 9).

4.1 Said document (B) also discloses a **preparation example** (see page 6, lines 8 to 22), reading as follows:

"A 3-liter four-necked flask equipped with a condenser having a decanter, a thermometer, a gas inlet and a stirrer was charged with 91 g of powdery sorbitol, 5 g of water, 67 g of dimethylbenzaldehyde, 750 ml of cyclohexane, 30 ml of DMF and 2 g of concentrated sulfuric acid, followed by replacement of the air in the system with nitrogen. The stirring of the mixture was commenced, and the mixture was heated and maintained at 70 to 80°C as a whole, and the condensation water distilled was removed from the reaction system. The reaction was conducted for 5 hours, and the resulting reaction mixture was neutralised, washed with water and dried, giving a product.

The obtained product (yield 80%) was a 1.3, 2.4-bis(dimethylbenzylidene) sorbitol powder having a purity of 95%. Melting point = 247°C",

as well as and an **example showing nucleating properties** (see page 6, line 23 to page 8), which concerns

experiments using compounds of the general formula of the symmetric type having as substituents: dimethyl, trimethyl, diethyl and diisopropyl (see page 6, line 23 to page 7, last but one line, and in particular Table 1 on page 8).

5. The Examining Division held that the compound 3,4-DMDBS lacked novelty in view of document (B) by arguing essentially:

(i) that according to the decision T 124/87 (OJ EPO 1989, 491), in examining novelty, document (B) had to be considered as a whole,

(ii) that according to the preparation example dimethylbenzaldehyde was used as a starting compound, and that a skilled person in view of the explicit disclosure of the 3,4-positions in the description would have reproduced this example using 3,4-dimethylbenzaldehyde as the starting compound, inevitably arriving at the 3,4-DMDBS as claimed in the patent application in suit, and

(iii) that this point of view was in line with the decision T 12/81 (OJ EPO 1982, 296).

5.1 In this context, the Board firstly notes that according to the established case law of the Boards of Appeal regarding the examination of novelty, the teaching of a cited document is indeed not confined to the detailed information given in the examples, but embraces the disclosure of that document as a whole. However, in deciding what can be directly and unambiguously derived

from a document, its different passages can only be combined if the skilled reader would see a good reason for combining them (see e.g. T 666/89, OJ EPO 1993, 495, and T 565/90, dated 15.09.92, not published in the OJ).

Furthermore, the Board notes that, according to said case law, the novelty of an **individual chemical compound** falling under the scope of a general formula can only be denied if there is an **unambiguous pointer to its individual configuration** in the form of a technical teaching (see e.g. T 12/81, mentioned above; and T 7/86, OJ EPO 1988, 381).

5.2 In the present case, the preparation example in document (B) unambiguously relates to the preparation of a **single compound**, namely a 1.3, 2.4-bis(dimethyl-benzylidene)sorbitol of the so-called symmetric type having a purity of 95% and a melting point of 247°C, i.e. a product which is unspecified with respect to the positions of the methyl groups, using **dimethyl-benzaldehyde** as one of the starting compounds, i.e. a starting compound which is again not specified regarding the positions of the methyl groups (see page 6, lines 12, and 20 to 22).

Furthermore, the passage of the description indicating the 3,4-positions of the substituents, actually states that: "**Examples of compounds are 2,4-, 2,5-, 3,4- or 3,5-disubstituted compounds**, 2,4,5-, 2,4,6- or 3,4,5-trisubstituted compounds, etc." (see page 4, lines 4 to 6).

5.3 Thus, having regard to these relevant disclosures, in the Board's judgment, it cannot be appropriate to combine the preparation example with the passage of the description in question for identifying the starting compound of the preparation example, because the skilled reader of document (B) would not see any reason to select for this purpose the particular 3,4-positions from the generic disclosure indicating at least four possible positions in the form of an unlimited list, namely the 2,4-, 2,5-, 3,4- or 3,5-positions, while suggesting that these four positions would be equally suitable.

However, even if the skilled person in reading document (B) would have derived from the preparation example and the passage of the description in question that the product of the preparation example could have the methyl groups at the 2,4-, 2,5-, 3,4- or 3,5-positions, this combined teaching would not provide him with an **unambiguous** pointer to the **individual configuration** of the starting compound of the preparation example upon which the novelty of an individual product, let alone the compound 3,4-DMDBS of the patent application in suit, could be denied.

5.4 Furthermore, it is the Board's position that the situation of present case is totally different from that of the decision T 12/81, since according to this decision a claimed compound lacks novelty, if it proved to be the inevitable result of a process indicating the **starting compound** and the **process**, whereas in the present case - as follows from the considerations above - the structure of the starting compound of the preparation example could not be derived from document

(B).

5.5 Thus, having regard to the above considerations, the Board finds that the Examining Division's argumentation as indicated under point 5 above concluding lack of novelty of the compound 3,4-DMDBS, combining the teaching of the preparation example with the specifically mentioned 3,4-positions, cannot be accepted, and is clearly based on an unallowable *ex post facto* analysis of the content of document (B).

6. The Examining Division also argued with respect to document (B):

(i) that it followed from the examples of this document that the symmetric compounds are the preferred ones,

(ii) that by defining the substituent R as a C_1-C_3 alkyl group (see page 4, line 1) the methyl substituted derivatives were explicitly disclosed, and

(iii) that 3,4-disubstituted derivatives were also explicitly disclosed,

and that, therefore, the skilled person would conclude that the compound 3,4-DMDBS was known from this document.

6.1 However, as indicated above (point 5.1, second paragraph), the novelty of an individual chemical compound cannot be denied if there is no unambiguous pointer to its individual configuration in the form of

a technical teaching. Furthermore, the Board notes in this context, that according to the established case law of the Boards of Appeal entities of two lists within the same document may not be combined to derive an individualised chemical compound (see e.g. the decisions T 12/81 and T 7/86 mentioned above).

6.2 In the present case, the general formula in document (B) (see point 4 above) comprises at least **three variable entities**, namely:

- the definition of R as an alkyl group having 1 to 3 carbon atoms,

- the definition of n as 2 or 3, and

- the positions of R in the respective benzene rings including positions leading to so-called asymmetric compounds.

6.3 Therefore, the reasoning of the Examining Division denying the novelty of the compound 3,4-DMDBS, as indicated under point 6 above, actually comprises at least a twofold selection from two variables, namely firstly the selection of methyl from the definition of R as an alkyl group having 1 to 3 carbon atoms, and secondly the selection of the 3,4-positions from the possible positions on both benzene rings of the substituents defined by R, and is therefore clearly in contradiction to the established case law of the Boards of Appeal on what is permissible when assessing novelty.

7. Furthermore, according to the observations put forward

by a third party under Article 115 EPC, the claimed subject-matter lacked also novelty in view of the fact that the product of the preparation example of document (B) obtained in a yield of 80% and having a melting point of 247°C would correspond to the compound 3,4-DMDBS of the patent application in suit.

7.1 In this context, the Board firstly notes that according to the practice of the EPO a document takes away the novelty of any claimed subject-matter, if this is not only unambiguously, but also directly derivable from that document, i.e. not merely discernable with the aid of or in the light of the claimed invention (see e.g. T 56/87, OJ EPO 1990, 88, and T 511/92, dated 27 May 1993, point 2.2).

7.2 In the present case, as follows from the above considerations, the skilled reader of document (B) wishing to identify the product of the preparation example, would not see any reason to select the 3,4-positions from the generic disclosure of the possible positions of the alkyl substituents. Thus, when trying to identify the product of the preparation example making use of its melting point of 247°C, it would be necessary for the skilled person to envisage reproducing the preparation, each time starting from one of the six theoretically possible dimethyl-benzaldehydes. In these circumstances, the Board concludes that the claimed compound 3,4-DMDBS is **clearly not directly derivable** from the preparation example.

7.3 Furthermore, the Board does not deny that in certain circumstances it could be permissible to make precise

an otherwise insufficient definition of a chemical compound by additional product parameters such as melting point, NMR-data, or even product-by-process features. However, when using a melting point as such a parameter, it is of course well known to the skilled person that its measured value will depend on the purity of the compound. Therefore, in such a case, it is at least necessary that either the compound is pure, or the preparation of the impure compound is described in a reproducible way so that the product for each measurement contains the same impurities in the same amounts.

7.4 Thus, in the present case, wherein the product of the preparation example has a purity of 95% (see page 6, line 21), an unambiguous identification of the product by way of its melting point could only be achieved if the preparation example would be exactly reproducible.

7.5 However, the skilled person reading the preparation example would have immediately understood that this requirement has not been met, since the unspecifically described working up of the reaction mixture comprising a neutralsisation step, washing with water, and drying (see page 6, lines 17 to 19) opens the possibility of using the most different working up conditions, and that this could be expected to have an important influence on the yield and on the product characteristics, such as the nature and amounts of impurities, and consequently on the melting point of the isolated impure product.

Moreover, the Board notes that according to the so-called OMTRI-report the preparation example was six

times reproduced by reacting each time one of the theoretically possible dimethylbenzaldehydes and using a particular neutralisation step which could not be derived from document (B) (see under 2.1.2). However, although the yields of the respective products were estimated and summarised in Table 2, no measuring of the melting point of any reaction product was made, so that the Board can only conclude that the melting point ranges of the respective products were not useful for the identification of the product of the preparation example.

Thus, in these circumstances, the Board concludes that it is not possible to reproduce the preparation example of document (B) in such a way that an unambiguous identification of the product of the preparation example on the basis of the indicated yield and melting point could be achieved.

7.6 According to the OMTRI-report, the **melting points actually measured** (see Table 3) related to products obtained by the preparation of the respective **pure compounds** according to the method as described under point 2.1.3, and by adding **unspecified impurities** to obtain each time a purity grade of 95% as indicated under point 2.2 of said report. This preparation method differed from that of the one described under point 2.1.2 of the report and also did not correspond to the method of the preparation example of document (B). These actually measured melting points are therefore not obtained from products resulting from a true reproduction of the preparation example, and thus not comparable with the melting point of 247°C mentioned therein.

7.7 Therefore, the novelty objections submitted by the third party under Article 115 EPC cannot be accepted by the Board as having been proved, since the compound 3,4-DMDBS as claimed in the present patent application is neither directly nor unambiguously derivable from said example.

8. In view of the above considerations, the Board has come to the conclusion that the subject-matter of the present claims, including the compound 3,4-DMDBS, is novel.

9. According to the decision of the Examining Division the present claims were only objected to regarding the novelty of the compound 3,4-DMDBS. However, in the Board's judgment, this does not mean that the Examining Division examined the formal and substantive allowability of the present claims fully. Therefore, and having regard to the fact that the function of the Boards of Appeal is primarily to give a judicial decision upon the correctness of the earlier decision taken by the first instance, the Board makes use of its competence under Article 111(1) EPC and remits the case to the first instance for further prosecution.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: The Chairman:

E. Görgmaier A. Nuss