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D E C I S I O N
of 9 October 2002

Case Number: T 1091/98 - 3.3.7

Application Number: 86112303.2

Publication Number: 0214626

IPC: A61K 7/075

Language of the proceedings: EN

Title of invention:
Hair cosmetic composition

Patentee:
Kao Corporation

Opponents:
(01) BASF Aktiengesellschaft
(02) Henkel Kommanditgesellschaft auf Aktien

Headword:
-

Relevant legal provisions:
EPC Art. 83

Keyword:
"Sufficiency of disclosure (yes)"

Decisions cited:
T 0435/91

Catchword:
-



Case Number: T 1091/98 - 3.3.7

D E C I S I O N
of the Technical Board of Appeal 3.3.7
of 9 October 2002

Appellant: BASF Aktiengesellschaft, Ludwigshafen
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Carl-Bosch-Strasse 38
D-67056 Ludwigshafen (DE)

Representative: -

Party as of right: Henkel Kommanditgesellschaft auf Aktien
(Opponent 02) TFP / Patentabteilung
D-40191 Düsseldorf (DE)

Representative: -

Respondent: Kao Corporation
(Proprietor of the patent) 1-14-10, Nihonbashi Kayaba-cho
Chuo-ku
Tokyo (JP)

Representative: Wächtershäuser, Günter, Prof. Dr.
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted
15 September 1998 concerning maintenance of
European patent No. 0 214 626 in amended form.

Composition of the Board:

Chairman: R. E. Teschemacher
Members: B. J. M. Struif
B. L. ter Laan

Summary of Facts and Submissions

I. The mention of the grant of European patent 0 214 626 with respect to European patent application No. 86 112 303.2, filed on 5 September 1986, was published on 16 December 1992. Independent claim 1 read as follows:

"1. A hair cosmetic composition comprising from 0.01 to 10% by weight of a particulate polymer having a weight average diameter of from 0.01 to 0.1 μm , said particulate polymer has a particle size distribution of such that the particles ranging from 0.005 to 0.2 μm in diameter are contained in over 95% by weight of the particles and has a glass transition temperature, T_g , of over 300 K."

II. Two notices of opposition were filed against the granted patent, in which the revocation of the patent in its entirety was requested on the grounds of lack of novelty and of inventive step under Article 100(a) EPC. In the course of the proceedings before the opposition division the ground of Article 100(b) EPC was also raised.

III. The opposition division decided that the patent could be maintained in amended form with the claims and description according to the proprietor's sole request. Amended claim 1 read as follows:

"1. A hair cosmetic composition comprising from 0.01 to 10% by weight of a **water-insoluble** particulate polymer having a weight average diameter of from 0.01 to 0.1 μm , said **water-insoluble** particulate polymer has a particle size distribution of such that the particles

ranging from 0.005 to 0.2 μm in diameter are contained in over 95% by weight of the particles and has a glass transition temperature, T_g , of over 300 K, **whereby the polymer latex is selected from the group consisting of polystyrene, polyvinyl acetate, polydivinyl benzene, polymethyl methacrylate, 6,12-nylon, polyurethane, epoxy resin, styrene/vinyl acetate copolymer, styrene/sodium styrene sulfonate copolymer and styrene/trimethylaminoethyl methacrylate chloride copolymer.**" (emphasis added on the differences from claim 1 as granted)

The decision can be summarized as follows:

- (a) The amended claims were considered to meet the requirements of Article 123(2) and (3) EPC.
- (b) The claimed subject-matter was considered to be sufficiently disclosed (Article 83 EPC). In particular, each class of polymer was disclosed by the general description and specific working examples which allowed the invention to be performed within the whole claimed range.
- (c) The novelty of the claimed subject-matter had not been disputed. The claimed subject-matter also involved an inventive step since the cited prior art did not suggest the specific particle size parameters in order to provide the specific technical effect.

IV. On 24 November 1998 opponent 01 (appellant) filed a notice of appeal against the above decision with simultaneous payment of the prescribed fee. The statement setting out the grounds of appeal was filed

on 25 January 1999 in which the appellant only pursued the opposition ground of Article 100(b) EPC.

Opponent 02 is a party as of right to these proceedings.

Oral proceedings were held on 9 October 2002.

V. The appellant and the party as of right argued in essence as follows:

The claimed subject-matter related to a hair cosmetic composition comprising particulate polymer latices having specific parameters. The core of the claims was directed to the use in hair compositions of those specific particulate polymer latices, which were not commercially available, so that the skilled person should be able to reproduce them without undue burden. The patent in suit disclosed the preparation of four different polymers of (meth)acrylic acid esters according to the same method involving microemulsion conditions. However, only one of them (polymethyl methacrylate) met the required parameters, whilst the other polymer latices did not. Thus, the conditions of microemulsion polymerization would not be sufficient to prepare reliably all polymer latices of (meth)acrylic acid esters meeting the Tg and average particle sizes as defined in the claims. Whilst styrene homopolymers had been prepared by three different methods, only one method resulted in polymer particles as defined in the claims. Small variations in the preparation of that polymer provided a particulate polymer outside the range as defined in claim 1.

Whilst claim 1 covered the whole class of polyurethanes

and epoxy resins comprising a huge number of individual polymers, the working examples only illustrated one very specific polymer type of each of them. Since the examples showed that it was not possible to reproduce a whole polymer class (poly(meth)acrylates) having a Tg and particle sizes as defined in the claims by one and the same method and that small variations in process conditions resulted in polymer latices outside claim 1, the skilled person could not reliably reproduce epoxy resins and polyurethanes within the whole ambit of the claims. Since that conclusion was derived from the data given in the patent, the appellant did not need to submit evidence in the form of own experiments.

Furthermore, reference was made to decision T 435/91, from which it was concluded that it was not sufficient if the skilled person was forced, due to a lack of sufficient guidance in the patent in suit, to use a trial and error method in order to select suitable process conditions for producing latices of polyurethanes and epoxy resins meeting the parameters as defined in the claims.

VI. The arguments of the respondent (proprietor), given in writing and at the oral proceedings can be summarized as follows:

The claims were directed to hair cosmetic compositions comprising a specific amount of particulate polymer latices. There was no evidence on file that these hair cosmetic compositions could not be prepared within the whole ambit of the claims. The particulate polymer was defined by structural features such as glass transition temperature and solubility and by particle features, namely a weight average diameter and a particle size

distribution, which parameters could be determined without undue burden by the skilled person through routine measurements. The preparation of such particulate polymers was sufficiently disclosed in the patent specification by specifying the starting components and mentioning well known polymerization techniques, such as microemulsion polymerization.

In particular, reference was made to the detailed reaction conditions in the description and the worked examples. If the reaction temperature and the amount of surfactant were unsuitable to provide the required microemulsion conditions, the particle sizes as defined in the claims could not be obtained.

The polymer features, such as the Tg, were hardly influenced by the reaction conditions but rather by the choice of the starting material.

Regarding the preparation of polyurethanes and epoxy resins, there was no evidence on file that the detailed instructions in the general part of the description together with the teaching derivable from the examples could not be extended to the preparation of the well known polymer classes of polyurethanes and epoxy resins. There was sufficient guidance in the description on how to produce other reasonable polymer candidates of these polymer classes, if necessary by carrying out some orienting tests. The contrary had not been proven by the appellant.

In T 435/91 the question of sufficient disclosure within the whole ambit of the claims arose with respect to a functional feature, whilst the latices used in the claims under appeal were not functionally but

structurally defined. Thus, that decision was not applicable to the present case.

VII. The appellant requests that the decision under appeal be set aside and that the patent be revoked.

VIII. The respondent requests that the appeal be dismissed and that the patent be maintained with the claims and description underlying the decision under appeal.

Reasons for the Decision

1. The appeal is admissible.

Admissibility of the main request

2. The opposition division had accepted the amendments under Article 123(2) and (3) EPC and the appellant has not raised any objections in this respect. The Board sees no reason to take a different position.

Sufficiency of disclosure

3. According to Article 83 EPC, the European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by the skilled person. The essence of the appellant's arguments regarding lack of disclosure is that the skilled person did not have sufficient guidance from the patent in suit in order to arrive at the desired polymer latices within the whole ambit of the claims since, according to the worked examples, it was not possible to reproduce, while using the same method, different polymers of the same polymer class having a glass transition temperature and particle

sizes as defined in the claims.

3.1 The particulate polymer used in the hair composition of claims 1 and 2 is defined by (i) polymer features such as the specific chemical name, glass transition temperature and solubility and (ii) particle features such as weight average diameter and particle size distribution.

3.1.1 Having regard to the polymer features (i), the specific chemical structure is the reason why *inter alia* the poly(meth)acrylates G to I have a Tg outside the claimed range whilst the Tg of polymethyl methacrylate (379 K) is well above 300 K and thus will always meet the required Tg parameter (Table 1 of the patent in suit). This is general technical knowledge as confirmed by Ullmann's Encyclopedia, fifth completely revised Edition, Vol. 21, page 169, submitted by the respondent during the appeal procedure, which shows that the Tg values of homopolymers of methyl methacrylate (105°C) are much higher than those of n-butyl acrylate (-43°C) or n-butyl methacrylate (32°C). The Tg values for the same type of polymers according to the patent in suit (polymers F, G and H) show a similar trend (patent in suit, Table 1). Furthermore, the Tg of all three polystyrenes obtained by methods 1 to 3 is 373 K, independent of the reaction conditions used for their preparation (Table 1). Consequently, the glass transition temperature is influenced by the type of the starting monomer material rather than by the reaction conditions for preparing the polymers.

Thus, the skilled person obtains sufficient technical information from the patent specification and from chemical text books about glass transition temperatures

of possible polymer candidates. Furthermore, the skilled person is able to measure the Tg according to standard methods as cited in the patent in suit (page 7, lines 9 to 11) and to check whether it meets the requirements of claim 1 or not.

From the above it follows that the skilled person has no difficulty in selecting such monomer types as to reliably provide a polymer having the required Tg values by using the general description and the guidance of standard literature.

- 3.2 As regards the particle sizes (ii), the patent specification provides a detailed description of how to obtain the polymer latices of the different polymer classes defined in claim 1 (page 2, line 52 to page 5, line 24). The common feature for the preparation of all classes of polymers is that they should be prepared by a microemulsion polymerization process, in particular by using a nonionic surface active agent and selecting a temperature near the phase transition temperature, or by combining an anionic surface active agent with an appropriate auxiliary surface active agent such as a higher alcohol or nonionic surface active agent (page 2, lines 55 and 56 and page 3, lines 1 and 2). When conducting the microemulsion polymerization, the interfacial tension between the monomer and water should be set to not more than $1 \times 10^3 \mu/m$ (1 dyne/cm) (page 3, lines 3 to 6). Specific details are given for addition-polymerized latices (page 3, lines 10 to 55), polycondensation latices (page 3, line 57 to page 4, line 34) and polyaddition polymerized latices (page 4, line 36 to page 5, line 24). In particular, when producing addition-polymerized latices the specific conditions for maintaining the state of microemulsion

are specified on page 3, lines 12 to 15 and 30 to 38. Similar conditions are disclosed for the polycondensation latices (page 4, lines 1 to 4) and polyaddition polymerized latices (page 4, lines 38 to 42).

Further details are disclosed with respect to process conditions, such as the type and the amount of the radical polymerisation initiator, reaction temperature and reaction time (page 3, lines 30 to 52; page 4, lines 28 to 31, page 5, lines 17 to 20).

- 3.2.1 In the examples, the preparation of each chemical type of polymer latices as defined in the claims is illustrated by working methods 1 to 8. In particular, in method 1 a polystyrene latex A is prepared having the required properties (Table 1). In methods 2 and 3 polystyrene latices are produced which do not fulfil the definitions given in claim 1 (Table 1, polymer latex B and C).

A comparison between said methods in which the required polymer was obtained with those in which it was not, shows that in method 1 a higher amount of surfactant (25 parts compared to 15 parts in methods 2 and 3) and a higher reaction temperature (62°C compared to 45°C and 35°C in methods 2 and 3, respectively) is used. The conditions of method 1 are in conformity with those under which the formation of a microemulsion can be envisaged (polystyrene A; page 3, lines 30 to 38 and 48 and 49). This may explain why the particle sizes of polystyrenes B and C are outside the claimed range. Thus, information is provided on how the required polymer latices can or cannot be obtained so that the skilled person is in the position to choose the

suitable polymerization conditions accordingly.

- 3.2.2 The different poly(meth)acrylates are prepared in the same manner as described in method 1 (page 7, method 4). The polymer latices G and I show a weight average particle size outside the range as defined in claim 1, whilst the polymer latices F and H have particle sizes and distributions as defined in the claims. However, since the polymer latices G to I do not meet the required Tg values, they have been cancelled. It has not been disputed that polymer latex F meets the requirements of claim 1 and can be reproduced.

The purpose of those experiments is not to show optimal microemulsion conditions for preparing polymer latices G to I, but rather to illustrate that if the required Tg is not met the desired technical effect will not be obtained, even if the required particle size is present (Tables 2 and 3). Hence, the polymer latices in the claimed hair composition must meet both requirements of claim 1, namely a suitable particle size and a Tg higher than 300 K to achieve the desired properties, as illustrated by all embodiments covered by the claims 1 and 2.

- 3.2.3 The preparation of an epoxy resin latex and of a polyurethane latex is more specifically described on page 4, line 43 to page 5, line 20 by specifying suitable starting components, such as alcohols, isocyanates and epoxides, the general reaction conditions, reaction temperatures and reaction times and is furthermore illustrated by methods 6 and 7. When following methods 6 and 7, polyurethanes and polyepoxides having the claimed parameters are obtained

(see Table 1) which, when used in a hair cosmetic composition as claimed, show the desired properties (Tables 2 and 3).

Since in methods 6 and 7 a specific polyurethane and a specific epoxy resin are produced and elaborate guidance is provided by the general disclosure of the patent specification, the skilled person would have no difficulty to produce further polymer latices of the same polymer class meeting the requirements of the claims, if necessary using some orienting tests, and selecting those polymers having the required properties.

- 3.2.4 From the above it follows that the appellant's argument that a method found suitable for producing one specific polymer meeting the required particle parameters would not provide sufficient information for producing the whole class of polymer in general and that the skilled person would be confused by the examples in which the desired particle size of the polymer latex was not obtained, is without merit and cannot be followed.

In particular, the appellant has not provided any evidence that the skilled person, when following the detailed teaching of the patent in suit, would have been unable to prepare the desired latices of polyurethanes and epoxide resins with a reasonable expectation of success, and to select those having the required properties and use them in a hair cosmetic composition.

- 3.2.5 The cited decision T 435/91 (OJ 1995,188) relates to a composition containing an additive which is not characterized in structural terms but by means of its

effect. Such a functional definition covers an indefinite and abstract host of possible alternatives. According to that decision "the disclosure of an invention is however only sufficient if the skilled person can reasonably expect that substantially all embodiments of the claimed invention which this skilled person would envisage on the basis of the corresponding disclosure and the relevant general common knowledge can be put into practice" (point 2.2.3). However, the polymer latices used in the claimed hair compositions are not defined by functional, but by structural features, in particular the specific chemical polymer type and other measurable parameters, and details of their preparation are given in the patent specification. The situation in the present case is not comparable to that in T 435/91, in particular, since it is not apparent that the group of polymers defined in the claim contains alternatives which do not result in the desired latices.

3.3 Consequently, the Board is satisfied that the invention is clearly and sufficiently disclosed for it to be carried out by the skilled person within the whole ambit of the claims, so that the requirements of Article 83 EPC are met.

Order

For these reasons it is decided:

The appeal is dismissed.

Registrar:

Chairman:

C. Eickhoff

R. Teschemacher