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Datasheet for the decision of 14 February 2019

Case Number: T 0345/16 - 3.3.06

Application Number: 07871516.6

Publication Number: 2086768

IPC: B41M5/52, B41M5/50

Language of the proceedings: EN

Title of invention:
METHOD FOR CATIONIC CONVERSION OF NANO-MILLED CALCIUM CARBONATE

Patent Proprietor:
Hewlett-Packard Development Company, L.P.

Opponent:
Omya International AG

Headword:
Glossy coating/Hewlett-Packard

Relevant legal provisions:
EPC Art. 83, 56
RPBA Art. 13

Keyword:
Inventive step - (yes)
Late-filed request - justification for late filing (yes)
Sufficiency of disclosure - (yes)

Decisions cited:
G 0003/14, T 0378/11

Catchword:

Europäisches Patentamt
European Patent Office
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Beschwerdekammern

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Case Number: T 0345/16 - 3.3.06

D E C I S I O N
of Technical Board of Appeal 3.3.06
of 14 February 2019

Appellant: (Opponent)	Omya International AG Baslerstrasse 42 4665 Oftringen (CH)
Representative:	Maiwald Patent- und Rechtsanwaltsgesellschaft mbH Elisenhof Elisenstraße 3 80335 München (DE)
Respondent: (Patent Proprietor)	Hewlett-Packard Development Company, L.P. 11445 Compaq Center Drive West Houston, TX 77070 (US)
Representative:	Haseltine Lake LLP Redcliff Quay 120 Redcliff Street Bristol BS1 6HU (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 9 December 2015 maintaining European Patent No. 2086768 in amended form.**

Composition of the Board:

Chairman	J.-M. Schwaller
Members:	S. Arrojo
	J. Hoppe

Summary of Facts and Submissions

I. The appeal concerns the decision of the opposition division to maintain European patent Nr. 2 086 768 in amended form, with claim 1 reading:

"A method of forming a print medium comprising:

preparing an anionically-charged calcium carbonate (200) by adding an anionic dispersant to the calcium carbonate;

nano-milling (210) said anionically-charged calcium carbonate to a primary particle size between 10 and 20 nanometers or smaller, wherein the nano-milled anionically-charged calcium carbonate agglomerates to structures between 70 and 200 nanometers; and applying a coating (120) to at least one side of a base substrate (110), said coating (120) comprising said nano-milled anionically-charged calcium carbonate, wherein said nano-milled anionically-charged calcium carbonate has been mixed (220) with a cationic conversion agent (280) to convert said coating (120) to a cationically charged coating and has then been mixed with a binder (230).".

II. With its statement of grounds of appeal, the opponent (from now on "the appellant") submitted new documents E23 to E28 and requested to revoke the patent in its entirety for non-compliance with Articles 83 and 56 EPC. In particular it held the subject-matter of claim 6 not to be inventive in view of E6 (WO 2005/115763) or E10 (US 2006/0137574 A1) alone or, respectively, in combination with the teachings of E9 (EP 1 093 933 A1).

III. In its reply, the patentee (from now on "the respondent") contested the appellant's arguments and requested not to admit documents E19 to E28 into the appeal proceedings. Further, it requested to dismiss the appeal and to maintain the patent as upheld by the opposition division (main request). Auxiliarly, it requested to maintain the patent on the basis of its auxiliary request 1 as filed on 16 January 2014.

IV. The Board issued a communication to inform the parties of its preliminary opinion that claim 6 of both requests on file did not comply with the requirements of Articles 123(2) and 56 EPC. The Board also indicated that claim 1 of these requests appeared to fulfill the requirements of the EPC.

V. By letter dated 14 January 2019 the respondent filed two new sets of claims as auxiliary requests 2 and 3.

VI. At the end of the oral proceedings and in response to the opinion expressed by the Board that claim 6 of both requests lacked inventive step over E6 alone, the respondent withdrew the main request and auxiliary request 1 so that auxiliary request 2 filed on 14 January 2019 became the new main request. Claim 1 of this new main request is identical with claim 1 of the main request underlying the contested decision (see above).

VII. By the end of the oral proceedings, the requests on file were the following:

The appellant requested to set aside the decision and to revoke the patent in its entirety.

The respondent requested to maintain the patent on the basis of the new main request (formerly auxiliary request 2 filed with letter dated 14 January 2019).

Reasons for the Decision

1. New main request - Admittance (Article 13 RPBA)

1.1 The Board has decided to exercise its discretion under Article 13(1) RPBA to admit the new main request (filed as auxiliary request 2 on 14 January 2019) into the appeal proceedings as this request is a reaction to its preliminary opinion that claim 6 of the main and first auxiliary requests did not comply with the requirements of Article 123(2) EPC. This objection was raised for the first time by the Board, so that the introduced amendment (deletion of claim 6) is regarded as a legitimate reaction to this new development.

1.2 The appellant submitted that the notice of opposition already included objections to the patentability of claim 6, so that there would be no justification for the late filing of the request.

1.3 The Board cannot follow this argumentation because the fact that there could have been other reasons for the respondent to react at an earlier stage does not eliminate the legitimate right of a party to react to new objections. Furthermore, even at this late stage of the proceedings, the deletion of claim 6 cannot plausibly be regarded as imposing an undue burden on the appellant.

2. Main request - Article 83 EPC

2.1 For the board, the main request complies with the requirements of Article 83 EPC because in order to carry out the invention as defined in claim 1, the skilled person should be able to:

i) identify and add an anionic dispersant,

ii) carry out the nano-milling step and reach the desired primary particle size,

iii) measure the primary and agglomerate particle sizes,

iv) identify and add a cationic conversion agent to convert the coating to a cationically charged coating, and identify and add a binder.

2.2 Steps i) and iv)

The Board considers that the skilled person would find no difficulties in carrying out steps i) and iv), because they essentially involve substances and processes which are well-known in the technical field. Furthermore, the patent in suit refers to specific substances which can be used as anionic dispersant (par. [0024], [0047]), cationic conversion agents (par. [0032]) and binders ([0036]).

2.3 Step ii)

2.3.1 The Board holds the patent in suit to contain enough information to carry out this step, which essentially involves conducting an appropriate nano-milling process, such as the one described in par. [0048] of

the patent in suit, up to a point in which the particles reach the desired size. The selection of the operational conditions required to obtain this particle size is not considered to involve an undue burden.

2.3.2 The appellant referred to comparative example 2 of document E16 (WO 2010/123505 A1), from the same applicant as the patent in suit, and indicated that the process disclosed therein corresponded to the exemplary embodiment presented in the last row of table 1 of the patent in suit. Despite using the same substances and the same equipment, the process only reached particle sizes of 400 microns (before adding the dispersant) and 270 microns (after adding the dispersant). Furthermore, according to par. [0016]-[0017] of this document, dispersant concentrations higher than 1% would lead to flocculation ("overdispersion"), so that it would not be feasible to obtain particle sizes as small as those defined in claim 1 of the patent with the exemplary dispersant concentrations proposed in table 1 of the patent in suit (all of which are higher than 1%).

2.3.3 This argumentation is not convincing because despite the similarities between E16 and the patent in suit, a number of relevant factors are either unknown or different in the compared embodiments. For example, E16 does not describe the size and material of the mill beads and the operational parameters of the mill are mostly omitted in both E16 and the patent in suit. Furthermore, the addition of the dispersant appears to take place at different stages in both cases, with E16 (par. [0031]) indicating that "significant amount of dispersant" is added "after 30 minutes of grinding", while claim 1 of the patent defines that the dispersant is added before the nano-milling process. Consequently, the embodiments are not comparable and the results in

E16 cannot lead to the conclusion that the sizes defined in claim 1 at issue are not attainable with the information provided in the patent in suit.

2.4 Step iii)

2.4.1 The Board considers that measuring a "particle size", a conventional parameter in the underlying technical field, would merely require selecting and applying any of the well-known methods used in the field, for which no undue burden or inventive skill would be required.

2.4.2 The appellant argued that the patent in suit did not include any information as to how the "particle size" should be measured, and that this would lead to significant inconsistencies in the results. Further, it raised the question of how the primary particle and the agglomerate sizes could be measured simultaneously.

2.4.3 The Board is not convinced by this reasoning, since any possible inconsistency resulting from the choice of a particular measuring method (among a number of well-known available alternatives) would only affect the demarcation of the scope of protection and not the ability to carry out the invention. In this respect the Board notes that, in-line with a number of case-law decisions (see for example T 0378/11; point 5 of the reasons, dealing precisely with the parameter "particle size"), problems of demarcation have to be dealt with under Article 84 EPC and not under Article 83 EPC. Since the feature "particle size" was part of the claims as granted, the Board is not competent to assess compliance with the requirements of Article 84 EPC (G 3/14).

2.4.4 The Board also notes that there is no requirement in claim 1 to measure the primary particle size and the agglomerate particle size simultaneously rather than sequentially. Furthermore, a number of well-known optical methods are available which would allow both a simultaneous (e.g. visual analysis of the agglomerated particles to estimate the size of the agglomerates and the primary particles identifiable in these agglomerates) and a sequential measurement to be carried out. In any case, the appellant did not provide any evidence in support of its allegations.

3. Main request - Article 56 EPC

For the board, the subject-matter of the claims complies with the requirements of Article 56 EPC for the following reasons.

3.1 Closest prior art

There is consensus that document E10 represents the closest prior art, as it teaches manufacturing methods of a print medium including the steps of forming a coating made by combining primary calcium carbonate particles optionally obtained by milling (end of par. [0031]) with an anionic dispersant, adding a cationic polymer and a binder, and coating a paper with the resulting mixture (par. [0030], [0064] and [0065]). The particle size of the thus obtained coating is said to be 0.3 microns (300 nm) or smaller (par. [0032]). While no agglomeration step is explicitly disclosed in E10, the Board notes, in-line with the respondent's arguments, that agglomeration inevitably takes place to a certain extent as a result of the large surface area of the nanoparticles (particularly after milling the particles).

Claim 1 therefore differs from E10 in that the milling process generates primary particles with a particle size between 10 and 20 nm or smaller, and in that the subsequently agglomerated particles have a particle size of 70 to 200 nm. Furthermore, claim 1 also differs from E10 in that the dispersant is added before the milling step (in E10 the dispersant is combined with the ground particles previously prepared by milling (par [0011]).

3.2 Problem to be solved

According to the patent in suit (par. [0016]) the problem underlying the invention is to provide "a print medium having an improved finish, for example, an improved gloss", which as a result of "a lower tendency to flocculation and/or agglomeration (...) provides a transparent/translucent glossy coating as opposed to traditional high-opacity calcium carbonate applications that required casting or calendaring to obtain gloss".

3.3 Solution and success thereof

3.3.1 The solution proposed in claim 1 is to add an anionic dispersant to form anionically charged calcium carbonate particles before the milling step, to mill these particles to a size between 10 and 20 nm or smaller, and to subsequently (i.e. after agglomeration) reach agglomerated particle sizes of 70 to 200 nm.

3.3.2 The skilled person in the underlying technical field is well aware that the gloss effect improves with smaller coating particle sizes because of the tendency of coarser particles to diffuse light (i.e. decreasing specular reflection and therefore gloss). Consequently, since the present invention proposes a method for

obtaining a coating with particle sizes smaller than those known from the closest prior art (E10), the subject-matter of claim 1 is considered to successfully solve the problem of providing a glossy print medium.

3.3.3 The appellant argued that no technical effect could be associated to the formation of agglomerated structures between 70 and 200 nm from primary particles having a particle size between 10 and 20 nm.

3.3.4 The Board cannot agree with the appellant's conclusion because it is technically plausible that the addition of an anionic dispersant prior to the milling process and the subsequent nano-milling of the calcium carbonate to particularly small primary particles (i.e. 10-20 nm) would lead to a controlled agglomeration and to smaller agglomerated particle sizes (i.e. to the range 70-200 nm as defined in claim 1) than those obtained in E10, which in turn would give rise to the gloss effect. It is also noted that the appellant has not provided any evidence to support the argument that the methods according to claim 1 would not give rise to the effect of providing a glossy paper medium. In this respect the Board notes that, where a particular effect indicated in the patent is technically plausible, the burden of proof lies with the opponent to prove that the effect does not occur.

3.3.5 The Board is however not convinced that the subject-matter of claim 1 successfully solves the problem of providing a transparent/translucent coating as argued by the respondent. In view of par. [0016] this effect appears to be associated to the absence of calendaring and casting steps, and neither of these processes are excluded from the subject-matter of claim 1 at issue. Furthermore, no evidence has been presented (beyond the

statement in par. [0016]) of an improved transparence/ translucence and, from a technical point of view, this effect appears to be dependent on a number of factors which are not defined in claim 1. It is thus not technically plausible that this effect would take place over the entire claimed range.

3.4 Obviousness of the solution

3.4.1 Document E10 makes no reference to an intermediate step to obtain primary particles of a very small size (10 to 20 nm or smaller), or to the addition of the dispersant prior to the nano-milling step. Furthermore, even if, for the sake of the argument, it were conceded that, in view of the uncertainties concerning the measurement of the particle size, the range of agglomerated sizes of 70 to 200 nm defined in claim 1 of the patent in suit is not significantly far removed from the particle sizes of 300 nm or smaller taught in par. [0032] of E10, there would still be no teaching in this document which would lead a skilled reader to consider nano-milling the particles down to a primary particle size of 10 to 20 nm or smaller as defined in claim 1 of the patent in suit.

3.4.2 While document E9 discloses primary particles of inorganic substances (calcium carbonate is mentioned although silica is preferred) having a size of 10-20 nm and smaller (see par. [0030]) and also considers the use of milling (see examples), no reference is made to the addition of an anionic dispersant before the milling process, nor to a controlled agglomeration of particles to a size of 70 to 200 nm. Finally, while this document is also concerned with the problem of providing an improved gloss (see par. [0010]), this problem is solved differently, namely by performing a

smoothing/metering treatment on the coated print surface (see par. [0012]-[0013]), and not by preventing excessive agglomeration of particles as it is the case in the patent in suit.

3.4.3 While it is plausible that the skilled reader would take the contents of E9 into account for solving the aforementioned technical problem, when reading this document, he would be prompted to perform the smoothing/metering treatment rather than to change the particle size of the calcium carbonate in E10. The Board also notes that, even if the particle size proposed in E9 were considered, neither E10 nor E9 teach adding the dispersant prior to the milling step in order to obtain small agglomerated particle sizes (i.e. of 70 to 200 nm) as defined in claim 1 at issue.

3.4.4 The appellant argued that, since it was well-known in the technical field that smaller particles improved gloss, and E10 taught particles of 300 nm or smaller, it would be obvious for the skilled person to consider primary particles and agglomerated particles of smaller sizes falling within the ranges defined in claim 1.

3.4.5 The Board is not convinced by this argumentation, because the primary particle size of 10 to 20 nm or smaller defined in claim 1 is one order of magnitude smaller than the upper end-value of 300 nm disclosed in E10. Furthermore, the inventive contribution of the claimed subject-matter is not only based on the sizes of the particles but also on the sequence of steps. In particular, claim 1 clearly defines adding the dispersant prior to the nano-milling step, so that the calcium carbonate particles can be milled down to very small sizes (i.e. 10 to 20 nm or smaller) while attenuating the subsequent agglomeration. Since neither

E10 nor E9 suggests this sequence of steps or the benefits thereof, the skilled person would have no incentive to mill the particles down to such small sizes.

3.4.6 The Board therefore concludes that claim 1 is not rendered obvious by E10 taken alone or in combination with other cited prior art documents such as E9. Claims 2-5 are dependent on claim 1 and therefore also fulfill the requirements of Article 56 EPC.

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 in amended form based on the main request (formerly auxiliary request 2 filed with letter dated 14 January 2019) and a description to be adapted thereto.

The Registrar: The Chairman:

D. Magliano J.-M. Schwaller

Decision electronically authenticated