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**Datasheet for the decision
of 14 July 2009**

Case Number: T 0513/07 - 3.3.09

Application Number: 97900548.5

Publication Number: 0876109

IPC: A23L 1/275

Language of the proceedings: EN

Title of invention:

Water dispersible compositions containing natural hydrophobic pigment, method of preparing same and their use

Patentee:

Chr. Hansen A/S

Opponent:

GNT International B.V.

Headword:

-

Relevant legal provisions:

EPC Art. 56

Relevant legal provisions (EPC 1973):

-

Keyword:

"Inventive step - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 0513/07 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 14 July 2009

Appellant: GNT International B.V.
(Opponent) Industrieweg 26
NL-5731 HR Mierlo (NL)

Representative: Albrecht, Rainer Harald
Andrejewski - Honke
Patent- und Rechtsanwälte
P.O. Box 10 02 54
D-45002 Essen (DE)

Respondent: Chr. Hansen A/S
(Patent Proprietor) Boege Allé 10-12
P.O. Box 407
DK-2970 Hoersholm (DK)

Representative: Grünecker, Kinkeldey
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
D-80802 München (DE)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
30 January 2007 concerning maintenance of
European patent No. 0876109 in amended form.

Composition of the Board:

Chairman: P. Kitzmantel
Members: J. Jardón Álvarez
M-B. Tardo-Dino

Summary of Facts and Submissions

I. The grant of European patent No. 0 876 109 in respect of European patent application No. 97900548.5, filed on 14 January 1997 as International application PCT/DK97/00015 (WO 97/26802) in the name of Chr. Hansen A/S, was announced on 20 August 2003 (Bulletin 2003/34) on the basis of 22 claims. Independent claims 1, 4, 12, 17, 18 and 19 read as follows:

"1. Use of a ready-to-use water dispersible pigment composition that contains in excess of 10% by weight of water, the composition comprising a dispersion of a water-insoluble and/or hydrophobic natural pigment in the form of bodies of an average size which is at the most 10µm, said bodies being dispersed in the absence of a surface active substance in an aqueous phase comprising a hydrocolloid in an amount of at least 1% by weight of the pigment, in the manufacturing of an edible product whereby the composition is dispersed in the aqueous phase of said product.

4. Use in the manufacturing of a pharmaceutical product of a ready-to-use water dispersible pigment composition that contains in excess of 10% by weight of water, the composition comprising a dispersion of a water-insoluble and/or hydrophobic natural pigment in the form of bodies of an average size which is at the most 10µm, said bodies being dispersed in the absence of a surface active substance in an aqueous phase comprising a hydrocolloid in an amount of at least 1% by weight of the pigment.

12. A ready-to-use-water dispersible pigment composition that contains in excess of 10% by weight of water, the composition comprising a dispersion of a water-insoluble and/or hydrophobic natural pigment in the form of bodies selected from the group consisting of droplets of an oleoresin pigment, droplets of a solution of a pigment, droplets of a dispersion of a pigment and droplets of an emulsion of a pigment of an average size which is at the most 10µm, said bodies being dispersed in the absence of a surface active substance in an aqueous phase comprising a hydrocolloid in an amount of at least 1% by weight of the pigment.

17. An edible product comprising a composition according to any of claims 12-16.

18. A pharmaceutical product comprising a composition according to any of claims 12-16.

19. A method of preparing a water dispersible pigment composition according to any of claims 12-16, said method comprising preparing a dispersion of bodies of a water-insoluble and/or hydrophobic natural pigment by comminuting the pigment in the absence of an emulsifying agent in an aqueous phase containing a hydrocolloid in an amount of at least 1% by weight of the pigment to obtain a dispersion containing the pigment in the form of bodies having an average size of at the most 10µm, the composition containing in excess of 10% by weight of water."

Claims 2, 3, 5 to 11, 13 to 16 and 20 to 22 were dependent claims.

II. Notice of Opposition requesting the revocation of the patent in its entirety on the grounds of Article 100(a) EPC, for lack of novelty and inventive step, and Article 100(b) EPC for lack of sufficient disclosure, was filed against the patent by GNT International B.V. on 13 May 2004.

In the course of the opposition proceedings, *inter alia*, the following documents were filed:

D1: US - 3 110 598;

D9a: WO - A - 94/19411;

D10: Declaration of Mr K. Køhler dated 23 February 2005.

III. By its interlocutory decision announced orally on 9 January 2007 and issued in writing on 30 January 2007, the Opposition Division held that the grounds for opposition raised by the Opponent did not prejudice the maintenance of the patent in amended form.

This decision was based on an amended set of twenty claims filed by the Patent Proprietor during the oral proceedings. The Opposition Division considered D9a as the closest prior art document. It regarded the problem to be solved by Claims 1 and 3 as being "to avoid pigment migration in products comprising multiple, separated compartments when using water-dispersible pigment compositions for colouring selected compartments of such products" and the problem to be solved by Claim 10 as "providing alternative water-dispersible compositions of water-insoluble and/or hydrophobic pigments which are useful for the colouring

of edible products and pharmaceutical products". In the Opposition Division's opinion the solutions to these problems by, respectively, the use of a ready-to-use water-dispersible pigment composition as defined in Claims 1 and 3 and by the ready-to-use water dispersible pigment composition specified in Claim 10 involved an inventive step because none of the then cited documents contained any technical teaching regarding the problem of pigment migration (Claims 1 and 3) or gave a hint to the replacement of the solid amorphous pigments particles of D9a by droplets selected from those specified in Claim 10.

- IV. On 27 March 2007 the Opponent (Appellant) lodged an appeal against the decision of the Opposition Division and paid the appeal fee on the same day.

In the Statement of Grounds of Appeal filed on 29 May 2007, the Appellant requested the revocation of the patent in its entirety on the grounds of lack of inventive step (Article 100(a) EPC). It also filed the following fresh document:

D11: DE - A - 2 250 310

- V. With letter dated 11 February 2008, the Patent Proprietor (Respondent) requested that the appeal be dismissed and the patent be maintained with the claims in accordance with the decision of the Opposition Division. It also filed sets of claims for two auxiliary requests.

- VI. On 10 February 2009 the Board dispatched a summons to attend oral proceedings. In the attached communication

the Board drew the attention of the parties to the points to be discussed during the oral proceedings.

VII. During the oral proceedings held on 14 July 2009, the Respondent withdrew the main and first auxiliary requests and maintained as its sole request its previous second auxiliary request. The nine claims of this request, filed with letter dated 11 February 2008, correspond to Claims 1 to 9 of the main request as maintained by the Opposition Division.

Claim 1, directed to the use of a ready-to-use water dispersible pigment composition in the manufacture of an edible product, reads as follows:

"1. Use of a ready-to-use water dispersible pigment composition that contains in excess of 10% by weight of water, the composition comprising

a dispersion of a water-insoluble and/or hydrophobic natural pigment in the form of bodies of an average size which is at the most 10 μ m,

said bodies being dispersed in the absence of a surface active substance in an aqueous phase comprising a hydrocolloid in an amount of at least 1% by weight of the pigment,

in the manufacturing of an edible product whereby the composition is dispersed in the aqueous phase of said product, and

wherein the edible product comprises multiple, separated compartments whereby the composition is

dispersed in one or more selected compartments, the composition in one compartment essentially not migrating to other compartments."

Independent Claim 3 is identical to Claim 1 but for the replacement of the wording "in the manufacturing of an edible product" by the wording "in the manufacturing of a pharmaceutical product".

Claims 2 and 4 to 9 are dependent claims.

VIII. The arguments presented by the Appellant in its written submission and at the oral proceedings, insofar as they are relevant for the present decision, may be summarized as follows:

- The Appellant requested that the late filed document D11 be admitted into the proceedings because the teaching of this document in combination with D9a (or D1) was very pertinent for the question of inventive step. Moreover D11 had been filed with the Statement of Grounds of Appeal as a direct reaction to the appealed decision and the Respondent had enough time to consider it.
- The Appellant considered the teaching of D1 or D9a as the closest prior art. These documents disclosed all the features of Claims 1 and 3 except that the edible product comprised multiple, separated compartments whereby the composition did not migrate to other compartments. This feature, however, would not justify the presence of an inventive step, in particular because it was already known from the newly filed document D11 that - unlike dissolved

colouring agents - dispersed colouring agents would not migrate.

IX. The Respondent essentially argued as follows:

- The Respondent maintained that D11 should not be admitted into the proceedings as it was an old document filed at a late stage of the proceedings. There was no justification for its late filing; the features of the amended claims were already present in the granted dependent claims. Moreover the Appellant misinterpreted the teaching of D11. For the Respondent D11 had no relevance *per se* for the question of inventive step.

- Concerning inventive step, the Respondent argued that D1 should not be regarded as the closest prior art document because the colouring composition therein disclosed would contain significant amounts of a harmful solvent, as it had been demonstrated by the experiments of Mr K hler (cf. D10).

The Respondent regarded D9a as the closest prior art document and saw the problem to be solved by the patent in suit as the avoidance of migration in products with several compartments. The Respondent argued that the distinguishing feature of Claims 1 and 3, i.e. the use of the claimed colouring composition in the manufacture of an edible product comprising multiple, separated compartments, was not obvious in view of D9a because this document was silent about the migration problem of coloured compositions. As to D11, this document would be disregarded by the skilled person because it did

not relate to the claimed technique wherein an aqueous dispersion of a colouring agent was dispersed in an aqueous phase of the product but to the formation of a coloured composition by direct addition of the colorant thereto; moreover hydrocolloid was absent in D11 and the particle size was not specified. Consequently, D11 did not lend itself to a combination with D9a.

- X. The Appellant requested that the decision under appeal be set aside and that the European patent No. 0 876 109 be revoked.

The Respondent requested that the appeal be dismissed and that the patent be maintained on the basis of Claims 1 to 9 of the sole request maintained during oral proceedings, corresponding to the second auxiliary request filed with the letter dated 11 February 2008.

Reasons for the Decision

1. The appeal is admissible.
2. *Procedural matters*
 - 2.1 Document D11 was filed by the Appellant with the Statement of Grounds of Appeal and thus well outside the nine-month opposition period. As regards the reason for the late filing, the Appellant argued that this document was submitted in reaction to the appealed decision and that it was highly relevant for the question of inventive step.

- 2.2 D11 discloses in Claim 1 packed edible products comprising a first liquid layer in contact with, but having a different colour from, a second liquid layer, both layers having a similar continuous phase, the first liquid layer containing a dispersed colouring agent. D11 deals with the problem of diffusion of colour from one liquid layer to another liquid layer having the same continuous phase, especially dairy products (see page 3, second full paragraph).
- 2.3 Taking account of the fact that D11 is the only document on file dealing with the problem of colour migration in food products having separated layers, the Board considered D11 sufficiently pertinent for it to be admitted into the proceedings. Moreover it was filed at the earliest stage in the appeal proceedings, i.e. with the Statement of Grounds of Appeal, and the Respondent had enough time to react to it.
- 2.4 For these reasons the Board in exercising its discretion under Article 114(2) EPC decided to admit document D11 into the proceedings.
- 2.5 The Respondent withdrew the claims on which the decision under appeal was based and filed during the oral proceedings a new main request.
3. *Inventive step (Article 56 EPC)*
- 3.1 The patent in suit
- 3.1.1 The patent in suit relates to the use of ready-to-use water dispersible pigment compositions in the manufacture of edible or pharmaceutical products. In

particular the patent deals with a problem associated with the use of these compositions, namely, the tendency of the colouring agents to migrate from one compartment of a food or pharmaceutical product to another where the colouring is undesired (paragraphs [0012] and [0013]).

3.1.2 Claim 1 is directed to the use of a ready-to-use water dispersible pigment composition in the manufacture of edible products and it is characterized by the following features:

(a) the composition comprises:

(a.1) water in an amount of more than 10% by weight,

(a.2) a water-insoluble and/or hydrophobic natural pigment,

(a.2.1) in the form of bodies of an average size of at most 10 μm ,

(a.3) an hydrocolloid in an amount of at least 1% by weight of the pigment, and

(a.4) does not comprise a surfactant, and

(b) this composition is dispersed in the aqueous phase of a compartment of an edible product comprising multiple separated compartments.

3.2 Closest prior art

Documents D1 and D9a both disclose carotenoid compositions presenting the essential compositional characteristics of the above mentioned features (a.1) to (a.4) and are useful for the colouring of food products and pharmaceutical preparations. While D1, as with the patent in suit, aims at pigment dispersions

which may be dried, D9a discloses an obligatory final drying step of the aqueous pigment dispersion (cf. D9a, Claim 1 and Example 1 and D1, Claim 1; column 1, lines 12 - 24; column 1, line 72 - column 2, line 2; column 2, lines 45 - 57 and examples).

The Appellant regarded the teaching of documents D9a and D1 taken together as closest prior art because in the Appellant's opinion the skilled person knew that that the final application form of the pigment composition - powder or dispersion - was a matter of choice, as set out in D1 column 2, lines 49 to 52; in the Appellant's judgment, the fact that D9a opted for a final drying step was not a relevant distinction.

3.2.1 The Respondent regarded the teaching of D9a as the only adequate starting point for the assessment of inventive step. In its opinion D1 should be disregarded as relevant prior art. The reason for this was that a solvent such as chloroform, methylene chloride, carbon tetrachloride, trichloroethylene or carbon disulfide had been used in the process of D1 and as a consequence the compositions therein prepared would still contain detectable amounts of the harmful solvent (cf. experimental report D10). Thus, the skilled person working in the field of food technology would not consider consulting D1, a quite old document filed forty years before the patent in suit, when looking for new colouring compositions for foodstuffs or pharmaceutical products.

3.2.2 The Board agrees with the Appellant that the teaching of D1 cannot be ignored as the subject-matter of Claim 1 does not exclude the possible presence of trace

amounts of an organic solvent. Consequently, the relevant disclosure of these two documents D9a and D1, namely the teaching that compositions of finely divided natural pigments prepared in the presence of a hydrocolloid and in the absence of a surfactant are useful for the colouring of edible products represents an appropriate starting point for the assessment of inventive step of the claimed subject-matter.

3.3 The objective problem to be solved and its solution.

3.3.1 The use according to present Claim 1 differs from that disclosed in D9a and in D1 in that the composition is dispersed in the aqueous phase of an edible product comprising multiple separated compartments (Claim 1, feature (b)). By using the composition of Claim 1 in a product which comprises multiple separated pigments, the pigment does not migrate into other compartments.

3.3.2 The technical problem to be solved by the patent in relation to this prior art is seen in the finding of a water dispersible pigment composition able to avoid pigment migration in products comprising multiple separated compartments.

3.3.3 This problem is solved by the use of the ready-to-use water dispersible pigment compositions as defined in Claim 1. The results in Table 5.1 of the patent (Example 5) show that migration does not occur when using the compositions according to the invention.

3.3.4 The Board is thus satisfied that the technical problem defined above is credibly solved by the measures taken. This finding was not contested by the Appellant.

3.4 Obviousness

3.4.1 It remains to be decided whether or not the claimed solution is obvious over the cited prior art. D1 and D9a deal with the problem of preparing a carotenoid preparation with a homogeneous colour effect with high bio-availability. Neither D9a nor D1 contains a reference to the problem of pigment migration. Therefore, they cannot give a hint to the solution of the present problem. The relevant question is whether, in view of the newly cited document D11, the skilled person would have been directed to use the compositions of D9a or D1 to avoid colour migration.

3.4.2 D11 discloses a packed edible product comprising two separated liquid layers having the same continuous phase, in which the first liquid layer contains a dispersed colouring agent (Claim 1). The colouring agent is preferably an oil-soluble substance such as annato or bixin which is preferably dispersed or dissolved in a fat phase (see Claims 2 and 4, see also examples 1 and 2).

The colouring agent disclosed in D11 is the pigment itself which is not processed beforehand into a ready-to-use composition but is incorporated *in situ* into the edible (milk) product and dissolved in its fat phase. Moreover D11 does not make use of added hydrocolloid. This colouring technique is thus quite different from the ones taught by D1 and/or D9a which disclose pigment preparations for foodstuffs in general, not limited to oil-in-water emulsions (D1: aqueous dispersion as end product; D9a: aqueous dispersion before drying) and for

that reason does not lend itself in any way to a combination with D1 or D9a.

- 3.4.3 The Board cannot accept the argument of the Appellant that document D11 discloses the general technical teaching that colour diffusion between two layers can be avoided if the pigment is dispersed in the liquid phase of one layer, as suggested according to the Appellant by the wording of Claim 1. In fact D11 relates to a very specific situation of colouring a preferably milk-based product-layer and does not comprise any suggestion that the step of the *in situ* formation of the coloured oil-in-water emulsion (milk) can be isolated from this specific context. This conclusion is not affected by the two-step method in which the coloured milk-based product layer is made involving a first step wherein the colour is dissolved/dispersed in only 10% of the milk followed by a second step wherein this colour concentrate is mixed with the rest of the milk and further ingredients. In the Board's judgment, this two-step procedure is governed by the practicalities of a homogeneous distribution of the colour and cannot suggest a separation of the first step for the purpose of colouring any food.

Consequently, the disclosure in D11 would not lead the skilled person to the assumption that the pigment preparations according to D1 or D9a (dispersion before conversion into a powder) would be useful for the purpose of preventing colour migration from one compartment to another in a two-compartment food product.

3.4.4 Hence, in the Board's judgment it would not have been obvious to a person skilled in the art, in the light of the cited prior art, to use a water dispersible composition having features (a.1) to (a.4) in order to solve the above-mentioned problem of migration in a food product comprising multiple separated layers. The subject-matter of Claim 1 thus involves an inventive step.

3.5 The subject-matter of independent Claim 3 differs from the subject-matter of Claim 1 merely by the fact that composition is used for the manufacture of a pharmaceutical product. The reasoning above in relation to Claim 1 applies *mutatis mutandis* to the subject-matter of Claim 3 which therefore also involves an inventive step.

Claims 2 and 4 to 9 which are dependent claims also satisfy for the same reasons the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

The decision under appeal is set aside.

The case is remitted to the Opposition Division with the order to maintain the patent on the basis of Claims 1 to 9 of the sole request maintained during oral proceedings, corresponding to the second auxiliary request filed with the letter dated 11 February 2008, after any necessary amendments of the description.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel