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Datasheet for the decision of 21 January 2010

Case Number: T 0446/06 - 3.3.09

Application Number: 00929314.3

Publication Number: 1178738

IPC: A23L 1/275

Language of the proceedings: EN

Title of invention:
A colouring substance composition and a method of manufacturing same

Patentee:
Chr. Hansen A/S

Opponent:
DSM IP Assets B.V.

Headword:
-

Relevant legal provisions:
-

Relevant legal provisions (EPC 1973):
EPC Art. 56

Keyword:
"Inventive step - yes"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0446/06 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 21 January 2010

Appellant: (Opponent)
DSM IP Assets B.V.
Het Overloon 1
NL-6411 TE Heerlen (NL)

Representative:
Teipel, Stephan
Lederer & Keller
Patentanwälte
Prinzregentenstrasse 16
D-80538 München (DE)

Respondent: (Patent Proprietor)
Chr. Hansen A/S
Bøge Allé 10-12
DK-2970 Hørsholm (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 19 January 2006 concerning maintenance of European patent No. 1178738 in amended form.

Composition of the Board:

Chairman: J. Jardón Álvarez
Members: M. Müller
W. Sekretaruk

Summary of Facts and Submissions

I. The grant of European patent No. 1 178 738 in respect of European patent application No. 00929314.3 in the name of Chr. Hansen A/S, which had been filed on 18 May 2000 as International application PCT/DK00/00270 (WO - 00/70967), was announced on 2 May 2003 (Bulletin 2003/18) on the basis of 34 claims. Independent Claims 1, 24, 30, 32, 33 and 34 read as follows:

"1. A composition comprising hydrophobic, water insoluble, or sparingly soluble in water colouring substance bodies that are at least partially coated with a pectin having a degree of acetylation of at least 10%, selected from the group consisting of beet pectin, chicory pectin and Jerusalem artichoke pectin.

24. A method of producing a composition according to claim 1, said method comprising preparing a dispersion of the colouring substance by comminuting said substance in an aqueous phase comprising beet pectin, chicory pectin and/or Jerusalem artichoke pectin in an amount of at least 1% of the colouring substance to obtain a dispersion containing the colouring substance in the form of bodies of the colouring substance that are at least partially coated with the pectins.

30. Use of the composition according to claim 1 for the manufacturing of an edible product.

32. Use of the composition according to claim 1 for the manufacturing of a pharmaceutical or a nutraceutical product.

33. A pharmaceutical or nutraceutical product comprising the composition according to claim 1.

34. An edible product comprising the composition according to claim 1."

Claims 2 to 23, 25 to 29 and 31 were dependent claims.

II. Notice of Opposition requesting the revocation of the patent in its entirety on the grounds of lack of inventive step (Article 100(a) EPC) was filed by DSM IP ASSETS B.V. on 29 January 2004.

During the opposition proceedings *inter alia* the following documents were cited:

D1: WO - A - 94/19411;

D2: "H&F - News from R + D Chances and Limits for the Use of Pectin as Emulsifier". Lecture of the Master Class on Emulsion Technology held at FI Food Ingredients Europe, 3-5 November 1998, Frankfurt, Germany as published under http://www.herbstreith-fox.de/presse/englisch/epress09htm;

D3: I.C.M. Dea *et al.*, Food Hydrocolloids, 1(1), 1986, pages 71, 72 and 88;

D5: EP - B - 0 498 824; and

D6: Research disclosure 1978, nr. 17.064

III. By its interlocutory decision announced orally on 30 November 2005 and issued in writing on 19 January 2006, the Opposition Division held that the grounds for opposition raised by the Opponent did not prejudice the maintenance of the patent in amended form. The decision was based on a set of 32 claims filed on 30 November 2005. The set of claims was based on the claims as granted with incorporation of the features of Claim 8 into Claim 1, deletion of Claim 9 and renumbering of the remaining claims. Claim 1 as maintained by the Opposition Division reads as follows:

"1. A composition comprising hydrophobic, water insoluble, or sparingly water soluble solid colouring substance particles that are at least partially coated with a pectin having a degree of acetylation of at least 10%, selected from the group consisting of beet pectin, chicory pectin and Jerusalem artichoke pectin."

The Opposition Division, starting from D5 as closest prior art, saw the technical problem to be solved by the patent in suit as being to provide an improvement over the colouring compositions of D5. The solution to this problem, namely the use of pectins having a degree of acetylation of at least 10% for preparing the dispersion of hydrophobic colouring substance was in its opinion not suggested by the prior art. The Opposition Division held that no proof had been brought that it would be routine for the skilled person to apply the teaching of emulsions to dispersions, that the pectins used in D2 had a lower degree of acetylation than the pectins now used, and that it was not possible to draw a correlation between the degree of acetylation and the particle size in the Tables of

D2. Consequently, the Opposition Division acknowledged an inventive step for the claimed subject-matter.

IV. On 21 March 2006 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 26 May 2006, the Appellant requested the revocation of the patent in its entirety on the grounds of lack of inventive step.

The Appellant also filed the following fresh documents:

D9: EP - A - 0 426 434

D10: EP - A - 0 347 751

D11: Ullmann's Encyclopedia of Industrial Chemistry, 5th Completely Revised Edition, Volume A25, 1994, pages 22, 23 and 48; and

D12: WO - 99/03892.

V. With letter dated 7 February 2007 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. Auxiliarily, it requested that the patent be maintained on the basis of a new set of claims therein filed.

VI. On 11 September 2009 the Board dispatched a summons to attend oral proceedings on 21 January 2010. In the attached communication pursuant to Article 15(1) of the

rules of Procedure of the Boards of Appeal the Board drew the attention of the parties to the points to be discussed during the oral proceedings.

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

– The Appellant maintained that the subject-matter of the claims lacked inventive step having regard to the combined teaching of documents D5 and D2. It regarded document D5, a document disclosing a process of preparing a hydrophobic or aerophilic powdered solid which is dispersible in water by milling the solid in an aqueous medium in the presence of a hydrocolloid, as the closest prior art document. The hydrocolloids to be used according to D5 included pectins.

– The problem to be solved by the patent in suit was thus providing water dispersible compositions having improved colouring efficiency.

– The solution to this problem by using the specific pectins of Claim 1 was in its opinion obvious having regard to document D2. The reason for that was the teaching in D2 that the emulsions prepared with pectins having acetyl groups showed reduced surface tension and resulted in emulsions having excellent droplet size, lower than using other pectins. It argued that the acetylated beet pectins disclosed in D2 had a degree of acetylation of around 10%, the one named beet pectin III of over 10%, as could be

calculated from the acetic acid content disclosed in D2.

– The skilled person would infer from this document that acetylated beet pectins had to be chosen when preparing emulsions which did not agglomerate. The skilled person would further apply this teaching concerning emulsions to the dispersions of D5 because in fact the properties which were required for increasing the colouring effect of the dispersions were the same, as could be inferred from the newly cited documents D9 to D11. In this context the skilled person would disregard the information in D2 that the emulsions were less stable, as this property was not required for the dispersions of D5.

– Concerning D3 it pointed out that it was an older document and that the conclusions there were only preliminary and did not contradict the clear teaching of D2.

VIII. The arguments presented by the Respondent may be summarized as follows:

– The Respondent pointed out that documents D9 to D12 were filed by the Appellant at a late stage of the proceedings and that there was no reason to admit them into the proceedings. Moreover none of them had any relevance for the question of inventive step.

– Concerning inventive step, the Respondent agreed with the Appellant in the selection of D5 as closest prior art document, in the formulation of the problem and its solution. It disagreed, however,

with the conclusion of the Appellant that the invention was obvious in view of D2. On the contrary, the Respondent maintained that there was no teaching in D2 pointing to the preferred use of the pectins having a degree of acetylation of at least 10%. It pointed out that the differences in the values given in Table 3 of D2 were very small and that in any case the better combination of properties resulting in emulsions having low particle size and the required stability were those derived from high methoxyl apple and citrus pectin and not those of acetylated beet pectin. Moreover it noted that the 'better' pectins according to D2 were those having a high methoxyl substituent, contradicting D5 which suggested the use of low methoxyl pectins. This would further have discouraged the skilled person from trying these pectins in a different system. The Respondent also contested the results of the Appellant concerning the calculation of the degree of acetylation of the beet pectins of D2.

– Finally, the Respondent pointed to document D3, which indicated that no correlation had been found between the foaming/emulsifying properties of the acetylated pectin fractions and their chemical structure.

IX. The Appellant requested that the decision under appeal be set aside and that the European patent No. 1 178 738 be revoked.

The Respondent requested that the appeal be dismissed, or alternatively that the European patent be maintained

on the basis of the auxiliary request filed with letter dated 7 February 2007.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Inventive step (Article 56 EPC 1973)*

2.1 Claim 1 of the main request is directed to a composition comprising:

- (a) hydrophobic, water-insoluble, or sparingly water-soluble solid colouring-substance particles that are
- (b) at least partially coated with a pectin having a degree of acetylation of at least 10%,
- (c) selected from the group consisting of:
- (c1) beet pectin,
- (c2) chicory pectin and
- (c3) Jerusalem artichoke pectin.

2.2 Closest prior art

2.2.1 The Board considers, in agreement with the Opposition Division and the parties to the proceedings, that document D5 represents the closest prior art document.

2.2.2 D5 discloses the preparation of water-dispersible solid compositions comprising a hydrophobic/aerophilic solid pigment which are prepared by milling the pigment in an

aqueous medium in the presence of a hydrocolloid to obtain a suspension containing suspended particles of an average particle size not exceeding 10 µm and then finely dividing the suspension and drying it to obtain a powder (Claim 1). The hydrocolloids that can be used in the process according to D5 include exudates, such as gum arabic; extracts from seaweed; extracts from plants, such as pectin; extracts from animals, such as gelatines and other proteinaceous hydrocolloids; chemically modified hydrocolloids, such as cellulose derivatives, etc. (see column 4, lines 7 - 24; see also examples).

2.2.3 The subject-matter of Claim 1 of the main request differs from the disclosure of D5 in that the hydrocolloid used for the preparation of the composition is a pectin having a degree of acetylation of at least 10%, selected from the group consisting of beet pectin, chicory pectin and Jerusalem artichoke pectin (Claim 1, features b, c).

2.3 Problem to be solved and its solution

2.3.1 According to the patent in suit, by using such selected pectins compositions are obtained having significantly superior colouring effect.

2.3.2 Thus, the objective technical problem to be solved by the patent in relation to D5 can be formulated as being the provision of compositions having improved colouring effect.

2.3.3 The examples and comparative examples in the specification of the patent show that this problem has

been credibly solved by the claimed compositions. The compositions of Claim 1 comprising, as hydrocolloid, beet pectin show in all cases improved chroma values, indicating improved colouring efficiency, over suspensions comprising other hydrocolloids such as those disclosed in D5. The compositions of examples 12 to 19 using beet pectin have a higher chroma value than compositions using gum arabic, gelatine or citrus pectin (see Table 1, examples 1 to 11).

This finding was not challenged by the Appellant.

2.4 Obviousness

2.4.1 It remains to be decided whether, in view of the available prior art documents, it would have been obvious for the skilled person to solve this technical problem by the means claimed, namely by using a pectin having a degree of acetylation of at least 10%.

2.4.2 There can be no hint to this solution in the documents in the proceedings dealing with colouring agents (cf. D5, D1 and D6) because acetylated pectins are not mentioned in them at all.

2.4.3 The Appellant relies on D2 for arguing that the skilled person would have gone in the direction of using acetylated beet pectins for solving the above problem. It is the Appellant's view that D2 discloses the advantageous use of acetylated beet pectins in order to obtain emulsions with reduced surface tension and small particle size. The Appellant argues further that taking account of the fact that the colouring effect increased with decreasing particle size, it would then be obvious

for the skilled person to transfer this teaching from emulsions to the claimed dispersions and thus arrive at the claimed invention.

2.4.4 The Board finds these arguments unconvincing.

In D2 the emulsifying and emulsion stabilizing properties of pectins extracted from various raw materials (apple, citrus and beet) and their use in practical applications were studied. In particular, the emulsifying properties were investigated by determination of the surface tension of pectin solutions, and the stability of oil/water emulsions was investigated by measurement of the change of oil droplet-size distribution during storage.

The pectins used for the preparation of o/w emulsions had a different molecular structure (molecular weight, degree of esterification, acetyl content distribution of the methoxylated carboxyl groups, see Table 1) resulting in different functional properties. The results obtained are summarized in Table 3 and discussed in paragraph "5.3 Results" on pages 11 - 12.

The best results in these experiments were achieved with high methoxyl apple and citrus pectins. The emulsions prepared with these pectins showed no increase in droplet size and were stable (see Table 3, entries 1, 2 and 8). The emulsions prepared with the acetylated beet pectin showed smaller droplet size and no increase in droplet size during storage; however the acetylated beet pectin did not provide a significant contribution to the stabilization of the emulsion, due to its low viscosity (see Table 3, entries 14 - 16).

These results in Table 3 of D2 would give no incentive to the skilled person to choose acetylated beet pectins for solving the problem underlying the patent. On the contrary, the skilled person would refrain from using these pectins and be directed by D2 to choose the high methoxyl apple and citrus pectin resulting in the more stable emulsions.

2.4.5 The Board cannot accept the argument of the Appellant that the skilled person would choose acetylated beet pectins because the emulsions prepared with them showed the smallest droplet sizes. The question is not whether the skilled person could arrive at the invention (in the present case the use of a pectin having a degree of acetylation of at least 10%), but whether he would have done so with a reasonable expectation of obtaining improved colouring compositions. The skilled person would get no incentive from D2 to select said pectins, independently of the droplet size of the emulsions, in order to find a solution to the existing technical problem. This argument of the Appellant is essentially based on its knowledge of the invention, not on the teaching of D2.

2.4.6 In summary D2 does not point in the direction of a preferred use of acetylated pectins over other pectins in emulsions. Consequently, there is no need for the Board to discuss whether the degree of acetylation of the pectins of D2 is above 10% or not. There is also no need to discuss whether the preferred use of a stabilizer in an emulsion would apply to its use in other types of dispersions as argued by the Appellant relying on documents D9 to D12. For this reason there

is also no need to admit documents D9 to D12 into the proceedings.

2.4.7 There is also no hint to this solution in D3, which describes the isolation and characterization of acetylated pectin of sugar beet pulp as well as its foaming and emulsifying properties (see Abstract). According to this document, no correlation could be found between the foaming/emulsifying properties of the acetylated pectin fractions and their chemical structure (see last sentence of the Abstract). Thus it cannot give any hint to the preferred use of pectins having a degree of acetylation of at least 10%.

2.4.8 It follows that the finding that pectins having a degree of acetylation of at least 10%, selected from the group consisting of beet pectin, chicory pectin and Jerusalem artichoke pectin, result in improved colouring compositions is not a teaching the skilled person being confronted with the task of finding a solution to the existing technical problem would find in the available prior art or within his general common knowledge.

2.5 The subject-matter of Claim 1 therefore involves an inventive step within the meaning of Article 56 EPC. Claims 2 to 32, which are directly or indirectly dependent of Claim 1, also satisfy the requirements of Article 56 EPC 1973.

3. As the claims of the main request fulfil the requirements of the EPC 1973, there is no need for the Board to deal with the auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar | The Chairman

G. Röhn | J. Jardón Álvarez