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D E C I S I O N
of 25 October 2005

Case Number: T 0720/99 - 3.3.09

Application Number: 89307880.8

Publication Number: 0354025

IPC: A23G 1/00

Language of the proceedings: EN

Title of invention:

Anti-blooming agent and process employing same

Patentee:

FUJI OIL COMPANY, LIMITED

Opponent:

Unilever N.V.

Headword:

-

Relevant legal provisions:

EPC Art. 56

Keyword:

"Inventive step (yes) - Starting from two different documents
as the closest prior art"

Decisions cited:

-

Catchword:

-



Case Number: T 0720/99 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 25 October 2005

Appellant: FUJI OIL COMPANY, LIMITED
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 18 May 1999
revoking European patent No. 0354025 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: P. Kitzmantel
Members: W. Ehrenreich
M.-B. Tardo-Dino

Summary of Facts and Submissions

- I. Mention of the grant of European Patent No. 0 354 025 in respect of European patent application 89 307 880.8 in the name of *Fuji Oil Company, Limited*, filed on 3 August 1989 and claiming the priority JP 196420/88 of 5 August 1988, was announced on 10 March 1993. The patent, entitled "*Anti-blooming agent and process employing same*" was granted with nine claims, Claims 1, 3, 6 and 9 reading as follows:

"1. An anti-blooming agent which comprises not less than 20% by weight of mono-U-di-S glycerides (SSU) wherein U is a fatty acid residue having a melting point as the corresponding free fatty acid of not higher than 40°C and is bonded to the 1- or 3-position of the glyceride and S is a saturated fatty acid residue having a melting point of not lower than 45°C and is bonded to the remaining positions, and not less than 75% by weight of all S in said SSU being stearic acid residue and/or palmitic acid residue."

"3. A process for producing a hard butter which comprises admixing an anti-blooming agent according to claim 1 or claim 2 with other raw materials for the hard butter to raise the SSU content of the hard butter by not less than 2.0% by weight."

"6. A process for producing a hard butter product which comprises admixing an anti-blooming agent according to claim 1 or claim 2 or a hard butter containing it with other raw materials for the hard butter product to raise the SSU content in the fat component of the hard butter product by not less than 1.2% by weight."

"9. Chocolate which contains an anti-blooming agent as claimed in claim 1 or claim 2."

Claim 2 was dependent on Claim 1, Claims 4 and 5 were dependent on Claim 3 and Claims 7 and 8 were dependent on Claim 6.

II. Notice of Opposition requesting revocation of the patent in its entirety on the grounds of Article 100(a) EPC, in that the claimed subject-matter was not new and not based on an inventive step, was filed by

Unilever NV

on 20 September 1993.

The Opponent based its submissions inter alia on the following document:

D5 US-A 4 726 959.

With a letter dated 2 September 1996 the Opponent introduced the document:

D7 JP-B 91-078 440

and filed a complete English translation of this document with a letter dated 5 November 1996.

In the oral proceedings before the Opposition Division held on 14 November 1996, the Patent Proprietor requested maintenance of the patent on the basis of a set of seven claims according to the main request filed

with a letter of 22 October 1996. The claimed subject-matter was inter alia discussed with regard to D7, this document having been put forward as prejudicial to its novelty. Because, however, D7 was published after the priority date of the application, the oral proceedings were terminated by the Opposition Division and the Parties told that the proceedings would be continued in writing in order to give the Patent Proprietor an opportunity to consider the content of the corresponding laid-open document

D7' JP-A 61-224 934

published on 6 October 1986, i.e. before the priority date. D7' was submitted in the form of an English translation by the Opponent with its letter of 20 November 1996.

III. With its decision issued in writing on 18 May 1999, the Opposition Division revoked the patent. The decision was based on Claim 1 of the main request submitted on 22 October 1996. This Claim reads as follows:

"1. Use of an anti-blooming agent in a hard butter to prevent or delay substantial blooming of the hard butter product, characterised in that said agent comprises not less than 20% by weight of mono-U-di-S glycerides (SSU), wherein U is a fatty acid residue having a melting point as the corresponding free fatty acid of not higher than 40°C and is bonded to the 1- or 3-position of the glyceride and S is a saturated fatty acid residue having a melting point as the corresponding free fatty [acid] of not lower than 45°C and is bonded to the remaining positions, and not less

than 75% by weight of all S in said SSU being stearic acid residue and/or palmitic acid residue, and wherein the SSU content of the hard butter is raised by 2% to 25% by weight."

The Opposition Division held that the subject-matter of Claim 1 was not novel over D7'.

In particular, the Opposition Division took the view that this document disclosed hard butter compositions comprising an antiblooming agent in accordance with Claim 1, which comprised fatty acid glycerides of the type GGU (or SSU) with not less than 20% SSU glycerides, wherein not less than 75% of all units S were represented by stearic and/or palmitic acid residues. According to the referential example 1, hard butter products were prepared by mixing cacao butter with the antiblooming agent in various amounts, including the ratio antiblooming agent/cacao butter of 30/70, which resulted in an increase of the SSU content in the cacao butter by 22.5%.

IV. On 8 July 1999 the Patent Proprietor (Appellant) lodged an appeal against the decision of the Opposition Division and paid the prescribed fee on the same day. The Statement of the Grounds of Appeal was filed on 17 September 1999 and was accompanied by a new main request consisting of four claims. Claim 1, which was mainly based on Claim 6 as granted, reads as follows:

"1. A process for producing a hard butter product in which substantial blooming of the hard butter product is prevented or delayed, which comprises admixing an anti-blooming agent which comprises not less than 20%

by weight of mono-U-di-S glycerides (SSU), wherein U is a fatty acid residue having a melting point as the corresponding free fatty acid of not higher than 40°C and is bonded to the 1- or 3-position of the glyceride and S is a saturated fatty acid residue having a melting point as the corresponding free fatty acid of not lower than 45°C and is bonded to the remaining positions, and not less than 75% by weight of all S in said SSU being stearic acid residue and/or palmitic acid residue, or a hard butter containing said anti-blooming agent, with other raw materials for the hard butter product characterised in that the SSU in the fat component of the hard butter product is raised by 1.2% to 7.5% by weight."

The Appellant requested remittance of the case to the Opposition Division for further consideration of the new set of claims, which were restricted to subject-matter whose novelty had been acknowledged by the Opposition Division.

- V. In its submissions filed with a letter of 16 December 1999 the Respondent (Opponent) stated that it did not resist remittance but raised objections under the Articles 84 and 123 (3) EPC.

With regard to Article 84 the Respondent in particular argued that the feature in Claim 1 that "the SSU content in the fat component of the hard butter product is raised by 1.2 to 7.5% by weight" could be interpreted in two ways, in that either the absolute SSU content was raised by this amount or a relative increase in SSU content was meant.

Objections under Article 123(3) EPC were raised with regard to Claim 3.

- VI. In its communication issued on 5 April 2005, the Board informed the parties that it was considered inappropriate, with regard to the advanced age of the application, to remit the case to the Opposition Division and stated its intention to discuss the question of inventive step and any other issues in an oral hearing and to take a final decision.

Furthermore, the Board took the preliminary position that the claimed subject-matter was novel over D7' and that the claims of the main request did not contravene Article 123(3) EPC, and invited the Appellant to explain the meaning of the feature attacked by the Respondent under Article 84 EPC.

- VII. In response to the Board's communication the Appellant filed auxiliary requests 1 and 2 with its letter of 22 September 2005 and auxiliary requests 3 and 4 with its letter dated 18 October 2005.

With its letter dated 22 September 2005 the Respondent introduced the following document into the appeal proceedings:

D8 Council Directive of 20 July 1976 *"relating to the fixing of the maximum level of erucic acid in oils and fats intended as such for human consumption and in foodstuffs containing added oils or fats"*, Official Journal of the European Communities No. L 202/35

Oral proceedings took place on 25 October 2005. In the proceedings, the Opponent informed the Board that the objection under Article 123(3) EPC was no longer maintained and that objections with regard to the novelty of the subject-matter of the main request would not be raised. Furthermore, the objection under Article 84 EPC was dropped after the Appellant had confirmed that the feature in Claim 1 "that the SSU content in the fat component of the hard butter product is raised by 1.2 to 7.5% by weight" expressed an absolute increase of the SSU content, ie an increase within that percentage range over and above that obtained without the addition of the anti-blooming agent.

In order to overcome the Respondent's objection in the proceedings that, contrary to Rule 57a EPC, the amendment in Claim 2 of the main request characterising the hard butter of Claim 1 as a tempering-type hard butter was not occasioned by one of the opposition grounds specified in Article 100 EPC, the Appellant presented a new main request wherein the feature "and the hard butter is a tempering-type hard butter" was deleted from Claim 2. The other claims of this request remained unchanged.

VIII. The Appellant's arguments with regard to the issue of inventive step submitted in writing and at the oral proceedings may be summarized as follows:

The document D7' was mainly concerned with the preparation of an edible fat/oil containing a triglyceride additive of the type GGG/GGU/UGU with a content of GGU triglycerides in accordance with the

content of the SSU triglyceride of the antiblooming agent of the claimed invention. Example 1 in conjunction with referential example 1 of D7' showed in the table at page 9 an increasing improvement of the anti-blooming effect when the above triglyceride composition was mixed with cacao butter in increasing ratios, of from 30/70 to 85/15.

Consequently, a skilled person starting from D7' as the closest prior art would anticipate that the antiblooming property of an edible fat/oil could be increased with increasing amounts of the triglyceride additive.

In contrast, the contested patent taught the addition of comparatively small amounts of the anti-blooming agent in order to obtain a good antiblooming effect for a hard butter product, in particular chocolate, without reducing the good mouth feeling. Contrary to the teaching of D7', according to the invention it had been realized specifically that a certain small increase of the SSU triglycerides in the fat component of a hard butter product via the anti-blooming agent was decisive for obtaining such an effect rather than larger increases in the amount of the triglyceride composition as such.

D7', therefore, taught away from the teaching of the patent.

A skilled person being aware of D5 had no reason to combine it with D7' in order to arrive at the claimed invention, because the fat blooming inhibitor according to D5 required triglycerides comprising a certain

portion of saturated fatty acids (S) with a C₂₀ to C₂₄ chain length, which was considerably longer than the C₁₆ (palmitic acid) or C₁₈ (stearic acid) chain length comprised in an amount of at least 75% by weight in the SSU triglycerides of the anti-blooming agent according to the invention.

Nor, alternatively, taking D5 as the closest prior art, would the skilled person be motivated to replace the C₂₀ to C₂₄ fatty acids by the C₁₆/C₁₈ fatty acids according to D7'. There was no indication in D5 that the anti-blooming properties and the workability of a hard butter product (e.g. chocolate) could be improved by enhancing the portion of the latter fatty acid residues with the shorter C₁₆/C₁₈ chain length, as shown by the bloom and release tests for tempering chocolate, submitted in the opposition proceedings with the letter dated 22 July 1994 at pages 11 to 13.

IX. The Respondent provided the following written and oral arguments:

Both D7' and D5, lying in the same technical field, would be equally suitable as the starting point for the consideration of inventive step.

D7' disclosed at page 3 and in example 1 a triglyceride composition which was structurally identical with the anti-blooming agent as defined in Claim 1. According to referential example 1 of D7' the composition was mixed with cacao butter in various amounts and its anti-blooming activity was clearly demonstrated in the table at page 9, even in admixture with cacao butter in a minimum ratio of 30 : 70. The triglyceride composition

according to D7', therefore, represented a model component of a suitable anti-blooming agent.

The claimed subject-matter was different in that the anti-blooming agent was admixed with hard butter in a considerably lower amount, which led to an increase of the SSU content in the fat component of the hard butter product by 1.2 to 7.5% by weight instead of at least 22.5% by weight according to D7'.

A skilled person, however, being aware of D5 describing (i) in Claim 6 fat blooming inhibitors with considerable amounts of SSU triglycerides (up to 24.7%), and (ii) in table 1 at columns 7/8 a triglyceride inhibitor (5) with about 68% C₁₆/C₁₈ saturated fatty acid residues, i.e. amounts of S in the triglyceride only slightly lower than those according to D7', would expect satisfactory anti-blooming results from the addition of anti-blooming agent to hard butter in ratios considerably lower than 30 : 70, particularly because it was disclosed at column 4, lines 20 to 23, of D5 that the antiblooming agents may be added in amounts as low as 0.5% by weight of the fat component of the hard butter product.

This expectation was confirmed by the satisfactory anti-blooming results set out in tables 3 and 8 at columns 8 and 10 when using the anti-blooming agent (inhibitor) in ratios as low as 1 : 99 to 5 : 95.

Taking D5 as the closest prior art, the claimed subject-matter was different only in that the SSU triglyceride content in the anti-blooming agent was at least 75% by weight instead of 68% by weight.

In the light of column 3, lines 32 to 34, of D5, wherein blooming inhibitors based on high erucic rapeseed oil were proposed, and with regard to the fact that the Directive D8 limited the permissible levels of erucic acid in edible oils and fats, the problem to be solved consisted of the provision of a cheaper alternative of a blooming inhibitor.

A skilled person seeking to solve this problem would therefore consider D7' to be a suitable basis for its solution because this document described anti-blooming agents on the basis of triglycerides with high portions of the cheaper C₁₆ and C₁₈ fatty acid residues. The skilled person was therefore motivated to replace the saturated C₂₀ to C₂₄ fatty acid residues of D5 by the cheaper palmitic (C₁₆) and/or stearic (C₁₈) acid residues suggested by D7'.

- X. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of Claims 1 to 4 of the new main request filed during the oral proceedings, or alternatively on the basis of one of the auxiliary requests 1 to 4 filed with the letters dated 22 September 2005 and 18 October 2005.

- XI. The Respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible
2. The issues of added subject-matter/extension of the protection conferred (Articles 123(2)/(3) EPC), clarity (Article 84 EPC), amendment of the European patent (Rule 57a EPC) and novelty (Article 54 EPC) were no longer in dispute. In the absence of apparent non-compliance with these requirements and in view of the outcome of the appeal the need to discuss these points does not arise.
3. *Inventive step*

In the oral proceedings inventive step was considered and discussed in two ways, one starting from D7' as the closest prior art, the other from D5.

3.1 The subject-matter of the patent

The patent in suit concerns a process for preparing a hard butter product by which blooming of the hard butter product is prevented without deterioration of melting in the mouth and workability (patent specification, page 2, lines 23 to 28).

According to Claim 1 of the main request, the desired properties are achieved by a process comprising admixing a hard butter with a specific anti-blooming agent. The claimed process has the following essential elements:

- (a) the use of a specific anti-blooming agent with the following characteristics:
- (i) the anti-blooming agent is based on fatty acid triglycerides comprising not less than 20% by weight of mono-U-di-S glycerides of the type SSU (for the meaning of "S" and "U" see the definition in Claim 1);
 - (ii) not less than 75% by weight of all S in the SSU triglyceride are stearic acid residues (with a C₁₈ carbon chain) and/or palmitic acid residues (with a C₁₆ carbon chain);
- (b) the amount of the anti-blooming agent added to the hard butter is such that the SSU content in the fat component of the hard butter product is 1.2 to 7.5% by weight higher than that obtained without addition thereof; cf. Claim 1 in conjunction with page 3, lines 42/43 of the patent specification.

Table 7 of the patent specification shows a retarded bloom of chocolate under Conditions A and B as defined in example 7 when the anti-blooming agent of examples 1b, 4, 5 and 6 is mixed in amounts of 5%, 8% and 10% relative to the hard butter (cacao butter), which leads to an increase of the SSU content, ranging from a minimum 1.5% (sample (4)) up to 4.7% (sample (9)). Moreover, table 3 shows a good or excellent feeling in the mouth of the chocolate according to example 3 together with an increased anti-blooming property when the anti-blooming agent according to the mid-fractions of examples 1 and 2 is mixed with cacao butter in amounts of 8%.

In addition, the Patent Proprietor submitted a test report in the first instance opposition proceedings with a letter dated 22 July 1994 (pages 11 to 13) comparing the anti-blooming property and the workability during tempering of (i) a chocolate containing 5% or 10% of an anti-blooming agent containing SSU with increased amounts of long chain C₂₀ to C₂₄ saturated fatty acids according to D5 (Sample A with 18% C₂₀ to C₂₄ fatty acid and 71% C₁₆/C₁₈ stearic/palmitic acid residues) with (ii) a chocolate containing an anti-blooming agent according to the invention wherein in the SSU triglyceride the amount of C₂₀ to C₂₄ has been reduced in favour of C₁₆/C₁₈ (Sample B with 1.2% C₂₀-C₂₄ and 95% C₁₆/C₁₈ fatty acid residues). The report shows a better anti-blooming activity in the bloom test (a) and a superior workability in the release test (b) of the chocolate with the anti-blooming agent according to the sample B, i.e. according to the invention.

- 3.2 Considering inventive step in the light of D7' as the closest prior art.

D7' pertains to edible fat/oil for preventing blooming, on the basis of fatty acid triglycerides containing GGG, GGU and UGU triglycerides wherein the amount of GGU in the triglyceride is 30 to 50%. The fatty acid residues "G" and "U" correspond to "S" and "U", respectively, according to Claim 1 of the main request (cf. Claim 1 in conjunction with page 3, the paragraphs 1 to 3 below "Means to Solve the Problems"). In Example 1 of D7' a triglyceride is prepared which corresponds to the anti-blooming agent as defined in Claim 1 of the main request with respect to the amount of SSU in the

triglyceride and the portion of palmitic/stearic acid "S" in the SSU triglyceride. This was uncontested by the parties.

In Referential Example 1, a process for producing a hard butter product with delayed blooming is described, wherein the triglyceride mixture of Example 1 is mixed with cacao butter and other raw materials (sugar, dyes) for the hard butter product in ratios of 30 : 70, 50 : 50, 70 : 30 and 85 : 15. From the data given in Example 1 and Referential Example 1 it can be calculated that the lowest mixing ratio of 30 : 70 leads to an increase of the SSU content in the fat component of the hard butter product by 22.5% by weight. This was also not contested by the parties.

3.2.1 Problem and solution

The process according to Claim 1 of the main request, therefore, differs from the process disclosed in the Referential Example 1 of D7' in that the SSU content in the fat component of the hard butter product is raised by 1.2% to 7.5% by weight, i.e. the increase of the SSU content lies at a considerably lower level.

In view of the experimental data given in example 3 and example 7 (see point 3.1 above), the problem to be solved by the claimed process is seen in manufacturing hard butter products, like chocolate, with satisfactory anti-blooming properties whilst retaining a good mouth feeling when melting in the mouth.

The problem is solved by a process in which the anti-blooming agent is mixed with the hard butter in a

relatively low amount such as to lead to a controlled increase of the SSU triglyceride isomer in the fat component of the resulting hard butter product at a low level. Tables 3 and 7 of the patent specification demonstrate that both a good mouth feeling and a satisfactory anti-blooming property are effectively achieved by raising the SSU content by a value which lies in the range as claimed in Claim 1.

3.2.2 Obviousness

In the Board's judgment, a skilled person starting from D7' and combining it with D5 would not arrive at the claimed process in an obvious manner.

D5 is concerned with fat blooming inhibitors for hard butter products in the form of a triglyceride mixture comprising triglycerides wherein the saturated fatty acid residues are mainly composed of 20 to 24 carbon atoms (Claim 1 and column 2, lines 40 to 60). Although, according to Claim 6 of D5, PPU, PSU and SSU triglycerides with C₁₆ palmitic acid (P) and C₁₈ stearic acid (S) residues (corresponding to "SSU" according to Claim 1 of the main request) may be present in the fat blooming inhibitor in individual amounts adding up to a hypothetical SSU-total of 46.1% by weight, and although the amount of the fat blooming inhibitor to be added to the hard butter product may be as low as 0.5% by weight (column 4, lines 20 to 23), there is no information available in D5 that in order to obtain good anti-blooming properties and retain good mouth feeling the amount of the C₁₆/C₁₈-SSU isomer should be kept at a relatively low level.

On the contrary, the passage in column 4, lines 23 to 25, that *"the fat blooming inhibiting effect of the invention inhibitor increases with an increase in the amount of the same"* teaches the enhancement of the amount of the blooming inhibitor to obtain optimum anti-blooming properties and militates against the use of low amounts of SSU in the fat component of the resulting hard butter product.

The Board therefore concludes that the subject-matter of Claim 1 is not obvious from a combination of the closest prior art, D7', and D5.

3.3 Considering inventive step in the light of D5 as the closest prior art.

3.3.1 Problem and solution

The claimed subject-matter differs from the disclosure in D5 in that the SSU triglycerides of the "inventive" anti-blooming agent have a considerably higher C₁₆ and C₁₈ saturated fatty acid portion of not less than 75% by weight. According to Claim 6 of D5, the SSU portion of these anti-blooming agents may possibly achieve a hypothetical maximum of 46.1% by weight, whereas a higher proportion of C₂₀ to C₂₄ fatty acid residues of at most 70% by weight is foreseen according to Claim 1. As to the Respondent's contention that the blooming inhibitor (5) according to D5 comprises a calculated amount of 68% saturated C₁₆/C₁₈ fatty acid residues, it has to be appreciated that this percentage cannot be attributed solely to the SSU isomer portion of the triglycerides because no distinction is made in Table 1

between the SSU and the SUS isomer. Therefore, the Board cannot agree with the Respondent's position that the inhibitor (5) contained 68% by weight SSU of triglycerides.

Furthermore, the Board concurs with the Appellant's argument (see point VIII supra) that the test report submitted before the Opposition Division with the letter dated 22 July 1994 showed in a fair comparison better results in the bloom test and the release test for an anti-blooming agent with an enhanced portion of C₁₆/C₁₈ SSU triglycerides (Sample B) as compared with an anti-blooming agent with increased amounts of C₂₂ to C₂₄ fatty acid triglycerides (Sample A).

Therefore, the problem to be solved with regard to D5 can be seen as the provision of a hard butter product with reduced blooming and better workability during tempering. The argument of the Respondent, that the problem to be solved should be seen simply in the provision of a cheaper alternative of an anti-blooming agent, inter alia seeking to avoid high erucic acid levels in order to fulfil the Directives of the Council of the European Communities (point IX of the decision), apart from its purely speculative nature, is entirely inconclusive given the fact that the "high-erucic rapeseed oil" mentioned in column 3, line 33, is specified as "hydrogenated" and is thus not covered by the Directive D8 which is only concerned with erucic acid as such.

3.3.2 Obviousness

Since there is no information in D5 that a higher C₁₆/C₁₈ fatty acid portion would positively influence the efficiency of the anti-blooming agent, the skilled person had no motivation to reduce the content of the C₂₀ to C₂₄ fatty acid residues in the anti-blooming agent in favour of the shorter chain C₁₆/C₁₈ residues, as exemplified in example 1 of D7', in order to solve the problem posed.

The Respondent's argument that the change to triglycerides comprising higher proportions of SSU, which owing to their shorter chain length have lower melting points, was obvious in view of the expectable better release behaviour resulting from this change, is beside the point. While the achievement of good release properties, for which evidence is in any event lacking, would certainly be a favourable aspect, the assessment of inventive step in this case is essentially concerned with alleviation of undesirable blooming.

3.4 Conclusion

In the circumstances, the subject-matter of the main request is considered to involve an inventive step over the cited prior art.

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 on the basis of the main request (Claims 1 to 4) filed during the oral proceedings, after any necessary consequential amendment of the description.

The Registrar:

The Chairman:

G. Röhn

P. Kitzmantel