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Datasheet for the decision of 18 March 2011

Case Number: T 1391/08 - 3.3.09

Application Number: 95924776.8

Publication Number: 0836389

IPC: A23G 3/30

Language of the proceedings: EN

Title of invention:
Syrups for use in chewing gum containing sorbitol, a plasticizing agent and an anticrystallization agent

Patentee:
WM. WRIGLEY JR. COMPANY

Opponent:
Cadbury Schweppes Plc

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Main request Novelty - No"
"Auxiliary request 1 Inventive step - Yes"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1391/08 **-** 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 18 March 2011

Appellant: (Opponent)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 9 May 2008 concerning maintenance of the European patent No. 0836389 in amended form.**

Composition of the Board:

Chairman: W. Sieber
Members: J. Jardón Álvarez
R. Menapace

Summary of Facts and Submissions

I. The grant of European patent No. 0 836 389 in respect of European patent application No. 95924776.8, in the name of WM. WRIGLEY JR. COMPANY, which had been filed on 5 July 1995 as international application PCT/US1995/008392, was announced on 18 February 2004 (Bulletin 2004/08). The granted patent contained 14 claims, independent claims 1 and 13 reading as follows:

"1. An aqueous syrup for use in chewing gum comprising, on a dry basis:

a) 50% to 85% alditols, of which

i) 60% to 92% are sorbitol, and

ii) 8% to 40% are anticrystallization agents comprising alditols other than sorbitol with a degree of polymerization (DP) of 1 or 2; and

iii) any alditols present with a DP of 3 or greater are present at a ratio to said alditols other than sorbitol with a DP of 1 or 2 of less than 2:3; and

b) 15% to 50% plasticizing agent selected from glycerin, propylene glycol and mixtures thereof."

"13. A method for adding sorbitol to a product including other components comprising the steps of:

a) creating a solution that consists essentially of:

i) 55 to 75% by weight aqueous sorbitol,

ii) 25 to 45% by weight of a plasticizing agent selected from the group consisting of glycerin, propylene glycol and mixtures thereof, and
iii) 3 to 7% by weight of an anti-crystallization agent selected from the group consisting of maltitol, mannitol and mixtures thereof;

b) coevaporating the solution into a syrup; and
c) adding the syrup to the other components."

Claims 2 to 10 and 14 were dependent claims. Claim 11 related to a chewing gum formulation and claim 12 to a preferred embodiment thereof.

II. A notice of opposition requesting the revocation of the patent in its entirety on the grounds that the claimed subject-matter was not novel and did not involve an inventive step (Article 100(a) EPC) was filed by Cadbury Schweppes Plc on 18 November 2004.

The documents cited during the opposition proceedings included the following:

D1: US 5 120 551 A;

D4: WO 95/17829 A1;

D6: Extract from the Aldrich Catalogue Handbook of Fine Chemicals 1994/1995 pages 886 and 1277;

D9: EP 1 741 344 A2 (parts thereof); and

D10: EP 0 758 489 B1.

III. By its interlocutory decision announced orally on 17 April 2008 and issued in writing on 9 May 2008, the opposition division decided that the claims of the proprietor's main request met the requirements of the EPC. The claims allowed by the opposition division were filed during the oral proceedings and included two independent claims, namely claims 1 and 10, based on granted claims 1 and 13 respectively. They read as follows:

"1. An aqueous syrup for use in chewing gum comprising, on a dry basis:

a) 50% to 85% alditols, of which

i) 60% to 92% are sorbitol, and
ii) 8% to 40% are anticrystallization agents comprising alditols other than sorbitol with a degree of polymerization (DP) of 1 or 2 selected from the group consisting of maltitol, lactitol, hydrogenated isomaltulose, xylitol, erythritol and mixtures of mannitol, maltitol, lactitol, hydrogenated isomaltulose, xylitol and erythritol; and
iii) any alditols present with a DP of 3 or greater are present at a ratio to said alditols other than sorbitol with a DP of 1 or 2 of less than 2:3; and

b) 15% to 50% plasticizing agent selected from glycerin, propylene glycol and mixtures thereof."

"10. A method for adding sorbitol to a product including other components comprising the steps of:

a) creating a solution that consists essentially of:

i) 55 to 75% by weight aqueous sorbitol,
ii) 25 to 45% by weight of a plasticizing agent selected from the group consisting of glycerin, propylene glycol and mixtures thereof, and
iii) 3 to 7% by weight of an anti-crystallization agent selected from the group consisting of maltitol or a blend of maltitol and mannitol;

b) coevaporating the solution into a syrup; and
c) adding the syrup to the other components."

The remaining claims 2 to 9 and 11 were dependent claims.

The opposition division came to the conclusion that documents D9 and D10, filed after the nine-month opposition period, were not *prima facie* relevant and therefore it did not admit them into the proceedings.

The opposition division noted in its decision that novelty was not objected to any more by the opponent, and acknowledged an inventive step. Starting from the disclosure of document D1 as closest prior art, the opposition division saw the problem to be solved by the patent in suit as the provision of an aqueous syrup avoiding the disadvantages (stability problems, costs) described in the prior art. The solution to this problem, namely the provision of an aqueous syrup containing alditols of different degrees of polymerization in specific ranges and ratios as well as

plasticising agents in a restricted range was, in its opinion, not derivable from the cited prior art.

IV. On 17 July 2008 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 16 August 2008, the appellant requested the revocation of the patent in its entirety on the grounds of lack of novelty and lack of inventive step. The appellant also filed documents D9A and D10A:

D9A: EP 1 741 344 A2 (complete version of D9); and

D10A:WO 95/30338 A1 (application as filed of D10).

V. With its reply dated 23 December 2008 the patent proprietor (respondent) disputed all the arguments submitted by the appellant and requested that the appeal be dismissed and that documents D9A and D10A not be admitted into the proceedings. It also filed sets of claims for four auxiliary requests.

The claims of the first auxiliary request corresponded to the claims of the main request except that in claim 1 the 8% to 40% anticrystallization agent was limited to "selected from the group of maltitol or a blend of maltitol and mannitol".

VI. On 14 October 2010 the board dispatched a summons to attend oral proceedings on 18 March 2011. In the attached communication the board outlined the points to be discussed during the oral proceedings.

VII. Further arguments were submitted by the respondent with letter dated 29 December 2010 and by the appellant with letter dated 10 February 2011.

VIII. 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 summarised as follows:

– The appellant maintained that the subject-matter of claim 1 of the main request lacked novelty having regard to the disclosures of D4, D9A and D10A. Example 9 of D4 disclosed a thick syrup containing - amongst other components - sorbitol, a glycerine syrup containing only 2% water ("98% sorbitol syrup) and xylitol, the composition of which fell within the scope of claim 1. The same considerations applied to the disclosure of example 13 of D10A. The appellant pointed out that the wording of the examples in D4 and D10A was identical to the wording of example 14 in the patent in suit. Thus, the syrups of the prior art had to be the same as the syrup in example 14.

– Concerning the first auxiliary request, the appellant acknowledged during the oral proceedings that it had no objections under Articles 123(2), 84 and 54 EPC against the subject-matter of the claims of this request but maintained that the subject-matter of claim 1 lacked inventive step. The appellant regarded the teaching of D1 as the closest prior-art document. It essentially argued that it would be obvious for the skilled person to

replace the maltitol used in D1 by sorbitol. The reason for that being that it was well known to use sorbitol in syrups and that sorbitol was a cheaper alditol, as was apparent, for instance, from D6. It would be obvious for the skilled person that the replacement of maltitol by the cheaper sorbitol would provide economic advantages.

IX. The arguments of the respondent may be summarized as follows:

– Example 9 of D4 did not clearly and unambiguously fall within the scope of claim 1 of the main request because the identity of the "98% sorbitol syrup" used in D4 was not known. It was firstly not indicated that the syrup of examples 1 to 6 was the same as the one used in example 9, but even assuming that this was the case the exact nature of the syrup could not be established because the amount of sorbitol of the 65% aqueous sorbitol used in examples 1 to 6 was not specified. Moreover, it was not possible to take this feature from the description as this was only one embodiment of the syrup and not necessarily the one used in the examples.

– Concerning inventive step, the respondent pointed out that the patent in suit was concerned with the introduction of sorbitol into, for example, chewing gum formulations. The use of crystalline sorbitol was costly and the use of aqueous sorbitol in levels above 15% created problems with respect to product stability. The syrup of the invention provided a syrup containing a high level

of sorbitol but having adequate stability and processability to be incorporated into a chewing gum.

– Concerning D1 it maintained that this document was not particularly relevant for the present invention. D1 placed considerable emphasis on the fact that the syrup mainly consisted of maltitol and the person skilled in the art was provided with no motivation to consider changing the maltitol for another alditol and hence losing the advantageous properties of the syrup of D1. To suggest otherwise could only be based on hindsight.

X. The appellant requested that the decision under appeal be set aside and that European patent No. 0 836 389 be revoked.

The respondent requested that the appeal be dismissed (main request), or the patent be maintained on the basis of one of the auxiliary requests 1-4 filed with the letter dated 23 December 2008.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Novelty*

2.1 The novelty of claim 1 of the main request has been contested by the appellant in view of the disclosures

of documents D4, D9A and D10A, all three documents constituting prior art under Article 54(3) EPC 1973.

2.2 Claim 1 is directed to an aqueous syrup for use in chewing gum comprising, on a dry basis:

a) 50% to 85% alditols, of which
a1) 60% to 92% are sorbitol, and
a2) 8% to 40% are anticrystallization agents comprising alditols other than sorbitol with a degree of polymerization (DP) of 1 or 2 selected from the group consisting of maltitol, lactitol, hydrogenated isomaltulose, xylitol, erythritol and mixtures of mannitol, maltitol, lactitol, hydrogenated isomaltulose, xylitol and erythritol; and
a3) any alditols present with a DP of 3 or greater are present at a ratio to said alditols other than sorbitol with a DP of 1 or 2 of less than 2:3; and
b) 15% to 50% plasticizing agent selected from glycerine, propylene glycol and mixtures thereof.

2.3 Document D4 discloses an aqueous sorbitol/mannitol/glycerine syrup that can be used to prepare chewing gum, beverages, medicaments, food stuff and confectionaries (see abstract). The syrup includes on a dry weight basis, i.e. not including any water that may be present: 40 to 70%, preferably 47 to 65%, sorbitol; 24 to 56%, preferably 28 to 45%, glycerine; and 4 to 9%, preferably 5 to 7%, mannitol (see page 6, lines 6 to 14).

It is appreciated that mannitol alone as the non-sorbitol (cf. feature a2)) in the syrup has been

removed from claim 1 of the main request, and therefore the general disclosure on page 6 of D4 is not novelty-destroying.

2.4 However, as pointed out by the appellant, D4 discloses the presence of another alditol from the list for feature a2) in claim 1 in addition to mannitol, and such combinations are within the scope of claim 1. In particular, example 9 of D4 discloses a syrup containing sorbitol, mannitol, xylitol and glycerine meeting all the requirements of claim 1 of the main request.

2.4.1 A sorbitol, mannitol, and glycerine syrup containing only 2% water (hereinafter"98% sorbitol syrup") was used in example 9 of D4 to prepare a sugarless, non-cariogenic hard candy according to the following formula:

	%
sorbitol	30.0
98% sorbitol syrup	60.0
xylitol	9.35
aspartame	0.35
salt	0.12
citric acid/flavour/colour	as needed

2.4.2 The board agrees with the respondent that the composition of the "98% sorbitol syrup" is not explicitly stated in example 9. Its composition is, however, clearly and unmistakably derivable from D4 for the following reasons:

(a) In examples 1 to 6 of D4 a sorbitol syrup is created by placing a ratio of 65% aqueous sorbitol, 30% glycerine, and 5% mannitol in a suitable container. The mixture was evaporated to contain approximately only 7% water and was subsequently used in various chewing gum formulations.

At the end of the description of examples 1 to 6 it is stated on page 14, lines 29-32: "… **the** sorbitol syrup can be used to create other products aside from chewing gum. By way of example, and not limitation, such other products may have the **following** formulas" (emphasis by the board). The fact that this passage is presented within the description of examples 1-6 and uses the term "**the** sorbitol syrup" undoubtedly indicates that it is the sorbitol syrup of examples 1-6 which is used in the subsequent formulas, namely those of examples 7-12. The only difference in the syrup of examples 7-12 over the syrup of examples 1-6 is that the syrup is evaporated to contain only 2% water, as indicated on page 15, lines 2-3 instead of 7% water.

Thus, it is self-evident to the skilled reader that the starting materials as indicated in examples 1-6 have to be used to prepare the syrup of example 9, namely 65% aqueous sorbitol, 30% glycerine, and 5% mannitol.

(b) As regards the expression "65% aqueous sorbitol" used to prepare the syrup of examples 1-6, the board agrees with the respondent that this expression means that 65% **of** an aqueous sorbitol

solution was used as starting material to prepare the syrup (together with 30% glycerine and 5% mannitol which add up to 100%). No conclusion can be drawn from this expression as to how much sorbitol is actually in the aqueous solution.

However, the skilled reader would learn from the general disclosure of D4 what the inventors of D4 meant by a mixture created from 65% aqueous sorbitol, 30% glycerine and 5% mannitol. On page 7, lines 14-20 it is stated:

"In an embodiment that has been found to function satisfactorily, prior to evaporation the aqueous sorbitol comprises approximately 65% of the combination, glycerine approximately 30%, and mannitol approximately 5%. The syrup will include on a dry weight basis not including the water present 56.5% sorbitol, 37.3% glycerine, and 6.2% mannitol."

From these figures one can calculate that the aqueous sorbitol solution contains 70% sorbitol and 30% water. 65 % of this mixture is then used to prepare the syrup, together with 30% glycerine and 5% mannitol. This, incidentally, is exactly the same composition used in the examples of the patent to prepare a 98% sorbitol syrup (see footnotes to tables 1 and 2 in the patent specification).

(c) In summary, the composition of the syrup produced in example 9 of D4 can be clearly and unambiguously calculated using the information

available in D4. Using this information and taking into account that the presence of alditols with a degree of polymerisation of 3 or greater (feature a3)) in claim 1 is only optional (cf. "any alditols present..."), it is evident that the syrup of example 9 falls within the scope of claim 1 of the main request.

2.5 The respondent did not dispute that by using the information in D4, in particular that set out on page 7, lines 14-21, a syrup falling within the scope of claim 1 is obtained. However, it argued that the composition of the "98% sorbitol syrup" used in example 9 was not clearly and unambiguously disclosed in D4. It was doubtful, firstly whether or not the syrup of examples 1-6 was used for the preparation of the syrup of example 9 and, secondly, whether or not the "65% aqueous sorbitol" used in examples 1-6 had the composition indicated on page 7, lines 14-21.

However, as explained in detail in point 2.4.2 above, there can be no doubt for the skilled reader as to the actual composition of the syrup prepared in example 9 of D4. Therefore, the board can not accept the respondent's argument.

2.6 In view of the above it follows that the syrup obtained during the preparation of the hard candy of example 9 of D4 includes all the features of claim 1 of the main request. The subject-matter of this claim therefore lacks novelty.

2.7 As the disclosure of D4 anticipates the subject-matter of claim 1, there is no need for the board to decide on

the admissibility of D9A and/or D10A and whether or not the disclosure of these documents is also novelty-destroying for this claim.

AUXILIARY REQUEST 1

3. *Amendments*

The subject-matter of claim 1 of the first auxiliary request has been limited to syrups wherein feature a2) is limited to alditols "selected from the group consisting of maltitol or a blend of maltitol and mannitol". This limitation is clear and supported by claim 2 as filed (claim 9 as granted), page 9, lines 24-27 and examples 10 and 11 of the application as filed. Nor was any objection under Article 123 or 84 EPC raised by the appellant.

4. *Novelty*

The claimed subject-matter no longer includes xylitol as possible alditol and it is thus clearly limited over the cited prior art, in particular the disclosure of D4. Even the appellant did not raise a novelty objection against the subject-matter of claim 1 of auxiliary request 1. The board too is satisfied that the subject-matter of auxiliary request 1 is novel.

5. *Problem and solution*

5.1 The patent in suit relates to syrups containing sorbitol for use especially in chewing gums but also in confectioneries and food products.

As acknowledged in the introduction of the patent, it is known to use alditols, such as sorbitol, mannitol and xylitol, in sugarless chewing gums as a "sugar substitute". According to paragraph [0005] of the specification, crystalline sorbitol accounts for approximately 50% of typical sugar-free chewing gum formulations. Since crystalline sorbitol is costly, aqueous sorbitol has been explored as a replacement for use in chewing gums. However, the use of aqueous sorbitol in chewing gum at levels above 15% is said to create problems with respect to product stability and processability (paragraph [0006]).

5.2 This general background was used as the starting point for defining the technical problem underlying the patent in suit. Consequently, the technical problem to be solved was said to be the development of an "improved method and/or sorbitol product that allows sorbitol to be added to a chewing gum formulation in a non-crystalline state" (paragraph [0008]).

5.3 The patent suggests, as a solution to this problem, the claimed syrups comprising a blend of aqueous sorbitol, a plasticising agent and an anticrystallisation agent wherein the anticrystallisation agent is either maltitol or a blend of maltitol and mannitol.

As is apparent from the patent, the use of such syrups allows a significant reduction of the amount of crystalline sorbitol used in standard product formulations (cf. examples 10 and 11 use 24.605% crystalline sorbitol instead of 64.605% in comparative example B). The board is thus satisfied that the above-mentioned problem has been credibly solved by the

measure taken. This finding was not contested by the appellant.

5.4 According to the established practice of the boards of appeal, an objective definition of the problem to be solved should normally start from the problem described in the contested patent. Only if it turns out that the problem disclosed was not solved or if inappropriate prior art was used to define the problem is it necessary to investigate which other problem objectively existed (Case Law of the Boards of Appeal, 6th edition 2010, Chapter I.D.4.3.2).

In the present case, the board has no doubt that the proper background art was used in the patent for defining the technical problem. As regards D1, relied upon by the appellant as the closest prior art, the board notes that D1 is concerned with an alternative sugarless syrup for use in chewing gums wherein the syrup mainly consists of maltitol. D1 states in column 2, lines 30 to 34 that the final gum composition picks up less moisture in high humidity environments and loses less moisture in low humidity environments than gums made from the prior-art syrup. Clearly, D1 is not concerned at all with sorbitol containing syrups. Therefore, D1 cannot be used as the starting point for the assessment of inventive step.

Since, furthermore, there is nothing available to the board which could call into question the results demonstrated in examples 10 and 11 of the patent, there is no need to deviate from the technical problem set out in the patent in suit. Consequently, it is accepted for the purpose of assessing inventive step.

6. Obviousness

6.1 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 the above-defined objective technical problem by the means claimed, namely by using a syrup as defined in claim 1 comprising 50% to 85% alditols of which 60% to 92% are sorbitol and 8% to 40% are maltitol or a blend of maltitol and mannitol and 15% to 50% of a plasticising agent.

6.2 There is no hint to this solution in the prior art cited by the appellant.

In particular, document D1, on which the appellant mainly relied, requires that at least 65% of the alditols are maltitol (see claim 1). In fact, D1 clearly indicates that syrups with less than this amount should not be used. This is confirmed by the passage on column 3, lines 27 to 32, which indicates that it is the high levels of maltitol which provide the syrups with the better properties. The same is apparent from the control syrup used in example 2 of D1 containing 52% of maltitol of the total of alditols, which results in a disadvantageous chewing gum (D1, column 5, line 40 - column 6, line 19). D1 provides no hint whatsoever to use sorbitol.

6.3 In summary, the finding that a syrup as defined in claim 1 makes it possible to successfully replace crystalline sorbitol by aqueous sorbitol cannot be deduced from the cited prior art.

7. No other conclusion with regard to inventive step can be reached when starting from D1 as the closest prior art, i.e. the approach set out by the appellant in its written submissions and pursued at the oral proceedings.

The appellant's argument can essentially be summed up as being that the subject-matter of claim 1 of auxiliary request 1 differs from D1 only in that maltitol is used as the primary alditol in the syrup rather than sorbitol and therefore suggests that the problem underlying the patent is simply to provide an alternative sugarless syrup for use in chewing gum. Taking into account that maltitol and sorbitol have similar physical and chemical properties and that it was known from D6 that sorbitol was cheaper than maltitol, it would have been obvious for the skilled person to replace maltitol with sorbitol and thus arrive at the claimed subject-matter.

This argument is, however, not convincing. As already pointed out above (point 5.4), D1 places considerable emphasis on the fact that the syrup mainly consists of maltitol. The presence of a high amount of maltitol is the essential feature of the process of D1. The replacement of the maltitol by sorbitol, as suggested by the appellant, goes against the teaching of D1. To suggest that the person skilled in the art would do so is an argument which can only be based on hindsight.

8. In view of the above, the board concludes that the person skilled in the art would not have arrived in an obvious manner at the claimed invention in the form of claim 1 of auxiliary request 1. The same applies to the

method for adding sorbitol to a product using said syrup according to claim 10 and to the subject-matter of the dependent claims 2 to 9 and 11.

9. As auxiliary request 1 is allowed, there is no need for the board to deal with the further auxiliary requests.

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 claims 1-11 of the first auxiliary request filed with letter dated 23 December 2008 and after any necessary consequential adaptation of the description.

The Registrar The Chairman

G. Röhn W. Sieber