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**Datasheet for the decision
of 6 August 2008**

Case Number: T 0448/06 - 3.3.09

Application Number: 95913670.6

Publication Number: 0758847

IPC: A23G 3/30

Language of the proceedings: EN

Title of invention:

Method for manufacturing gum base

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, first auxiliary request: novelty - (no)"

"Second auxiliary request: novelty (yes), inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0448/06 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 6 August 2008

Appellant:
(Opponent)

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Respondent:
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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 19 January 2006
rejecting the opposition filed against European
patent No. 0758847 pursuant to Article 102(2)
EPC.

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. 0 758 847 in respect of European patent application No. 95913670.6, filed on 13 March 1995 as International application PCT/US95/03128 (WO 96/28040) in the name of WM. WRIGLEY JR. COMPANY, was announced on 28 May 2003 (Bulletin 2003/22) on the basis of 15 claims. Claim 1 read as follows:

"1. A process for continuously producing a chewing gum base comprising the steps of:

adding an elastomer and a filler into a continuous mixer in an extruder;

adding to the extruder, at a desired location, a thermal gum base component which is polyvinyl acetate, as a solid, that has a sufficient thermal capacity to cool at least a portion of the contents of the extruder to a desired temperature; and

creating a chewing gum base in the mixer."

Claims 2 to 15 were dependent claims.

II. Notice of Opposition requesting the revocation of the patent in its entirety on the grounds of Article 100(a) EPC (lack of inventive step), was filed by Cadbury Schweppes Plc on 27 February 2004.

The opposition was supported by the following documents:

D1: EP - 0 160 726 and

D2: US - 5 229 148

On 8 December 2005, shortly before the oral proceedings before the Opposition Division, the Opponent filed two further documents and requested their admittance into the proceedings:

D3: English translation of EP - 0 273 809 and

D4A: "Extrusion processing of shear-sensitive food products", A. Treiber, International ZDS Conference SIA-27 "Extrusion cooking '87", September 21 -23 1987, page 14, published November 1987.

During the oral proceedings the Opponent requested, in view of D3, the admission into the proceedings of lack of novelty (Article 54 EPC) as a fresh ground of opposition.

III. By its decision orally announced on 13 December 2005 and issued in writing on 19 January 2006, the Opposition Division rejected the opposition.

On account of its particular relevance the Opposition Division admitted D3 into the proceedings and in view thereof also the fresh ground of lack of novelty.

As to the reasons for its decision, the Opposition Division held that the feature of "adding PVA to cool at least a portion of the extruder to a desired temperature" was an essential technical feature of the claimed process. The Opposition Division acknowledged the novelty of the granted subject-matter over D3

because, in the embodiment wherein PVA (polyvinyl acetate) was fed directly into the extruder, there was no disclosure that it was fed in solid form and because otherwise, to arrive at the claimed invention, a double selection from D3's disclosure was required.

Concerning inventive step, the Opposition Division held that the claimed subject-matter was not obvious either in view of D1 alone or in combination with D2, or in view of D3 alone or in combination with D1. It pointed out in particular that none of the cited documents suggested exploiting the thermal capacity of polyvinyl acetate to prevent thermal damage of gum base ingredients by cooling at least a portion of the extruder content.

IV. On 24 March 2006 the Appellant (Opponent) filed 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 that the decision of the Opposition Division be set aside and the patent be revoked because the subject-matter of the claims lacked novelty and/or inventive step. The Appellant also filed the following further documents:

D4B: Extract from "Extrusion Processing of Shear-sensitive Food Products", a conference paper by A. Treiber at the International ZDS Conference, Solingen (21 - 23 September, 1987), November 1987, pages 2 - 16 and Figures 1 - 13 (page 14 of this document had already been filed before the Opposition Division, cf. D4A);

D5: "Confectionery Processing On A Kneading Extruder",
J.A. Vessa, The Manufacturing Confectioner, June
1991, pages 83 - 86; and

D6: EP - A - 0 611 078

V. The Respondent (Patent Proprietor) filed a reply on
28 September 2006. It disputed all the arguments
submitted by the Appellant and requested that the
Opposition Division's decision be upheld and the appeal
be dismissed (main request). It also filed sets of
claims for three auxiliary requests.

VI. On 20 March 2008 the Board dispatched a summons to
attend oral proceedings on 6 August 2008. In the
attached Annex to the summons in accordance with
Article 15(1) of the RPBA the Board expressed its
doubts as to the novelty of the subject-matter of
Claim 1 of the main request. It further outlined the
points to be decided during the oral proceedings.

VII. By letter dated 24 June 2008, the Appellant withdrew
all its previous requests and filed an amended main
request and new auxiliary requests 1 to 4. On 31 July
2008 it replaced the second auxiliary request by a
corrected version.

Claim 1 of the main request reads as follows:

"1. A process for continuously producing a chewing gum
base comprising the steps of:

adding an elastomer and a filler into a continuous mixer in an extruder;

adding to the extruder, at a desired location, a thermal gum base component which is polyvinyl acetate, as a solid, that has a sufficient thermal capacity to cool at least a portion of the contents of the extruder to a desired temperature, and which is added to the continuous mixer in an amount sufficient to cool the elastomer and filler located within the extruder; and
creating a chewing gum base in the mixer."

Claim 1 of the first auxiliary request reads:

"1. A process for continuously producing a chewing gum base comprising the steps of:

adding an elastomer and a filler into a continuous mixer in an extruder;

adding to the extruder, at a desired location, a thermal gum base component which is polyvinyl acetate, as a solid, that has a sufficient thermal capacity to cool at least a portion of the contents of the extruder to a desired temperature, and which is added to the continuous mixer in an amount sufficient to cool the elastomer and filler located within the extruder; and
creating a chewing gum base in the mixer, wherein

the polyvinyl acetate has a glass transition temperature that is less than the temperature of the elastomer and filler in the extruder but greater than the actual temperature of the thermal base component when added to the extruder."

Claim 1 of the second auxiliary requests reads:

"1. A process for continuously producing a chewing gum base comprising the steps of:

adding an elastomer and a filler into a continuous mixer in an extruder before other components of the chewing gum base;

adding to the extruder, at a desired location, a thermal gum base component which is polyvinyl acetate, as a solid, that has a sufficient thermal capacity to cool at least a portion of the contents of the extruder to a desired temperature, and which is added to the continuous mixer in an amount sufficient to cool the elastomer and filler located within the extruder; and

creating a chewing gum base in the mixer, wherein polyvinyl acetate has a glass transition temperature that is less than the temperature of the elastomer and filler in the extruder but greater than the actual temperature of the thermal base component when added to the extruder."

VIII. The arguments presented by the Appellant in its written submissions and at the oral proceedings held on 6 August 2008 may be summarised as follows:

- The Appellant denied the novelty of Claim 1 of the main, first and second auxiliary requests having regard to the disclosure of D3. It argued that all that Claim 1 required was that at some point solid polyvinyl acetate be fed into the extruder. The process of D3 disclosed all the features of the claimed process, essentially because in the process polyvinyl acetate, which had the thermal capacity to cool the mixture, was introduced into the extruder as a solid. The amount used in D3 (7.4%) was necessarily a 'sufficient amount' to cool the

elastomer and the filler in the process of D3 and this feature of the claimed invention could thus not justify the novelty of its subject-matter. Moreover the feature "sufficient to cool" did not imply that "cooling" actually occurred; only that the polyvinyl acetate had the (intrinsic) capacity to cool.

- Concerning the second auxiliary request, it pointed out that the feature "before other components" could not establish novelty because 'other components' such as sweeteners, aroma, vitamins, etc. were also fed into the extruder in the process of D3 after the introduction of elastomer and filler, and because - by not specifying 'all other components' - this feature did not exclude the possibility of polyvinyl acetate being fed in together with elastomer and filler. In addition the Respondent interpreted Claim 2 of D3 as requiring the addition of polyvinyl acetate after the pre-mixing of elastomer and filler.

- Concerning inventive step, the Appellant considered that the claimed method did not show any inventive merit over the disclosure of the closest prior art document, D3. The only difference between the subject-matter of Claim 1 of the second auxiliary request and the process of D3 was the fact that, if interpreted as by the Respondent, the elastomer and the filler were added into the extruder "before other components of chewing gum base". It saw the problem to be solved by the patent in suit merely as to provide an alternative process for the preparation of chewing gum base.

The skilled person would arrive at the claimed process by routine variation of the process conditions of D3. In any case the alleged thermal effect of the addition of polyvinyl acetate was the logical consequence of the measure taken: the addition of a "cold" component to a heated mixture always cooled the mixture and consequently this feature could not justify the presence of an inventive step.

IX. The arguments of the Respondent may be summarised as follows:

- The Respondent pointed out that the process of Claim 1 was novel because D3 did not indicate that polyvinyl acetate was added as a solid, and because it was added together with elastomer and filler at the first feed port of the extruder, where it could not exhibit any cooling effect on the not yet heated elastomer/filler pre-mix. In contrast thereto, Claim 1 clearly required a cooling of the elastomer and filler, which for that purpose must already be at a higher temperature.

- Concerning inventive step it pointed out that starting from D3 as closest prior art document, the problem to be solved by the patent in suit, namely to avoid too high a temperature in the extruder, was solved by the addition of polyvinyl acetate in a manner not suggested by the cited prior art. Neither D3, nor the other cited documents, gave a hint to the use of polyvinyl acetate to control the temperature of the extruder.

- X. The Appellant requested that the decision under appeal be set aside and that the European patent No. 0 758 847 be revoked.

The Respondent requested that the appeal be dismissed and the patent be maintained on the basis of Claims 1 to 14 of the main request or, alternatively, on the basis of Claims 1 to 13 of the first auxiliary request or Claims 1 to 13 of the third auxiliary request or Claims 1 to 13 of the fourth auxiliary request, all filed with the letter of 24 June 2008, or Claims 1 to 12 of the second auxiliary request, submitted with the letter of 31 July 2008.

Reasons for the Decision

1. The appeal is admissible.
2. *Admissibility of documents D4B - D6*
 - 2.1 Documents D4B and D5 give a general overview of the use of extruders in food processing. They confirm the general knowledge in the field that was not disputed by the Respondent and their admission into the proceedings is therefore not necessary.
 - 2.2 D6 discloses a process for producing elastomeric compositions by forming a mixture of polymeric material, a reinforcing agent, a processing agent and a vulcanizing agent. It does not relate to the preparation of chewing gum bases as claimed in the patent in suit and therefore is less relevant than other documents already in the proceedings.

2.3 For these reasons none of D4B, D5 and D6 is admitted into the proceedings.

MAIN REQUEST

3. *Novelty (Article 54 EPC).*

3.1 Claim 1 is directed to a process for continuously producing a chewing gum base comprising the following features:

- a) adding an elastomer and a filler into a continuous mixer in an extruder;
- b) adding to the extruder polyvinyl acetate
 - b1) that has a sufficient thermal capacity to cool at least a portion of the contents of the extruder,
 - b2) at a desired location,
 - b3) as a solid,
 - b4) in an amount sufficient to cool the elastomer and filler located within the extruder; and
- c) creating a chewing gum base in the mixer.

3.2 Interpretation of the features of the claim.

3.2.1 The correct interpretation of features b1) and b4) was in dispute between the parties during the proceedings.

Concerning feature b1) it is noted that polyvinyl acetate, by virtue of its thermal capacity, is able, when added in appropriate manner, to dissipate a certain amount of heat and to cool to some extent the content of the extruder ("cooling" meaning "absorption

of thermal energy"). Since this is an intrinsic property of polyvinyl acetate, expressing it in explicit terms according to feature b1) does not lead to any further technical limitation of feature b).

The Board cannot accept the interpretation of the Respondent that feature b1) - by analogy to a use claim - imports as a further technical feature the 'intention' of cooling the contents of the extruder. This is because such an interpretation is not covered by the concrete language of this process claim.

Concerning feature b4) the information that polyvinyl acetate is added in an "amount sufficient to cool the elastomer and filler" does not - in the absence of any indication of the specific amount and/or the specific degree of cooling to be attained - add anything to the claim that is not already embraced by the requirement that the polyvinyl acetate should have sufficient thermal capacity to cool the contents of the extruder. Again, this intention is not by itself a technical process feature.

3.2.2 Taking this into account the continuous process for producing a chewing gum base according to Claim 1 of the main request only requires:

- A) adding an elastomer and a filler into a continuous mixer in an extruder;
- B) adding to the extruder polyvinyl acetate (features b, b1), b2) and b4)),
- b3) as a solid; and
- C) creating a chewing gum base in the mixer.

3.3 The novelty of this claim was contested by the Appellant having regard to document D3.

3.3.1 D3 discloses a process for the continuous production of a non-adhesive basic gum by pre-blending an elastomer and a filler in an apparatus comprising essentially a kneading mixer A, a powder mixer B (not obligatory) and an extruder C (see Figure 1/1).

In the variant of the process according to Claim 2 not using a powder mixer B (see also pages 6 to 9 of the description, especially last paragraph of page 9), at least one elastomer and one mineral filler are mixed to form a non-adhesive pre-mix which is then directly introduced into the extruder (feature A) of Claim 1), maintained at 60 - 75°C, together with other raw material of the basic gum, and all these components are further processed to form the chewing gum base (feature C)). As a further raw material constituent of the basic gum, polyvinyl acetate is mentioned on page 8, lines 6 - 7 and the specific chewing gum according to Table II contains 7.40% of polyvinyl acetate (feature B)). The fact that the manufacture of a chewing gum composition comprising polyvinyl acetate as the 'other raw material' in the apparatus according to Figure 1/1 does not need a "selection" is apparent from the statement in the penultimate paragraph on page 15 of D3 where reference is made to the use of the exemplified apparatus for the composition of Table II.

3.3.2 The only feature not explicitly disclosed in D3 is that polyvinyl acetate is added to the extruder as a solid (b3). However this feature is implicitly disclosed in D3 because:

- polyvinyl acetate is a solid at room temperature and is usually supplied and stored as a solid, and
- polyvinyl acetate is added as a solid in the alternative process according to Claim 1 of D3, including the powder mixer B, and there is no indication in D3 of any processing treatment of the polyvinyl acetate before it is fed into the extruder according to the above variant of Claim 2.

3.3.3 Thus, the teaching of D3 anticipates the subject-matter of Claim 1 of the main request, which is therefore not novel.

3.3.4 It has been argued by the Respondent that the scope of the claim requires that polyvinyl acetate cools the contents of the extruder and that this cooling is not possible in the process of D3, where all the components are added together to the extruder.

This argument relies essentially on a restrictive interpretation of the claim in accordance with the description as being limited to a process wherein the elastomer and filler are heated in the extruder and afterwards the polyvinyl acetate is added to cool them. However, the subject-matter of present Claim 1 is not limited to such an embodiment; it merely requires the addition of polyvinyl acetate as a solid. For the sake of completeness it is noted that, even accepting the interpretation of the Respondent, the subject-matter of Claim 1 would be anticipated by the process of D3. In the process according to Figure 1/1 of D3 the extruder C₁ is maintained at a temperature of 60 - 75°C (see page 8, lines 20 - 23) and during the continuous addition of elastomer, filler and solid polyvinyl

acetate at room temperature the latter exhibits a cooling effect on the contents of the extruder in the course of the extrusion process. This follows from the fact that the temperature to which the elastomer fed into the extruder will be heated (by external heat and mechanical heat build-up) will be lower in the presence of polyvinyl acetate than in its absence because polyvinyl acetate by its intrinsic thermal capacity and the morphological change it undergoes when passing through the glass transition temperature will absorb thermal energy, i.e. cool (see also point 4.2 below).

3.3.5 For these reasons the subject-matter of Claim 1 is not novel.

FIRST AUXILIARY REQUEST

4. *Novelty (Article 54 EPC).*

4.1 Claim 1 of the first auxiliary request includes the further feature that:

- b5) the polyvinyl acetate has a glass transition temperature that is less than the temperature of the elastomer and filler in the extruder but greater than the actual temperature of the thermal base component when added to the extruder.

4.2 According to the Respondent polyvinyl acetate has a glass transition temperature (T_g) in the range of 28 - 30 °C; this is indisputably in accordance with average T_g values of "common" polyvinyl acetate. However, depending on the molecular weight, this range can vary. According to paragraph [0065] of the patent

specification the T_g is even indicated as ranging from 20° to 75°C. Since it must be supposed that the polyvinyl acetate used according to D3 is not of any exceptional quality the upper part of this range can be ignored, with the consequence that on the balance of probabilities the T_g of the polyvinyl acetate must be lower than the temperature of 60 - 75°C to which the elastomer/filler mixture is heated in the first casing C_1 of the extruder exemplified in D3 (see 6th paragraph on page 8)

4.3 By the same token the T_g of the polyvinyl acetate used according to D3 must be higher than room temperature, this being the feeding temperature of the polyvinyl acetate (see point 3.3.2 above).

4.4 Consequently the subject-matter of Claim 1 of the first auxiliary request also lacks novelty.

SECOND AUXILIARY REQUEST

5. *Novelty (Article 54 EPC).*

5.1 Claim 1 of the second auxiliary request includes the further feature that:

- a1) the elastomer and filler are added into the extruder before other components.

5.2 There are two possible meanings for the word 'before' as used in feature a1). It can be interpreted in terms of position (upstream) or in terms of time (earlier).

- 5.3 It is however clear from the description of the patent in suit that, in the context of the present invention (see [0029] and [0068]), the term "before other components" means that these components are added into the extruder at a downstream location. On a normal reading of the passage a1) it is also implicit that the elastomer and the filler are the first and only components added into the extruder upstream of "other components" because if one or more of these "other components" were already present in the extruder before the addition of elastomer and filler or added simultaneously therewith the said passage would be redundant. Consequently, the process of Claim 1 requires that polyvinyl acetate is added into the extruder at a downstream location in order to allow the addition of elastomer and filler 'before other components'.
- 5.4 In the process of D3 the elastomer and filler are added at the same location as the polyvinyl acetate (cf. index f in Figure 1/1) and therefore the disclosure of D3 does not anticipate the subject-matter of Claim 1 of the second auxiliary request.
- 5.5 The Board cannot accept the argument of the Appellant that according to step (iv) of Claim 2 of D3 the pre-mix of elastomer and filler is added before polyvinyl acetate. It is clear from Figure 1/1 that both components (elastomer/filler pre-mix and polyvinyl acetate) are added into the extruder section C₁ at the same location (and actually also at the same time). Furthermore, the further components (plasticizer (g), water (h) and sweeteners, aromas, vitamins, etc., (j/k)) added at a later location into the extruder are

referred to separately in different paragraphs of step (iv), clearly indicating that the pre-mix and the 'other raw materials' (i.e. polyvinyl acetate) are added at the same point of the extruder.

5.6 For these reasons the subject-matter of Claim 1 of the second auxiliary request is novel.

6. *Inventive step (Article 56 EPC).*

6.1 The patent in suit relates to a continuous process for manufacturing a chewing gum base using an extruder. According to paragraphs [0013] and [0014] of the specification the use of extruders in the preparation of chewing gums presents certain difficulties as regards heat exchange. Thus, certain gum base ingredients must be heated in order to be mixed with other ingredients and additionally the mechanical shearing required during mixing also heats the extruder contents. This heat may be damaging for other components of the chewing gum base.

6.2 Closest prior art.

6.2.1 The Board considers, in agreement with the parties, that the closest prior art is represented by D3.

6.2.2 As already discussed above in relation to novelty, D3 also discloses a continuous process for making a chewing gum base using an extruder.

In order to avoid overheating in the extruder, the process of D3 prepares a pre-mix of the elastomer and the filler before introducing them into the extruder.

In this pre-mixer, in order to reduce mechanical heating, the introduction of the filler is effected in a number of steps (see page 7, lines 8 - 13) and the obtained pre-mix is cooled before introducing it into the extruder (page 7, lines 32 - 34).

6.3 The objective problem to be solved and its solution.

6.3.1 The technical problem to be solved by the patent in relation to said prior art can thus be formulated as the provision of a process for the preparation of a chewing gum base wherein the temperature control is carried out in an alternative manner.

6.3.2 This problem is solved by the claimed process by adding polyvinyl acetate as a solid component after the initial ingredients, namely elastomer and filler, have already been mixed and heated to some extent.

The addition of polyvinyl acetate absorbs and dissipates a certain amount of heat in the extruder and avoids damaging of other chewing gum base components.

6.3.3 The Board is satisfied that the above-defined technical problem is plausibly solved by this measure. This fact was not disputed by the Appellant, who argued mainly that the cooling effect was the expected result of adding polyvinyl acetate to the other components of the chewing gum base.

6.4 Obviousness.

6.4.1 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 polyvinyl acetate as a cooling agent and feeding it downstream of elastomer and filler.

6.4.2 There is no hint to this solution in the available prior art. In document D3 polyvinyl acetate, which is actually only an optional component of the chewing gum base, is added into the extruder together with the pre-mix of elastomer and filler. The extruder is heated after its addition and no use is made of its thermal capacity for cooling in order to protect heat sensitive gum base ingredients.

There is also no hint to the beneficial use of polyvinyl acetate to dissipate heat in the extruder in the other documents in the proceedings, namely D1 and D2. As the Appellant no longer relied on these documents during the oral proceedings no detailed comments are needed. In any event, in the Board's judgment the transfer of processing measures disclosed for batch-wise mixing of chewing gum base components according to D1 cannot provide any suggestion for the preparation of gum base compositions in an extruder because the thermal strain in a continuous extruder process is not comparable. As to the use of polyvinyl acetate for encapsulating active chewing gum ingredients disclosed in D2, no reasonable conclusion can be drawn as to the present use of polyvinyl acetate as a "cooling agent".

6.4.3 In the oral proceedings the Appellant argued essentially that the cooling effect of polyvinyl acetate was well known in the art and that the skilled person would arrive at the claimed process by routine variation of the process of D3.

6.4.4 The Board cannot accept this argument of the Appellant. As explained above, D3 does not give any hint to the use of polyvinyl acetate to solve the above problem, essentially because in the process of D3 it is added at a point wherein heating is no longer considered a problem.

The Appellant has failed to demonstrate any motivation for the skilled person to modify the process of D3 in order to arrive at the claimed process. The objections of the Appellant are made with the benefit of knowledge of the patent.

6.4.5 Hence the Board considers that, in the light of the cited prior art, it would not have been obvious to a skilled person, starting from the process of D3, to arrive at the process as claimed in Claim 1. The subject-matter of Claim 1 thus involves an inventive step within the meaning of Article 56 EPC.

6.4.6 Claims 2 to 12 are dependent on Claim 1 and therefore also satisfy the requirements of Article 56 EPC.

7. As the subject-matter of the second auxiliary request of the Respondent meets the requirements of the EPC, there is no need for the Board to deal with the further auxiliary requests.

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 in an amended form on the basis of Claims 1 to 12 of the second auxiliary request as submitted with the letter dated 31 July 2008 after any necessary consequential amendments of the description.

The Registrar

The Chairman

A. Vottner

P. Kitzmantel