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**D E C I S I O N**  
**of 11 March 1997**

**Case Number:** T 0943/95 - 3.3.4

**Application Number:** 88810890.9

**Publication Number:** 0325090

**IPC:** A23G 3/30

**Language of the proceedings:** EN

**Title of invention:**

Use of maltitol in chewing gum composition for improved physical stability

**Patentee:**

WARNER-LAMBERT COMPANY

**Opponent:**

Costantini, Paul

**Headword:**

Maltitol/WARNER-LAMBERT

**Relevant legal provisions:**

EPC Art. 56, 83, 114(2), 123(2) (3)  
EPC R. 67

**Keyword:**

"Amended claims - allowable"  
"Inventive step - no"

**Decisions cited:**

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**Catchword:**

-

**Case Number:** T 0943/95 - 3.3.4

**D E C I S I O N**  
**of the Technical Board of Appeal 3.3.4**  
**of 11 March 1997**

**Appellant:** WARNER-LAMBERT COMPANY  
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**Representative:** Jolly, Jean-Pierre  
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**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office dated 28 September 1995  
revoking European patent No. 0 325 090 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairwoman:** U. M. Kinkeldey  
**Members:** D. D. Harkness  
S. C. Perryman



## Summary of Facts and Submissions

I. The appeal lies from the decision of the Opposition Division to revoke European patent No. 0 325 090, of which the independent claims 1 and 10 related to the use of maltitol in chewing gums to improve stability and a method for making the chewing gum. These claims read as follows:

Claims 1 and 10 filed on 30 January 1995:

"1. Use of maltitol in a sugar-less substantially anhydrous chewing gum composition in an amount of from 28 to 58% by weight, with respect to the weight of the chewing gum composition, to texturise, sweeten and maintain said composition in a substantially anhydrous form, the composition further comprising from 10 to 75% gum base, by weight of the composition, wherein the total amount of the composition is not exceeding 100%."

"10. A method of texturising, sweetening and maintaining in a substantially anhydrous form, a sugar-less and substantially anhydrous chewing gum composition comprising adding maltitol to the composition in an amount of from 28 to 58% by weight, with respect to the weight of the chewing gum composition, the composition further comprising from 10 to 75% by weight of the composition, of gum base, wherein the total amount of the composition is not exceeding 100%."

- II. An opposition was filed against the grant of the patent raising objections of lack of novelty, inventive step and sufficiency of disclosure under Article 100(a) and (b), 54, 56 and 83 EPC.
- III. In reply the Patentee filed an amended set of claims, in which the expression "sugar-free" was replaced by "sugar-less" to which no objection was raised by the Opponent under Article 123(2) and (3) EPC.
- IV. The patent was revoked by the Opposition Division under Article 102(1) EPC for lack of inventive step as required by Articles 52(1) and 56 EPC.

This decision was reached having regard to the following citations:

- (1) Japanese patent specification 05 32967/74 and its English translation;
- (2) New Food Industry, (1982), 24, 11, pp 14-19 and its French translation: "MALTITOL EN POWDRE PAR REDUCTION DE MALTOSE";
- (3) Shokuhin Kôgyô, (1984), 27, 24, pp 73-80 and its French translation: "CHEWING-GUM SANS SUCRE A BASE DE MALTITOL"
- (4) EP-A-0376468;
- (5) Japan Chemical Week, 28.03.85 page 3;

(6) The manufacturing Confectioner 12.83 pages 69-73:  
"Lycasin for confections".

V. The reasons for the decision were that the claims complied with Article 83 EPC because the phrase, "to maintain said composition in a substantially anhydrous form" had a broad meaning which was defined in the description. It was not said or alleged that the moisture content of the chewing gum was controlled by the presence of maltitol, therefore there was no lack of necessary information required to carry out the invention.

With regard to novelty the Opposition Division decided that documents (1), (4), (5) and (6) did not anticipate the claimed subject-matter because either maltitol was used for an entirely different purpose or was used in amounts which were outside the claimed ranges.

Although document (2) disclosed the use of maltitol in a sugarless, anhydrous chewing gum to texturise, sweeten and keep it in a substantially anhydrous form, there was a need to assume that a syrup of maltitol was employed in order to arrive at a figure 58% by weight, and accordingly this value was not considered to be directly and unambiguously derivable from this document.

It was also not directly and unambiguously derivable from document (3) which kind of maltitol powder or syrup had to be used, and the differing syrups and powders led to various results with regard to the

content of maltitol.

In respect of inventive step document (3) was considered to be the nearest prior art, and the only difference between it and the patent in suit was that although maltitol was employed for the same purpose, the quantity of it was not the same. From the evidence in documents (2) and/or (6) relating to commercial maltitol products a skilled person would derive that quantities close to 58% by weight of maltitol could be used.

The problem solved could only lie in the selection and determination of maltitol products for use in the process of document (3). Such a selection did not involve anything other than routine methods and there was no evidence in the prior art which would prevent the skilled person from employing less than 58% by weight of maltitol.

VI. The Appellant filed an appeal, paid the appeal fee and submitted a statement of grounds. A procedural violation was alleged and refund of the appeal fee was requested.

VII. The Respondent replied to the appeal and in doing so filed three new documents:

(7) FR-A-2 499 576;

(8) Swiss Food 6, (1984), Nr 11, T Imfeld and F Lutz;

(9) EP-A-0 185 595.

VIII. A further letter was filed by the Appellant on 7 February 1997 which contained more comments on document 3, a request that the late filed documents (7), (8) and (9) be not admitted, and a comparison of hardness values made between example 1 of the patent in suit and the composition of table 7 of document 3.

IX. During the oral proceedings held on 11 March 1997 the Appellant filed two auxiliary requests the first of which introduced the feature that the composition contains "glycerin in an amount up to 18% based on the weight of the composition", whilst the second auxiliary request added a further component to the gum of the first auxiliary request by reference to "less than 10% by weight of the composition of a sugar alcohol selected from sorbitol, mannitol and xylitol".

The Respondent filed further calculations relating to the chewing gum composition disclosed in table 7 of document (2).

X. The Appellant's arguments in appeal proceedings may be summarised as follows.

The prior art documents did not recognise a chewing gum composition which was sugar-less, contained maltitol in amounts of from 28-58% by weight of the composition and was substantially anhydrous. Because maltitol was a sugar alcohol which absorbed less water than did other

sugar alcohols the water content of the prepared chewing gums was thereby controlled at a lower limit than was conventionally the case and deterioration due to loss or gain in water content was consequently limited. At page 2, line 42 of the patent it was indicated that the prior art disclosed the preparation of anhydrous maltitol crystals and that this was a form of maltitol to be used as starting material. The desirable properties of the prepared compositions were only obtained if the 3,5% moisture limit was adhered to.

The gum compositions of documents (2) and (3) were made from syrup which resulted in compositions having too high a water content in comparison with the compositions of the patent in suit.

The comparison made in the patent between a sorbitol containing gum according to document (3) and the maltitol containing gum of the patent in suit showed in Figures 3 and 4 that after 5 weeks the water uptake by the sorbitol sample was approximately 10% by weight and that the hardness increased by 80 points over 12 weeks, whereas the corresponding values for the sample containing maltitol were 1,16% and 35 points, thus there was an improvement in stability and also the desirable soft-chew characteristic was largely retained.

As a result of too high an initial water content the gum composition according to document (2) with time gave hardness values which were much too high thus the soft-chew property was lost.

The problem of providing a substantially anhydrous chewing gum having the required texture, sweetness, and which was maintained in a substantially anhydrous state was not indicated in any of the prior art documents and the solution to this problem in that 28-58% by weight of maltitol and otherwise anhydrous components were used was not obviously derivable from said prior art. The main reason why the prior art employed maltitol rather than other sweeteners was that this compound was less cariogenic, there was therefore no teaching that water content played any significant role.

He maintained that the independent claims 1 and 10 were not objectionable under Article 83 EPC because the description at page 2, line 56 stated that "the composition as a whole has no greater than about 3,5% by weight of moisture", this being the case at the time of preparation of the chewing gum.

XI. The Respondent objected that the letter filed on 7 February 1997 was too late and did not allow time for an adequate reply to be made.

The description in the patent did not anywhere teach that maltitol powder was used, there was only reference to maltitol and this did not exclude syrup containing it, as had already been disclosed in documents (2) and (3).

The Respondent was of the view that the Opposition Division drew the wrong conclusion from the examples in

concluding that the moisture pickup was less for the products of the patent in suit, whereas the patent stated that the water take up was limited in which case no or practically no pickup took place.

A reading of the examples in the opposed patent showed that the experimental conditions under which the tests were conducted were not realistic as they corresponded to "Monsoon" temperatures and humidity levels. This in the Respondent's view meant that the prepared chewing gums would contain more than 3,5% by weight of water.

According to the Opposition Division document (3) represented the closest prior art and the form of the independent claims did not exclude the use of syrups, which resulted in the crystallisation out of maltitol from the chewing gum which consequently had a hard rather than a soft chew characteristic.

In view of an amended set of calculations concerning the constituents of the chewing gum disclosed in document (2) the Respondent was of the opinion that this document represented the nearest prior art, this being based on values of 56,84% and 59,6% maltitol and 3,75% water by weight. The minor differences which existed between the percentages of maltitol and water used in the prior art compositions *vis-à-vis* those of the opposed patent were not indicative of any significant characteristic.

The use of limited amounts of glycerine and of sugar alcohols according to auxiliary requests 1 and 2

respectively, did not involve any inventive merit as such ingredients were well known in the prior art, glycerine as a softener and sugar alcohols as sweeteners. It was in any case intended to use predominately maltitol as sweetener and therefore only minor proportions of the specified sugar alcohols could be employed.

It was possible for the skilled man to arrive at the compositions of the patent by applying routine experimentation techniques to the disclosures of documents (2) and (3).

The Respondent did not raise any formal objection to the filing of the auxiliary requests.

- XII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained as main request as granted or on the basis of the set of claims headed 1. Auxiliary Request or 2. Auxiliary Request respectively submitted during oral proceedings on 11 March 1997, and also requested reimbursement of the appeal fee.

The Respondent requested that the appeal be dismissed.

## **Reasons for the Decision**

1. *Admissibility of citations filed during the appeal proceedings (Article 114(2) EPC)*

Because documents (7), (8) and (9) did not provide any more relevant facts or evidence than were already available to the Board these documents were not admitted into the procedure.

2. *Admissibility of the auxiliary requests 1 and 2 filed during the oral proceedings (Article 123(2) and (3) EPC)*

The amended independent claims 1 and 9 of the first auxiliary request constitute a combination firstly of the subject-matter of claims 1 and 8 and secondly of claims 10 and 18 as granted. Their subject-matter neither extends beyond the originally filed disclosure (Article 123(2) EPC) nor is the scope of protection of these claims broader than that of the granted claims (Article 123(3) EPC). They are therefore admissible.

The amended independent claims 1 and 8 of the second auxiliary request constitute combinations of the features of firstly claims 1, 2 and 8, and secondly of claims 10, 12 and 18 as granted. The reasons for the admissibility of the first auxiliary request equally apply here.

3. *Sufficiency of disclosure (Article 83 EPC)*

The phrase "substantially anhydrous" is not objectionable in the circumstances of the present case because the water content of the chewing gum at the time of preparation is dependent upon the maltitol content which may be up to 58% by weight. Since

according to the known prior art (see document (2), page 9, line 2) maltitol may contain up to 6% by weight of water, ie  $58 \times 0,06 = 3,48\%$  by weight for the whole composition it was therefore reproducibly disclosed how much water was present and this was in keeping with the "about 3,5%" stated in the description.

4. *Novelty (Article 54 EPC)*

The Respondent did not maintain any objection to novelty during the oral proceedings and in its consideration of the cited prior art the Board noted no disclosure which anticipated all the features of any one of the independent claims contained in the main and auxiliary requests.

5. *Inventive step (Article 56 EPC)*

5.1 The closest prior art

In general terms concerning the use of maltitol in making substantially anhydrous sugar-less chewing gums, documents (2) and (3) are equivalent in their disclosure. The Board agrees with the corrected calculations, inaccurate calculations having previously been submitted, made in respect of the example by the Respondent and filed during the oral proceedings. The details of the example were such that when top and bottom values of ranges for maltitol content in the "Malti-poudre" and "Malti-towa" syrup were employed, (see table 2 on page 29 of document (2)), then values of 59,6% and 56,84% by weight of maltitol resulted.

Glycerine was present as 4,0% by weight. Document (2) thus provides a specific example which is more pertinent in terms of the maltitol and glycerine contents than the general disclosure of document (3).

The disclosure of document (2) at page 17 paragraph 2 describes the use of "Malti-poudre" in various food products one of which is a sugar-less chewing gum referred to on page 19, paragraph 1 and exemplified in the following table 7. This example contains water-free ingredients save for the Malti-towa syrup which provides 3,75% water in the composition.

Insofar as the term "substantially anhydrous" was claimed to be a new concept for chewing gums by the Appellant the Board is not of that opinion because within the prior art, eg document (1) examples 3 and 2 relate to chewing gums having 0,6% and 4,0% by weight of water respectively, also the example of document (2) referred to above contains 3,75% by weight of water and therefore this term does not represent in the problem to be solved any previously unknown feature.

Thus in the Board's opinion document (2) constitutes the nearest prior art.

## 5.2 The technical problem

In the light of document (2) the problem to be solved is to provide a substantially anhydrous chewing gum which is texturised and sweetened and maintained in anhydrous form by use of the maltitol and gum base

ingredients.

### 5.3 The solution to the problem

The solution to the problem lies in the use of maltitol and gum base in the percentages of 28-58% and 10-75% respectively by weight based on the composition and subject to a total of 100% as stated in the independent use and method claims.

### 5.4 Assessment of inventive step

#### 5.4.1 Main request

By the admission of the Appellant and from both documents (2) at page 9, line 2 and (3) at page 9, paragraph 2, it is well known that the absorption of moisture by maltitol is limited to 6,0% by weight, and this is less than is normally absorbed by conventionally used sugar alcohols, eg sorbitol, see document (2) at foot of page 8. Accordingly the content of water in the chewing gum at the time of preparation is regulated by the proportion of maltitol, ie 28-58% by weight and by any water introduced by other ingredients. As indicated above it is known from the prior art that the top limit of maltitol employed does, assuming that all other conventional ingredients do not contain water, result in a limit of 3,48%, ie about 3,5% by weight of water in the chewing gum, and therefore this feature is obvious from the prior art having regard to the figures calculated by the Respondent in respect of example 2 in document (2). This example is not an isolated disclosure from the

prior art in terms of maltitol content, because document (1) has also described a range of maltitol content in chewing gum of 20-60% by weight there being no other water containing ingredients present.

The description of the patent in suit at page 2, lines 8-9 states that there is a known connection between water-loss or water-gain and the harmful effects on the life of the gum, ie stability. Accordingly, the adoption of a water content limit for chewing gum determined by the content of a conventional ingredient which is known to have a certain restricted water carrying capacity, for the purpose of attaining a known stabilizing effect can be of no inventive merit.

Further, the comparisons made in the description of the opposed patent do not decisively support the Appellant's case because according to comparison 1 in which glycerine was present in both compositions, figure 1 shows that between week 1 and week 5 the sample of the invention took up 4,21% moisture whilst that of the sorbitol containing comparison increased its moisture content by 4,25%. Figure 2 showed that during 12 weeks the hardness values of the chewing gum of the patent in suit rose by 0,52 points whilst that of the comparison increased by 0,57 points. This indicates that the replacement of sorbitol by maltitol had practically no effect on the two characteristics examined.

Comparison 2 in which glycerine was not used at all, again related to compositions in which sorbitol was

replaced by maltitol, there being no other difference between the samples to be compared. The results pertaining to moisture pickup showed that the sorbitol sample picked up 9,76% and the maltitol sample 1,16% moisture, and in respect of hardness the increases were 80,03 and 34,51 points respectively. It would be expected that an exchange of maltitol for sorbitol in each case would give rise to similar practical results. However in these two comparisons this was not the case and considerable differences have not been explained.

In order to distinguish from the disclosure of document (3) the Appellant filed with the letter of 7 February 1997 a comparison between, (a) the first example of the patent in suit containing glycerine and maltitol, and (b) the first example of table 7 of said citation which contained maltitol in an amount well above 58% by weight as powder and syrup without any glycerine. The Board cannot accept this comparison because in respect of document (3) an inappropriate comparison of maltitol in the absence of glycerine has been made with a combination of maltitol plus glycerine. Having regard to document (2) again the comparison is not acceptable because the nearest disclosure in this citation contains glycerine which is not present in the comparison made. These comparisons cannot therefore serve to convince the Board of an effect which supports inventive step.

For the above reasons the subject-matter of the independent use and method claims of the main request does not involve an inventive step, and the request

must be refused.

#### 5.4.2 First auxiliary request

The Board does not agree with the Appellant that claims 1 and 9 of the first auxiliary request which include the added feature that glycerine is present in an amount up to 18% by weight of the composition is inventive, because the specific example of the nearest prior art document (2) employs 4,0% by weight of that ingredient. The Appellant has not given any reasoned argument why the use of this known softening component may be considered to be inventive. Inventive step cannot thus be acknowledged for these claims 1 and 9, and the first auxiliary request must be refused.

#### 5.4.3 Second auxiliary request

Claims 1 and 8 of the second auxiliary request in addition to the glycerine of claims 1 and 9 of the first auxiliary request necessitates the presence of less than 10,0% by weight of sugar alcohol selected from sorbitol, mannitol and xylitol. All of these components are acknowledged at page 4, lines 8-9 of the patent as being conventional ingredients of sugar-less chewing gums and no evidence in support of any inventive merit resultant upon their combination with the known gum bases, maltitol and glycerine has been provided. It is these sugar alcohols which the maltitol is intended to replace in order to reduce water content in the prepared chewing gum, and no arguments have been brought which indicated any specific advantage linked

with the less than 10% by weight limit. This request therefore also contains independent claims the subject-matter of which is not inventive, and so this request too must be refused.

5.5 The refusal of the main request and first and second auxiliary requests for the above reasons leads to the appeal having to be dismissed.

6. *Reimbursement of the appeal fee (Rule 67 EPC)*

In the submissions to the appeal the Appellant requested a refund of the appeal fee consequent upon a procedural violation allegedly perpetrated by the Opposition Division. According to Rule 67 EPC a refund may only be ordered in the event that the Board of Appeal deems an appeal to be allowable. This is not the case. Thus the request for reimbursement is refused.

**Order**

**For these reasons it is decided that:**

1. The appeal is dismissed.
2. The request for reimbursement of the appeal fee is refused.

The Registrar: The Chairwoman:

A. Townend

U. Kinkeldey