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D E C I S I O N
of 19 February 2003

Case Number: T 0494/99 - 3.3.2

Application Number: 92307118.7

Publication Number: 0533334

IPC: A23G 3/00

Language of the proceedings: EN

Title of invention:

Process for the production of hard candy

Patentee:

CERESTAR HOLDING BV

Opponent:

ROQUETTE FRERES, S.A.

Headword:

Hard Candy/CERESTAR

Relevant legal provisions:

EPC Art. 54, 56, 123(2), (3)

Keyword:

"Admissibility of requests filed at oral proceedings (no)"

"Novelty (yes): no suggestion in allegedly novelty-destroying citation to combine separate items belonging to different embodiments described in that citation"

"Inventive step (no): comparative experiments are not suitable to demonstrate any of the alleged improvements associated with the claimed process; solution to the problem of providing an alternative process for the production of hard candy obvious in the light of the closest state of the art"

Decisions cited:

T 0181/82, T 197/86, T 0063/99

Catchword:

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Case Number: T 0494/99 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 19 February 2003

Appellant: ROQUETTE FRERES, S.A.
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office posted 12 March
1999 concerning maintenance of European patent
No. 0 533 334 in amended form.

Composition of the Board:

Chairman: J. Riolo
Members: G. F. E. Rampold
C. Rennie-Smith

Summary of Facts and Submissions

I. The respondent is proprietor of European patent No. 0 533 334 ("the Patent") which was granted on the basis of European patent application No. 92 307 118.7 with 10 claims as follows:

"1. *A process for the production of a hard candy by heating a maltitol-containing mixture of sugar alcohols at an elevated temperature characterised in that the maltitol content of the sugar alcohol mixture is from 82% to less than 86% by weight based on dry substance.*"

Dependent claims 2 to 8 related to elaborations of the process according to claim 1.

"9. *A sugar alcohol mixture suitable for use in the process of any of the preceding claims characterised in that it comprises von 82% to less than 86% by weight maltitol based on dry substance.*

10. *A sugar alcohol mixture according to claim 8 characterised in that it comprises from 82% to 85%, preferably 82 to 84%, especially 82 to 83% by weight maltitol based on dry substance.*"

II. The appellant originally filed notice of opposition requesting revocation in full of the European patent pursuant to Article 100(a) EPC for lack of novelty (Article 54 EPC) and inventive step (Article 56 EPC). Of the numerous citations introduced into the first-instance opposition and subsequent appeal proceedings, the following are referred to in the present decision:

- (1) Developments in Sweeteners- 3
Chapter 4 - "Malbit® and its Applications in the Food Industry", pages 83 to 108;

Edited by T. H. Grenby, Elsevier Applied Science, London and New York, 1987;

- (2) US-A-4 408 041;
- (6) JP-A-2-42 997 (Translation in English).

III. By its interlocutory decision posted on 12 March 1999, the opposition division maintained the patent in amended form on the basis of claims 1 to 9 in the respondent's main request filed during oral proceedings held before it on 5 February 1999.

Process claims 1 to 8 in the above main request correspond to those in the patent as granted (see paragraph I above).

Product claim 9 as amended results from a combination of claims 9 and 10 as granted and is worded as follows:

"9. *A sugar alcohol mixture suitable for use in the process of any of the preceding claims characterised in that it comprises from 82 to 84%, especially 82 to 83% by weight maltitol based on dry substance.*"

IV. In its reasons for the decision the opposition division found that none of the documents cited in the course of the opposition proceedings against the novelty of process claim 1 disclosed all the technical features of the claimed process for the production of a hard candy by heating a maltitol-containing mixture of sugar alcohols with a maltitol content from 82% to less than 86% by weight based on dry substance. It concluded

that product claim 9 was likewise novel in the absence of any prior art disclosing a sugar alcohol mixture comprising from 82 to 84% maltitol based on dry substance.

As to inventive step the opposition division considered that citation (2) represented the closest state of the art, because this citation disclosed in column 5, lines 56 to 58 and Example 3 a crystalline sugar alcohol mixture *with a maltitol content of 85.2%*. Although, as admitted by the opposition division, the cited document (2) referred to the possibility of using anhydrous crystalline maltitol itself and crystalline solid mixtures of sugar alcohols with a high maltitol content, both prepared by the method disclosed in (2), as low-cariogenic sweeteners for the production of various confectionaries, including *candies*, and citation (1) disclosed the production of hard candies by cooking at 160°C aqueous sugar alcohol mixtures comprising maltitol, i.e. "MALBIT® liquid" with a maltitol content of from 73% to 77% or "MALBIT® crystalline" with a maltitol content of from 86% to 90%, the opposition division saw no reason to combine the teachings of these two prior art documents. Stressing that citation (2) emphasised the enormous effort necessary to produce anhydrous crystals of maltitol, it saw no reason why, on the basis of the teaching of citation (2), a skilled person would in a first step subject such anhydrous crystals of maltitol, previously isolated from their aqueous solutions by a labourious and time-consuming procedure, to rehydration and dissolution and in a further step use the maltitol-containing solution thereby obtained simply to produce hard boiled candies when he knew from (1) that hard candy, apparently of good quality, can be made much more cheaply and easily from MALBIT®.

Concerning product claim 9 relating to a sugar alcohol mixture with a maltitol content of 82 to 84%, the opposition division saw no incentive for a person skilled in the art to reduce the maltitol content of 85,2% or 84.2% present in sugar alcohol mixtures disclosed in citations (2) and (6) to produce hard candies in accordance with claim 1. Inventive step for the subject-matter of claims 1 to 9 was, thus, acknowledged.

V. The opponent (appellant) filed a notice of appeal and paid the appeal fee on 30 April 1999 and filed a statement of grounds of appeal on 2 July 1999. The respondent filed arguments supporting its request for the appeal to be dismissed with letter of 19 January 2000.

VI. Oral proceedings were held on 19 February 2003. At the beginning of the hearing before the board, the respondent sought to reintroduce into the appeal proceedings auxiliary requests 1 to 3 already presented in the proceedings before the opposition division.

Auxiliary request No. 1 consisted of process claims 1 to 8 as maintained by the opposition division (see paragraph III above), with former product claim 9 deleted.

Auxiliary request No. 2 consisted of 8 claims. Claim 1, resulting from a combination of claims 1 and 7 as upheld by the opposition division (see paragraph III above), read as follows:

"1. *A process for the production of a hard candy by heating a maltitol-containing mixture of sugar alcohols at an elevated temperature characterised in that the maltitol content of the sugar alcohol mixture is from 82% to less than 86% by weight*

based on dry substance, and in that the sugar alcohol mixture comprises 10 to 35% by weight of water based on the weight of the mixture."

Claims 2 to 8 corresponded to claims 2 to 6 and claims 8 and 9 as upheld by the opposition division, apart from the renumbering of former claims 8 and 9 as claims 7 and 8 and amendment of their dependencies as a consequence of the combination of claims 1 and 7.

Auxiliary request No. 3 consisted of 7 claims with former product claim 9 deleted; claim 1 in this third auxiliary request corresponded to claim 1 in the above second auxiliary request; dependent claims 2 to 7 corresponded claims to 2 to 6 and 8 as maintained by the opposition division, apart from the renumbering of former claim 8 as claim 7 and amendment of its dependency as a consequence of the combination of claims 1 and 7.

VII. After a short adjournment for deliberation the Chairman announced that the Board considered the auxiliary requests 1 to 3 filed during the oral proceedings as filed too late and therefore as inadmissible.

VIII. The arguments of the appellant, presented in its written submissions and at the oral proceedings, can be summarised as follows:

(A) As regards the auxiliary requests filed at the oral proceedings, the appellant was content to accept such decision as the Board might make in its discretion.

(B) Citation (2) disclosed in column 5, lines 56 to 57 and in Example 3 a crystalline maltitol-containing mixture of sugar alcohols with a maltitol content of 85,2%, based on dry substance. In the text in

column 6, line 53, and in the introductory portion of (2) in column 1, lines 30 to 35, reference was made to a method for the production of amorphous, substantially anhydrous candies by boiling down an aqueous maltitol solution at 180° to 190°C. The appellant submitted that this disclosure as a whole was prejudicial to the novelty of the claimed process in the patent.

- (C) Moreover, the appellant contended that, even if the novelty of the claimed process in the patent was upheld, this process still did not involve an inventive step. In this context, it noted that an inventive step for the claimed process for producing a hard candy was acknowledged in the decision under appeal *for the sole reason* that, in the judgment of the opposition division, a skilled person would not normally go to the trouble of subjecting anhydrous crystals of maltitol, previously isolated in crystalline form from their aqueous solutions by the procedures described in citation (2), to a rehydration and dissolution step in water required for preparing hard candies by the production process disclosed in citation (1). This reasoning of the opposition division in the contested decision was, in the appellant's opinion, unsound in the sense that the premise was false, being based on an apparent misunderstanding of the respondent's case.

Thus, in the appellant's opinion, it could not be validly argued that those skilled in the art would generally hesitate to dissolve a crystalline intermediate product, previously isolated in crystalline form from its aqueous solution, *de novo* in water, if dissolution of that product was a requirement for its further processing into the desired end product. As far as further processing

of crystalline maltitol was concerned, citation (1) itself described at page 96 a process for the production of hard candies comprising the steps of first *dissolving 25.000 kg of crystalline maltitol in 8.000 kg of water* and then cooking the solution thereby obtained at a temperature of 160°C. Moreover, citation (2) suggested in Examples 2, 3, 6, 7 and 11 the use of anhydrous crystals of maltitol for various purposes, requiring in each case rehydration of the crystalline maltitol product or even its complete dissolution in water when, for example, using maltitol as a sweetener for drinks.

In contrast to the finding of the opposition division in the decision under appeal, the skilled person's knowledge combined with the highly pertinent prior art of citation (2), either alone or in combination with the teaching of citation (1), would have led him directly to the claimed process in the patent. The comparative data provided in the patent could likewise not serve as an indication of inventive step because they were neither reproducible nor verifiable in the absence of any information about the exact and complete composition of the maltitol-containing mixtures of sugar alcohols used in Comparative Examples 1 to 5 for obtaining the comparative data reported in the patent.

IX. The arguments of the respondent as regards its current requests and related issues can be summarised as follows:

(A) As regards the admissibility of the auxiliary requests filed at the oral proceedings, these had been prepared the previous day during preparation for the oral proceedings and were intended as

"back up" should the respondent's main request (dismissal of the appeal) fail. The respondent's representative admitted that the failure to file auxiliary requests earlier in the proceedings resulted from a lack of foresight on his part.

- (B) It was beyond dispute that sugar alcohol mixtures having maltitol contents within the range specified in claims 1 and 9 had never been used in the production of hard candy before the priority date of the patent. Citation (2) was concerned with the production of anhydrous crystals of maltitol and crystalline hydrogenated starch hydrolysates containing such anhydrous crystals of maltitol. The maltitol crystals produced according to the labourious procedure described in (2) were anhydrous and the non-hygroscopic nature of the maltitol produced was a property of these particular crystals. However, citation (2) was not really concerned at all with the production of hard candy from such crystals.
- (C) The discovery of the inventors which formed the basis of the invention claimed in claim 1 was that if, in the production of a hard candy from a starting mixture of sugar alcohols, one used a sugar alcohol mixture having a maltitol content of from 82% to less than 86% by weight, the resulting candy product was non-hygroscopic and had clarity. These beneficial effects were identified in the patent at page 2, lines 25 to 28.

In fact, in the range claimed, it was noticed by the inventors that, as the hard candy cools in the production process, microcrystals of a non-hygroscopic nature formed on the surface of the candy. These microcrystals then had the effect of protecting the candy surface from becoming sticky.

This phenomenon was dependent on the maltitol content of the sugar alcohol mixture being within the range specified in the claim. Thus, the invention exploited the advantageous effects that arose from the use of a sugar alcohol mixture having a maltitol content from 82% to less than 86% by weight. The surprisingly advantageous properties of hard candies produced by the process of the invention had been proven by the results of the comparative experiments presented in Examples 1 to 5 in the patent.

Citation (1) which, in the respondent's opinion, represented the closest state of the art, suggested the use of "MALBIT® liquid", which had a maltitol content of from 73% to 77%, and "MALBIT® crystalline", which had a maltitol content of from 86% to 90%, for the production of hard candy. At the priority date no-one had disclosed or suggested that sugar alcohol mixtures having a maltitol content falling between those of "MALBIT® liquid" and "MALBIT® crystalline" had any industrial value or were worthy of any special consideration. It was only in hindsight that the appellant considered the use of maltitol-containing sugar alcohol mixtures having a maltitol content within the claimed range for the production of hard candies to be obvious.

Concerning the teaching of citation (2), the appellant had argued that it would have been obvious before the priority date of the patent for a skilled person to dissolve the maltitol crystals produced according to Example 3 in citation (2) and then use the solution obtained to produce hard candy according to the process described in (1). Although the opposition division had considered this argument, it was correct in deciding that the

skilled person would not have combined the teachings of citations (1) and (2) as suggested by the appellant. Firstly, there was no reason why, on the basis of the teaching in (1) on how to produce hard candy from "MALBIT[®]", a skilled person would consider using a different sugar alcohol mixture having a maltitol content of from 82% to less than 86% by weight. Secondly, there was no reason why, on the basis of the teaching of (2), a skilled person would go to the immense effort of producing maltitol crystals according to the procedure described in Example 3 of citation (2), only then to dissolve them and to produce hard candy, when he knew from (1) that hard candy, apparently of good quality, could be made much more cheaply and simply from "MALBIT[®]".

- X. The appellant requested that the decision under appeal be set aside and that the European patent No. 0 533 334 be revoked.

The respondent requested that the appeal be dismissed (main request) or that the patent be maintained on the basis of one of the auxiliary requests 1 to 3 filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

Admissibility of Auxiliary Requests 1 to 3

1. The Board decided in its discretion not to admit into the proceedings the three auxiliary requests filed by the respondent at the beginning of the oral proceedings. The respondent offered no reason for the

late presentation of these requests other than a "lack of foresight", the requests having only been prepared the day before the oral proceedings (see IX(A) above). While it may be the case that the content of these requests did not differ markedly from the claims considered by the opposition division (see III above), this does not explain or justify the late filing: indeed, it underlines the fact that the requests could and should have been filed earlier so that the appellant and the Board were fully aware of the respondent's case. While the appellant did not agree to the late filing and, in declaring itself content to leave the matter to the Board's discretion, did not *per se* object, the Board none the less must take into consideration as a matter of general principle the undesirability of one party taking another by surprise in the filing of last-minute requests: even if the amendments made to claims in late-filed requests are minor, the other party or the Board may be disadvantaged. The situation is comparable, although not identical, to that in T 63/99, unpublished in OJ EPO, see Reasons, paragraph 2.

Main Request; Amendments

3. The limitation of the range of the maltitol content of the sugar alcohol mixture, reading in claim 1 of the application as originally filed "more than 77% but less than 86% by weight based on dry substance", to "from 82% to less than 86% by weight based on dry substance" in current process claim 1 finds its support in the disclosure on page 2, lines 6 to 7, and claims 5 and 6 of the application as originally filed.
- 3.1 The similar limitation of the range of the maltitol content of the sugar alcohol mixture, reading in claim 9 of the application as originally filed "more than 77% but less than 86% by weight based on dry

substance", to "from 82% to 84%, especially 82% to 83% by weight based on dry substance" in current product claim 9 finds its support in dependent claim 10 as originally filed.

3.1.1 From the above it follows that there are no objections to the amended claims under Article 123(2) or 123(3) EPC.

3.1.2 The proposed limitations in claims 1 and 9 can fairly be said to be occasioned by a ground for opposition specified in Article 100(a) EPC and are therefore also admissible under the terms of Rule 57(a) EPC.

Novelty

4. During the hearing before the Board, the appellant for the first time attacked the novelty of the process according to current claim 1 for the production of a *hard candy* on the basis of the state of the art according to citation (2).

4.1 Citation (2) relates to:

- (a) anhydrous crystals of maltitol *per se*,
- (b) the whole crystalline hydrogenated starch hydrolysate sugar alcohol mixture containing such anhydrous crystals of maltitol,
- (c) processes for the production of such anhydrous crystals and crystalline sugar alcohol mixtures, and
- (d) the use thereof.

To support its allegation of lack of novelty, the appellant referred to the following different embodiments disclosed in different sections of the cited document (2):

4.1.1 The description of (2) refers in column 5, lines 55 to 57, by way of example to a *crystalline sugar alcohol mixture with a maltitol content of 85.2%* and a melting point of 120° to 127°C.

4.1.2 Example 3 of citation (2) describes in column 10, lines 10 to 56, a process for preparing a crystalline sugar alcohol mixture comprising the steps of

- (i) subjecting a liquefied starch suspension to enzymatic degradation to obtain a saccharified starch solution with a maltose content of 85.4% (see column 10, lines 14 to 33),
- (ii) subjecting the maltose solution to hydrogenation to obtain a sugar alcohol mixture with a composition of 3.6% sorbitol, 85.4% maltitol, 6.8% maltotriitol and 4.6% higher sugar alcohols including maltotetraitol (see column 10, lines 34 to 38), and
- (iii) subjecting the mixture from step (ii) to purification, concentration, crystallization and separation to obtain a *crystalline mixture solid with a melting point of 120° to 127°C*. Although the maltitol content of this crystalline sugar alcohol mixture is not explicitly indicated in Example 3, on the basis of the melting point given for the mixture, it appears reasonable to assume that this mixture has about the same

maltitol content of 85.2% as indicated for the mixture referred to in column 5, lines 55 to 57 (see point 4.1.1 above), since both these mixtures have the same melting point range.

The product of Example 3 is said to be substantially non-hygroscopic, readily handleable and thus favourably usable for improving the tastes of various foods, drinks, cosmetics and drugs as well as sweetening them (see column 10, lines 39 to 56).

4.1.3 Citation (2) contains elsewhere (see column 6, lines 48 onwards) the general teaching that both products (i.e. anhydrous crystals of maltitol *per se* and the whole crystalline sugar alcohol mixture containing such crystals) are hardly fermentable by dental caries-causative microorganisms, similarly as conventional maltitol, and that "they can also be favourably used as a low-cariogenic sweetener for various confectionaries, e.g. chewing gum, chocolate, biscuit, cookie, caramel and *candy*; and soft drinks <.....>."

4.1.4 Finally, in the introductory portion of (2) referring to the background of the invention (see column 1, lines 26 to 36), it is stated: "However, since maltitol in dry solid form is extremely hygroscopic and deliquescent, and difficult to prepare into powder, it has usually been handled only in the form of an aqueous solution; thus its use has been extremely restricted. For example, amorphous, substantially-anhydrous candies can be obtained by boiling down an aqueous maltitol solution at 180° to 190°C, but the candies must be stored in a moisture proof vessel together with desiccant due to their high hygroscopicity and deliquescence; thus the handling of such candies renders great difficulties."

4.2 In accordance with established case law (see, for example, Case Law of the Boards of Appeal, 4th edition 2001, I.C.2.2, pages 56 to 57), in order to assess novelty, it is not permissible to combine separate items belonging to different embodiments described in one and the same document merely because they are disclosed in that one document, unless such combination has been specifically suggested there.

4.2.1 Apart from the fact that there is absolutely no suggestion or hint whatsoever in citation (2) to combine any of the separate items belonging to the different embodiments referred to in points 4.1.1 to 4.1.4 above, the cited document does certainly not teach a method for the production of candies by heating a maltitol-containing mixture of sugar alcohols *with a maltitol content from 82% to less than 86% by weight based on dry substance*, let alone the production of **hard** candies by such a method. Incidentally, the only example in (2) relating to a candy discloses a method for the production of a chocolate coated candy comprising the steps of:

- (i) adding to a maltitol-containing mixture of sugar alcohols consisting of 95 parts of crystalline mixture in fluid state small amounts of flavour and colouring agent, and
- (ii) pouring this admixture with a depositor into moulds in layered starch, and solidifying therein (see Example 11).

The product of Example 11 is thus clearly different from what is defined in the state of the art as a hard candy.

- 4.3 Having regard to the observations above, the Board is satisfied that the appellant's objections to lack of novelty of claim 1 on basis of the state of the art according to citation (2) are unfounded. The Board is also satisfied that none of the other citations on file discloses the subject-matter of any of the claims of the appellant's current request. As novelty was not disputed on the basis of those other citations, no detailed comments in this respect are required.

Inventive Step

5. Citation (1) refers to two types of *maltitol-containing sugar alcohol mixtures* that were commercially-available for use in hard candy production before the claimed priority date of the patent; one is "MALBIT® liquid" (see page 86, Table 1) and the other is "MALBIT® crystalline" (see page 87, Table 2). According to the disclosure of (1), hard candies were produced either by directly cooking "MALBIT® liquid" at 160°C or by first dissolving "MALBIT® crystalline" in water and then cooking the solution thereby obtained at 160°C, followed by cooling, kneading and tempering the cooked mass. The mass thereby obtained was then subjected to a forming/stamping step and a final cooling step to obtain the finished hard candy (see page 96, Table 6).
- 5.1.1 "MALBIT® liquid" and "MALBIT® crystalline" used in (1) for producing hard candies are *conventional sugar alcohol mixtures* containing the following principal sugar alcohol components (see (1): Tables 1, 2, pages 86 to 87):

MALBIT® liquid	MALBIT® crystalline	
Solids	Min. 74.0%	
Moisture content		Max. 1.0%
Maltitol	73.0- 77%	86 - 90%
D-Sorbitol	2.5- 3.5%	1.0-3.0%
Maltotriitol	9.5-13.5%	5.0-8.0%
Hydrogenated oligo- and polysaccharides	6.5-13.0%	2.0-6.0%
Reducing sugars	Max. 0.3%	Max. 0.3%

5.1.2 In the view of the Board, there can be no doubt that the above processes for the production of hard candies comprising maltitol as the bulk sweetener disclosed in citation (1) represent the closest state of the art to the subject-matter of the patent. Hard candies produced by "MALBIT® crystalline" or "MALBIT® liquid" are described in (1) as having an excellent quality, such as a good glossy texture, good sweetness without addition of artificial sweeteners and a pleasant fruit taste. Citation (1) goes on to state that due to the excellent heat stability of MALBIT® there is no loss of colour during boiling and that both types of MALBIT® hard candies described in Table 6 have been tested with good results (see page 93, last two paragraphs).

5.1.3 Citation (1), at page 97 further states that "Because of the *higher amount of maltotriitol and higher-molecular polyols* the hard candies produced with "MALBIT® liquid" are of low hygroscopicity and stable against undesirable crystallization. In any case, for all hard candies made with sugar substitutes, both types of MALBIT® hard candies must be wrapped with a material with good water-vapour barrier properties for long shelf-life."

5.1.4 Although citation (1) teaches that hard candy of good quality having the desired properties of low hygroscopicity and clarity and transparency can be made from aqueous maltitol-containing sugar alcohol starting mixtures having a maltitol content within the range of 73 to 77% ("MALBIT® liquid") or 86 to 90% ("MALBIT® crystalline"), the respondent referred in the patent (see page 2, lines 25 to 28) and in its submissions before the Board to the additional improvement that, if in the production of a hard candy from a starting mixture of maltitol-containing sugar alcohols, one uses in accordance with the teaching of the patent a sugar alcohol mixture in which the maltitol content is between those of "MALBIT® liquid" and "MALBIT® crystalline", the claimed invention exploits certain surprising additional beneficial effects vis-à-vis this closest art according to (1) that arise from the use of a sugar alcohol mixture having a maltitol content from 82% to less than 86% maltitol.

5.1.5 The respondent emphasised that the candy product produced in accordance with claim 1 exhibits unexpectedly superior properties over candies produced from either "MALBIT® liquid" or "MALBIT® crystalline" in respect of clarity and transparency of the candy and its low hygroscopicity, i.e its minimal tendency to pick up water from the air and become sticky (see patent specification page 2, lines 18 to 28).

5.1.6 The alleged improvements are said to be proved by the results of the comparative experiments presented in Examples 1 to 5 of the patent (see page 3, line 14 onwards). According to the respondent, the purpose of Comparative Example 3 was to demonstrate that, when the maltitol content of the sugar alcohol mixture used in the preparative process is only 50%, the candies produced had the required transparency but had an unsatisfactorily high moisture pick-up (after 14 days

unwrapped) of 6.5%. The respondent considered a moisture pick-up after 14 days of not more than 5% generally acceptable. Comparative Example 4 was presented to show that hard candies obtained using a maltitol composition containing 75% maltitol had an unacceptably high moisture pick-up (after 14 days) of greater than 11% although they were still transparent. Candies obtained using a maltitol composition containing 82% maltitol were shown in Examples 1 and 2 to have the required transparency and a moisture pick-up (after 14 days) of below 5%. The trend in low moisture pick-up was shown in Comparative Example 5 to continue as the maltitol content of the sugar alcohol mixture rises to 86%. The purpose of this experiment was to demonstrate that, at this maltitol content, the candies were no longer transparent but had a cloudy appearance which is unattractive to the consumer.

- 5.2 However, to be relevant, such comparative tests must meet certain criteria. These include in the present case, *inter alia*, the choice of a maltitol-containing mixture of sugar alcohols according to the claimed process and one or more comparative maltitol-containing mixture(s) used in the process of the closest state of the art according to citation (1); at the same time, the mixtures being compared should possess maximum similarity with regard to their composition (see, for example, decision T 181/82, OJ EPO, 1984, 401). Moreover, the nature of the comparison with the closest state of the art should be such that any alleged advantages or beneficial effects are convincingly and unambiguously shown to have their origin in the distinguishing feature of the invention vis-à-vis the closest state of the art (see decision T 197/86, OJ

EPO, 1989, 371). Finally, it appears self-evident that any comparative tests presented by a party to the proceedings must be reproducible on the basis of the information provided by that party, thereby rendering the results of such tests directly verifiable by third parties.

Contrary to the respondent's submissions, the results of the comparative experiments presented in Examples 1 to 5 in the patent are not suitable to demonstrate any of the alleged improvements associated with the claimed process for a number of reasons, including in particular the following:

- 5.2.1 No specific information on the exact composition of the maltitol-containing mixtures of sugar alcohols used in any of the Examples 1 to 5 for the production of hard candy is given, and in particular no analysis which would specify the nature and proportion of sugar alcohols present in the mixtures of sugar alcohols in addition to maltitol.

The state of the art according to (1) and similarly current claim 1 relate to a preparatory processes for the production of hard candy starting from a *maltitol-containing mixture of sugar alcohols*. According to the disclosure in the patent specification such maltitol-containing mixtures of sugar alcohols used in the claimed process comprise, in addition to maltitol, at least sorbitol, maltitriitol and hydrogenated oligomers of DP (degree of polymerisation, i.e. the number of glucose units in the molecule) >3 in varying proportions (see page 2, lines 39 to 40).

With reference to the disclosure in the first paragraph of the text on page 97 of citation (1) (see point 5.1.3 above), the respondent itself drew attention to the importance of the nature and proportion of each single

sugar alcohol component present in the maltitol-containing mixtures of sugar alcohols (in particular the content of d-sorbitol and maltitriitol) for the properties of a hard candy obtained by cooking such mixtures.

In contrast to the state of the art according to (1) which discloses the complete list of the individual sugar alcohol components and their proportions present in addition to maltitol in "MALBIT® liquid" and "MALBIT® crystalline" (see point 5.1.1 above) for the production of hard candy, the patent is entirely silent about the exact composition of the maltitol-containing mixtures of sugar alcohols used in Examples 1 to 5 for the production of hard candies. Thus, in the absence of any information as to the exact composition of the mixtures of sugar alcohols actually used in the patent, no evidence is available that:

- (i) the composition of the maltitol-containing mixtures of sugar alcohols used for comparative purposes in the examples of the patent indeed corresponds to the composition of either "MALBIT® (liquid)" or "MALBIT® (crystalline)" used in the closest state of the art according to (1) and that
- (ii) sugar alcohol mixtures used in the patent are indeed comparable with respect to their content of sorbitol, maltitriitol and hydrogenated oligomers to "MALBIT® (liquid)" or "MALBIT® (crystalline)".

5.2.2 Moreover, it is evident that, in the absence of any information as to the exact complete composition of the mixtures of sugar alcohols actually used for obtaining the candies in the comparative experiments in the patent, none of these experiments is reproducible and none of the results presented in Examples 1 to 5 is thus verifiable by third parties. It follows that for

this reason alone the results of the comparison presented in Examples 1 to 5 of the patent are irrelevant to the assessment of inventive step in the present case.

- 5.2.3 The respondent refers to the alleged advantages that hard candies produced from sugar alcohol compositions containing 82% maltitol in accordance with the process of claim 1 have the required transparency and a low moisture pick-up, indicating low hygroscopicity. These advantages are said to be proved by the results of the Comparative Examples 1 to 4 in the patent. Contrary to the submission of the appellant, this comparison is likewise not pertinent, since the maltitol-containing mixture of sugar alcohols according to the claimed process (82% maltitol content) has **not** been compared with the closest maltitol-containing mixture of sugar alcohols disclosed in the state of the art [77% maltitol content - see citation (1)], but with maltitol-containing mixtures of sugar alcohols with a maltitol content of 75% (Example 4) or only 50% (Example 3), neither of which form part of the cited state of the art.
- 5.2.4 Hard candies obtained using a sugar alcohol composition containing 86% maltitol - see Example 5 in the patent - were not compared, as might have been expected, with candies obtained using a sugar alcohol composition containing maltitol in a proportion as close as possible to *the upper limit* of the maltitol content range claimed in claim 1 (i.e. 82% to less than 86% by weight) and, accordingly, as close as possible to the state of the art according to (1), but only with candies obtained using a composition containing maltitol in the lowest possible proportion (i.e 82%, see Examples 1 and 2) of the maltitol content range claimed in claim 1. It is thus clear that the comparative data presented in the patent fail to

demonstrate for nearly the entire range of the maltitol content covered by claim 1 (greater than 82% to less than 86%) that, dependent on the maltitol content in the claimed range (i.e. the sole distinguishing feature over the closest state of the art), hard candies can indeed be produced which have the alleged low moisture pick-up (low hygroscopicity) and which are clear and not cloudy in appearance.

5.2.5 In conclusion, on the basis of the comparative data in the patent there is no evidence available that the lower value of 82% maltitol and the upper value of less than 86% maltitol define more than an arbitrarily chosen range of maltitol in a mixture of sugar alcohols having merely the same kind of properties and capabilities as the prior art, in order to establish novelty over the state of the art according to citation (1).

5.3 It is thus clear that the additional advantages referred to by the respondent have not been properly demonstrated. According to the case law of the Boards, alleged advantages to which the proprietor merely refers, without offering sufficient evidence to support such alleged advantages comparison with the closest state, cannot be taken into consideration in determining the problem underlying the invention and therefore in assessing inventive step (see Case Law of the Boards of Appeal, 4th edition 2001, I.D.4.4; page 108).

5.3.1 In the light of the closest prior art according to (1), the problem the patent seeks to solve can, therefore, only be seen in providing a further or alternative process for the production of a hard candy on the basis of maltitol as the main component. The solution of the problem offered by the patent is the process of claim 1 which comprises heating a maltitol-containing mixture

of sugar alcohols with a maltitol content of the mixture from 82% to less than 86% by weight based on dry substance. On the basis of the disclosure in the patent the Board is satisfied that the problem has been plausibly solved. This was moreover not contested by the appellant.

5.3.2 In view of the above observations and in the absence of appropriate evidence showing any unexpectedly advantageous property or surprising effect associated with the claimed process for the production of a hard candy by heating a maltitol-containing mixture of sugar alcohols at elevated temperature, the use of a sugar alcohol mixture with a maltitol content from 82% to less than 86% based on dry substance amounts to no more than the result of routine experimentation for the skilled practitioner in the light of the closest state of the art according to citation (1). In other words, there was no technical reason which would have prevented the skilled person from producing hard candies by boiling down a sugar alcohol mixture in which the maltitol content is intermediate that of "MALBIT® liquid" and "MALBIT® crystalline", i.e. from 82% to less than 86% maltitol. The claimed process therefore lacks an inventive step.

5.3.3 Since claim 1 lacks inventive step, it is not necessary to examine dependent claims 2 to 8 and independent product claim 9.

Order

For these reasons it is decided that:

1. he decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

A. Townsend

J. Riolo