Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [X] To Chairmen
(D) [ ] No distribution

Datasheet for the decision of 6 November 2012

Case Number: T 0134/11 - 3.3.09

Application Number: 02779227.4

Publication Number: 1542541

IPC: A23G 4/00

Language of the proceedings: EN

Title of invention:
LOW MOISTURE CHEWING GUM

Patent Proprietor:
Gumlink A/S

Opponent:
WM. Wrigley Jr. Company

Headword:
-

Relevant legal provisions:
EPC Art. 107, 54, 56
EPC R. 99(1)(b)(c)
RPBA Art. 12(4)

Keyword:
"Admissibility of appeal - yes"
"Admissibility of the main request - yes"
"Novelty - yes (main request)"
"Inventive step - yes (main request)"

Decisions cited:
T 0244/85, T 0434/00, T 1067/08, T 0144/09, T 0936/09

Catchword:
Admissibility of requests under Article 12(4) RPBA; see point 3.3, of the Reasons.

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0134/11 - 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 6 November 2012

Appellant: (Patent Proprietor)	Gumlink A/S Dandyvej 19 7100 Vejle (DK)
Representative:	HOFFMANN EITLE Patent und Rechtsanwälte Arabellastrasse 4 D-81925 München (DE)
Respondent: (Opponent)	WM. Wrigley Jr. Company 1132 West Blackhawk Street Chicago, IL 60622 (US)
Representative:	Murphy, Colm Damien Ipulse 26 Mallinson Road London SW11 1BP (GB)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted 17 November 2010 concerning maintenance of European patent No. 1542541 in amended form.**

Composition of the Board:

Chairman: W. Sieber
Members: M. O. Müller
F. Blumer

Summary of Facts and Submissions

I. This decision concerns the appeal by the proprietor against the opposition division's interlocutory decision that European patent No. 1 542 541 as amended meets the requirements of the EPC.

II. The opponent had requested revocation of the patent in its entirety on the grounds that the claimed subject-matter was neither novel nor inventive (Article 100(a) EPC).

The documents submitted during the opposition proceedings included:

D6: US 4,579,738 A;

D7: WO 01/47368 A1; and

D9: WO 84/01693 A1.

III. The opposition division's decision, which was announced orally on 12 October 2010 and issued in writing on 17 November 2010, was based on a main request and a first auxiliary request, both filed on 30 August 2010.

The only independent claim 1 of the main request read as follows:

"1. Chewing gum comprising at least one biodegradable polymer and chewing gum ingredients, said chewing gum ingredients being chosen from the groups of softeners, sweeteners, flavoring agents, active ingredients,

fillers, mixtures thereof and said chewing gum containing less than 1.0 wt% water of the chewing gum."

Claim 1 of the first auxiliary request differed from that of the main request in that the chewing gum was defined to be "substantially free of non-biodegradable polymers".

IV. In its decision, the opposition division essentially argued as follows:

The subject-matter of the main request is novel. On the one hand, D6 and D9 do not disclose chewing gums containing a biodegradable polymer. On the other hand, D7, including example 49, does not disclose a water content as required by claim 1. However, the subject-matter of the main request is not inventive in view of D7 as the closest prior art. The opposed patent proves that chewing gum compositions containing a biodegradable polymer having a water content as required by claim 1 have a prolonged shelf life and softness (good texture). Nevertheless, the subject-matter of claim 1 of the main request encompasses compositions which, apart from the biodegradable polymers, additionally contain non-biodegradable polymers in any possible amount. Since low amounts of water combined with the presence of a non-biodegradable polymer leads to staling of the chewing gum, it is not credible that substantially all of the claimed compositions exhibit the above-mentioned effect. Therefore an inventive step is not present over the whole scope of claim 1.

For the same reasons as given with regard to the main request, the subject-matter of the first auxiliary request is novel. Furthermore, it is also based on an inventive step. Claim 1 of this request has been restricted such that the chewing gum is substantially free of non-biodegradable polymers. Therefore, the problem of obtaining a prolonged shelf life and softness (good texture) is now credibly solved over the whole breath of claim 1.

V. On 7 January 2011, the proprietor (in the following "appellant") filed a notice of appeal against the above decision and paid the prescribed fee on the same day.

VI. By its letter of 1 February 2011, the opponent (in the following "respondent") requested that the appeal be dismissed as inadmissible. A response thereto was filed by the appellant by letter of 18 February 2011.

VII. A statement setting out the grounds of appeal was filed on 28 March 2011 together with a main request and first to fifth auxiliary requests. Claim 1 of the main request was identical to claim 1 of the main request before the opposition division (see point III above).

Claim 1 of the first auxiliary request read as follows:

"1. Chewing gum comprising at least one biodegradable polymer and chewing gum ingredients, said chewing gum ingredients being chosen from the groups of softeners, sweeteners, flavoring agents, active ingredients, fillers, mixtures thereof and said chewing gum containing less than 1.0 wt% water of the chewing gum,

wherein the at least one biodegradable polymer constitutes at least 5% of the chewing gum polymers."

VIII. By letter of 27 October 2011, the respondent filed a reply to the appeal together with

D25: Draft declaration of D. Phillips, dated October 2011 (unsigned).

IX. By communication of 20 February 2012, the board's preliminary opinion was communicated to the parties. In this communication, the board made *inter alia* the following remarks:

The appeal appears to be admissible since the appellant is adversely affected by the opposition division's decision.

The main request appears to lack novelty in view of D6. Novelty in view of D7 appears to rest on the question whether D25 can prove that the water content of the chewing gum in example 49 of D7 is as required by claim 1. For inventive step, D7 and D9 appear to be relevant.

As to the first auxiliary request, the feature "constitutes at least" appears not to meet the requirements of Article 123(2) EPC while the subject-matter in this request appears to be novel in view of D6 and D7.

X. By its letter dated 11 May 2012, the respondent filed a signed and amended version of D25.

XI. By letter of 5 October 2012, the appellant filed a new main request and new first to seventh auxiliary requests. The main request is identical to the previous first auxiliary request except that the expression "constitutes at least" objected to by the board under Article 123(2) EPC has been replaced by the wording "comprises at least" (the wording of claim 1 is reproduced in point 2 below).

XII. On 6 November 2012, oral proceedings were held before the board. Both parties maintained their requests filed during the written proceedings. The respondent additionally requested that the new main request should not be admitted into the proceedings.

XIII. The appellant's arguments can be summarized as follows:

(a) Admissibility of appeal

The appeal is admissible as the notice of appeal contains all the information required by Rule 99(1) EPC and furthermore because the potential inadmissibility of the request filed with the notice of appeal is not a reason for considering the appeal to be inadmissible.

(b) Admissibility of the main request

The main request should be admitted into the proceedings. This request was not filed in the first instance opposition proceedings as the objection that led to this request was raised for the first time during the oral proceedings before the opposition division. Due to the little time

available, the appellant relied on the first auxiliary request rather than drafting the present well-considered "intermediate" request.

(c) Novelty

The main request is novel in view of D6, as a double selection from the disclosure of this document is necessary to arrive at the claimed subject-matter. In particular, some of the materials given for the spherical particles in D6 are biodegradable polymers, and some are not, such that there is a first choice to be made. Furthermore, the amount of spherical particles in the chewing gum overlaps with the amount of biodegradable polymer required by claim 1 and hence a second choice is necessary. As to table 1 referred to by the respondent, there is no information contained therein as to what materials the spherical particles are made from.

The main request is also novel in view of D7 as this document does not disclose a water content as required by claim 1. For example 49 of this document to be novelty-destroying, it must be inevitable that when this example is repeated, the claimed water content is obtained. There are, however, choices to be made in particular with regard to the starting materials. In D25, the respondent has picked two out of an infinite number of starting materials. What D25 actually shows is that in only one of these two situations, is a water content as claimed obtained. Hence the

claimed water content is not an inevitable result of example 49 of D7.

(d) Inventive step

D7, rather than D6, is the closest prior art as only D7 addresses the issue of easy removability of discarded chewing gums.

Example 13 of the opposed patent proves that the claimed chewing gum is superior to that of D7 in that texture and taste are better maintained over time. Furthermore, examples 6 to 9 show that the more biodegradable polymer there is present in the chewing gum, the softer it is.

It is plausible that these effects are also obtained at amounts of biodegradable polymer as low as 5%. All the respondent's allegations to the contrary must be disregarded as no proof has been provided of any of these assertions. Furthermore, biodegradable polymers all have in common that they are hydrophilic. They can therefore take up moisture more quickly than conventional chewing gums. Hence, if a biodegradable polymer is included in a conventional chewing gum, water uptake is quicker, and faster softening occurs. It can be safely assumed that this mechanism is also present at 5% biodegradable polymer. Furthermore, the easy removability too is achieved at low amounts of biodegradable polymer. In this case, pores are created in the conventional chewing gum upon degradation of the biodegradable polymer and

the conventional chewing gum part thereby becomes more easily removable.

In view of these effects, the claimed solution is not obvious. More specifically, in the prior art relating to biodegradable chewing gums, there is always the assumption that degradation occurs only upon discarding. There is nowhere the appreciation that degradation prior to chewing is a problem. So no-one would have reduced the moisture content to avoid this problem. Furthermore, as evident from eg D9, it is commonly known that if in conventional chewing gum the moisture is reduced to below eg 2%, chewability becomes unacceptably low. For this reason too, the skilled person would not have reduced the water content.

Contrary to the respondent's statement, D6 teaches including spherical particles having a particular morphology rather than biodegradable polymers in order to obtain satisfactory texture at low moisture content. It is thus not obvious in view of this document that good texture at low water content can be obtained if a biodegradable polymer is present.

XIV. The respondent's arguments can be summarized as follows:

(a) Admissibility of the appeal

The appeal is inadmissible as the notice of appeal does not meet the requirements of Rule 99(1)(b) and (c) EPC. It is in particular not possible to appeal against any decision to refuse the claims

as granted since the claims as granted were not the subject of the decision.

(b) Admissibility of the main request

The main request should not be admitted into the proceedings pursuant to Article 12(4) RPBA and in line with decisions T 144/09 and T 936/09. This request could have been filed in the first instance opposition proceedings. More specifically, the restriction of this request with regard to the amount of biodegradable polymer is a reaction to an objection raised already in the first instance proceedings. By filing the main request only now, the appellant tries to re-open the case and this amounts to an abuse of procedure.

(c) Novelty

The subject-matter of the main request lacks novelty in view of D6. Table 1 of this document discloses chewing gums containing spherical particles in an amount as required by claim 1. In view of this table, the only choice to be made to arrive at the claimed subject-matter is the selection of a biodegradable polymer for the spherical particles, and this is disclosed in the last paragraph of column 4 and in column 5, line 44 of D6.

The subject-matter of the main request also lacks novelty in view of D7. Example 49 of this document contains an explicit disclosure of all the features of claim 1 except for the water content,

which is, however, an implicit feature of this example, as proven by D25. The fact that the water content of the high-moisture chewing gum in D25 is outside of the claimed range does not matter in this respect as, contrary to the example in D7, a non-standard glycerin is used for this high moisture chewing gum. Moreover, D7 defines a range of water content of 0.62% to 1.1%, which overlaps with the claimed range and which is therefore novelty-destroying.

(d) Inventive step

D6 represents the closest prior art as it deals with low-moisture gums that also contain biodegradable polymers. Starting from table 1 of this document, the only choice to be made is the selection of biodegradable polymers and this selection is obvious in view of D6 itself.

Starting from D7 as the closest prior art, the problem addressed in the opposed patent, ie the provision of a biodegradable chewing gum having improved texture, is not solved at an amount of biodegradable polymer as low as 5%. Firstly, such a gum is almost a conventional chewing gum and hence it becomes hard and brittle at low water contents and thus does not soften during the initial chew. Secondly, at an amount of 5% of biodegradable polymers, the removability of the chewing gum is not improved compared to conventional chewing gums. Thirdly, the chewing gums of examples 6 to 9 in the opposed patent are not according to claim 1 so that they cannot prove

the presence of any effect. Fourthly, the effects aimed at in the opposed patent are not obtained with any type of biodegradable polymer as covered by claim 1.

The solution chosen in claim 1 is already known from D9, which teaches reducing the water amount in the case of moisture-sensitive ingredients being present. Furthermore, in view of D6, it is obvious that biodegradable polymers absorb moisture and lead to fast softening.

XV. During the oral proceedings, the board made the following additional observations:

The findings in D25 rest on the assumption that the only ingredients which add significant amount of moisture to the chewing gum are sorbitol and glycerin. It follows, however, from the discrepancy between the measured and calculated values in D25 itself that this assumption is not valid.

The respondent's argument that the non-standard glycerin used to prepare the high-moisture chewing gum in D25 would not be used in example 49 of D7 is not convincing. It is acknowledged in the declaration itself (as filed with letter of 11 May 2012) that this glycerine "is seldom used in the food industry". This clearly does not exclude this type of glycerin from being used in example 49 of D7.

A range of 0.62% to 1.1% for the water content is nowhere disclosed in D7 but in fact has been

constructed by the respondent by means of selecting two specific starting materials in D25.

XVI. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or, subsidiarily, on the basis of any of the first to seventh auxiliary requests, all filed with letter dated 5 October 2012.

XVII. The respondent requested that the appeal be dismissed as inadmissible, or, subsidiarily, that the appeal be dismissed.

Reasons for the Decision

1. *Admissibility of the appeal*

1.1 The respondent challenged the admissibility of the appeal on the ground that the notice of appeal did not meet the requirements of Rule 99(1)(b) and (c) EPC.

1.2 Rule 99(1)(b) EPC requires the notice of appeal to contain "an indication of the decision impugned". In the present case, the notice of appeal identifies the impugned decision by giving its date ("we herewith lodge an appeal against the decision dated November 17, 2010") and the number of the European patent in respect of which the decision was issued. The requirements of Rule 99(1)(b) EPC are thus met.

Rule 99(1)(c) EPC requires the notice of appeal to contain "a request defining the subject of the appeal". In the present case, the notice of appeal contains the

request for "Reversal of the decision and maintaining the patent as granted". Therefore, the requirements of Rule 99(1)(c) EPC are met as well.

1.3 The respondent basically argued that the decision of the opposition division did not address the claims as granted because the claims were amended during the course of the opposition proceedings with the proprietor filing an amended main request on 30 August 2010. Therefore, it was not possible to appeal against any decision to refuse the claims as granted since the claims as granted were not the subject of the decision.

It is true that the request contained in the notice of appeal for maintenance of the patent as granted is broader than and hence different from the main request before the opposition division. It is also correct that under certain circumstances, this may render such a request inadmissible. However, Rule 99(1)(c) EPC does not require the request defining the subject of the appeal to be admissible in order for the appeal itself to be admissible. Hence, even if the request contained in the present notice of appeal were to be indeed inadmissible, this would not entail the inadmissibility of the entire appeal.

1.4 Inadmissibility does not ensue either because an adverse effect within the meaning of Article 107 EPC is lacking. A party is adversely affected within the meaning of this Article if the decision fails to meet that party's wishes (T 244/85, OJ EPO 1988, 216, point 3 of the Reasons). The relevant issue in this respect is the difference between the formally submitted requests and the order of the appealed

decision (T 434/00 of 29 June 2001, not published in OJ EPO, point 3 of the reasons). In the present case, the appellant's main request was rejected by the opposition division and the patent was maintained on the basis of the first auxiliary request then pending before the opposition division. Hence, the opposition division did not accede to the proprietor's main request and the proprietor is thus adversely affected.

1.5 Consequently, the appeal is admissible.

2. *The claimed subject-matter*

The only independent claim of the main request is claim 1, which reads as follows:

"1. Chewing gum comprising at least one biodegradable polymer and chewing gum ingredients, said chewing gum ingredients being chosen from the groups of softeners, sweeteners, flavoring agents, active ingredients, fillers, mixtures thereof and said chewing gum containing less than 1.0 wt% water of the chewing gum, wherein the at least one biodegradable polymer comprises at least 5% of the chewing gum polymers."

3. *Admissibility of the main request*

3.1 The present main request is no longer broader than the main request before the opposition division. The question whether any request broader than the main request before the opposition division is admissible (see point 1.3 above) has thus become irrelevant.

3.2 The respondent, however, requested that the main request should not be admitted into the proceedings pursuant to Article 12(4) RPBA, because it could have already been filed in the first instance opposition proceedings. More specifically, the introduction of a lower limit with regard to the amount of biodegradable polymer in this request ("at least 5%") was a reaction to the objection raised already in the first instance proceedings that the effects aimed at in the opposed patent were not achievable for low amounts of biodegradable polymer. By introducing the lower limit into the main request only now, the appellant tried to re-open the case, which amounted to an abuse of procedure.

3.3 According to Article 12(4) RPBA, it is in the discretionary power of the board to hold (or not to hold) inadmissible a request which could have been presented in the first instance proceedings. Consequently, the mere fact that a request could have been filed in the first instance proceedings as such does not lead automatically to the inadmissibility of this request (as in this case there would be no discretionary power of the board). On the contrary, normally such a request is inadmissible only in exceptional circumstances. For example, such circumstances may arise where, by the filing of a request only at the appeal stage, a decision by the opposition division on certain issues is avoided and the decision is shifted to the second instance (this is referred to as "forum shopping" in decision T 1067/08 of 10 February 2011; not published in OJ EPO).

3.3.1 In the present case, the opposition division rejected the proprietor's main request, which covered any amount of biodegradable polymer, and allowed the first auxiliary request, which required the chewing gum polymers to consist essentially of biodegradable polymers ("substantially free of non-biodegradable polymers"). The present main request, in which the amount of biodegradable polymers has to be at least 5% of the chewing gum polymers, thus constitutes an "intermediate request" in the sense that the amount of biodegradable polymers is between those covered by the main and first auxiliary requests before the opposition division.

3.3.2 There is no reason to consider the filing of this intermediate request to be an abuse of procedure as alleged by the respondent.

First of all, as explained by the appellant, the objection that the effects aimed at in the opposed patent could not be achieved with low amounts of biodegradable polymer was raised for the first time during the oral proceedings before the opposition division (this was not disputed by the respondent). As further explained by the appellant, in reaction to this objection, it had relied on the first auxiliary request submitted prior to the oral proceedings rather than drafting a new request in the form of the present "intermediate" main request, as there was little time available during the oral proceedings. It is thus credible that it was not the appellant's intention to avoid any decision of the opposition division on the present main request.

Furthermore, the effect of filing the present main request is not that the case is re-opened in the sense that new issues arise which were not previously dealt with by the opposition division. In fact, as is clear from the main request before the opposition division, the appellant aimed throughout the entire opposition proceedings at claims that were less restricted in terms of the amount of biodegradable polymer than the first auxiliary request allowed by the opposition division. Therefore, the fact that the present main request is less restricted in terms of this amount does not raise any new issues but represents merely a continuation of the approach chosen by the appellant all through the first instance opposition proceedings.

Therefore, it cannot be argued that by means of filing this request only in the appeal a decision of the opposition division on certain issues has been avoided such that forum shopping between instances has occurred.

3.4 The main request thus is admissible.

3.5 Contrary to the respondent's view, this finding is not at variance with the decisions T 144/09 of 4 May 2011 and T 936/09 of 1 March 2012 (neither of which is published in OJ EPO). The reason for not admitting certain requests in these decisions was essentially that the proprietor had not filed any request in the first instance opposition proceedings which could have overcome the opposition division's objection and in fact had done so only in the appeal. This is clearly different from the present case, where the first auxiliary request was filed during first instance

opposition proceedings and overcame the opposition division's objection.

4. *Novelty*

4.1 The respondent attacked novelty exclusively on the basis of D6 and D7.

4.2 D6 concerns natural sweetener-containing chewing gum compositions being substantially free from water and having advantageous process characteristics and shelf life stability (column 1, lines 7-12). The chewing gum compositions have a moisture content of up to about 0.9% by weight of the final composition and comprise a gum base, a sweetening agent, a flavouring agent, and water-soluble spherical particles (claim 1).

The spherical particles of D6 are selected from the group consisting of dextrins, starch, pectin, algin, methyl cellulose, carboxymethyl cellulose, carboxymethyl amylose, carboxymethyl amylopectin, dextrose, fructose, maltose, lactose, dextrans, natural gums and mixtures thereof (claim 6 and column 4, lines 60-67).

The amount of the spherical particles in D6 is above 0.1 wt% to about 12 wt% of the final chewing gum composition (claim 4 and column 5, lines 35-38). Apart from the spherical particles, the chewing gum composition comprises a gum base (which is polymeric) in an amount of 5-65 wt% (claim 1). The amount of spherical particles, relative to the amount of chewing gum polymers, thus can be in the range of 0.15 wt% (0.1/65.1) to 70 wt% (12/(12+5)).

4.2.1 The sweeteners and flavouring agents in D6 correspond to the chewing gum ingredients of claim 1 of the main request. Moreover, the water content of up to 0.9 wt% in D6 is as required by claim 1 of the main request.

The list of materials given for the spherical particles includes biodegradable polymers such as starch as well as non-polymers such as fructose or maltose (which are mono- and disaccharides, respectively).

The amount of spherical particles in D6 (0.15 wt% to 70 wt%) partly overlaps with the range given in claim 1 of the main request for the amount of the biodegradable polymer (at least 5%).

4.2.2 In order to arrive at the subject-matter of claim 1 of the main request, a two-fold selection is necessary, namely the selection of a biodegradable polymer such as starch as the material for the spherical particles and the selection of an amount of these particles within the range covered by claim 1 of the main request. Such a double selection is not disclosed in D6.

The respondent argued in this respect that the subject-matter of claim 1 was disclosed in table 1 in conjunction with the last paragraph in column 4 and/or column 5, line 44 of D6. While it is true that compositions A, B and D in table 1 contain an amount of spherical particles within the range required by claim 1 for the amount of biodegradable polymer, the table is entirely silent on the type of material present in the spherical particles. In the same way, even though the last paragraph in column 4 and line 44

of column 5 disclose biodegradable polymers, these passages do not disclose any of the further features of claim 1, in particular the amount of biodegradable polymer. Hence, also in view of these passages of D6, a double selection is necessary in order to arrive at the subject-matter of claim 1, namely a selection of compositions A, B and D of table 1 and a selection of the biodegradable polymers disclosed in the last paragraph of column 4 or in line 44 of column 5.

4.2.3 Novelty of the subject-matter of claim 1 and, by the same token, of all the remaining claims, which are dependent on claim 1, therefore has to be acknowledged in view of D6.

4.3 D7 is directed to the use of biodegradable copolymers in a chewing gum base. In the description of D7, the water content of the chewing gum base or chewing gum composition is not disclosed. The only example which refers to a chewing gum formulation is example 49. This example discloses a chewing gum comprising glycerol triacetate, lecithin, crystalline sorbitol, mannitol, glycerin, peppermint flavours, aspartame, encapsulated aspartame, amorphous silica, polyoxyethylene (20) sorbitan monooleate and non-hydrogenated cotton seed oil together with the gum-base from example 48. The latter contains 83.25 wt% polymers, of which 20 wt% is the copolymer of example 9, which is a caprolactone/2-butyl-2-ethyl-1,3-propanediol ("BEPD") adipate copolymer.

4.3.1 The glycerol triacetate, lecithin, crystalline sorbitol, mannitol, glycerin, peppermint flavours, aspartame, encapsulated aspartame, amorphous silica,

polyoxyethylene (20) sorbitan monooleate and non-hydrogenated cotton seed oil of example 49 of D7 correspond to the chewing gum ingredients of claim 1.

The BEPD adipate copolymer corresponds to the biodegradable polymer of claim 1.

The amount of this copolymer constitutes 24.0% (20/83.25) of the chewing gum polymers. This amount is within the range covered by claim 1.

4.3.2 As acknowledged by the respondent, the water content of the chewing gum composition is not explicitly disclosed in the example. However, the respondent argued that the declaration D25 proved the claimed water content to be an implicit feature of example 49.

4.3.3 The declaration D25 refers to two experiments, in which two chewing gums are prepared, the first being a low-moisture chewing gum prepared from *inter alia* low-moisture sorbitol (0.5% water) and low-moisture glycerin (1% water) and the second being a high-moisture chewing gum prepared from *inter alia* high-moisture sorbitol (1% water) and high-moisture glycerin (5% water). The resulting low-moisture chewing gum contains 0.62% water (expected value: 0.32%) while the resulting high-moisture chewing gum contains 1.1% water (expected: 1.01%).

4.3.4 In order to show that example 49 of D7 implicitly has a water content as required by claim 1, D25 would have to prove that such a water content is the inevitable (rather than the likely) result of this example. As

will be explained below, D25 cannot establish this proof.

Firstly, the findings in D25 rest on the assumption that the only ingredients which add a significant amount of moisture to the chewing gum are sorbitol and glycerin (point 12 of the declaration). It follows, however, from the data contained in D25 itself that this assumption is not valid. More specifically, the actual water contents of the low and high-moisture chewing gums are significantly higher than those calculated on the basis of the moisture amounts of the sorbitol and glycerin alone (0.62% *versus* 0.32% for the low-moisture chewing gum and 1.1% *versus* 1.01% for the high-moisture chewing gum). The moisture present in the further starting materials thus clearly contributes considerably to the water content of the final chewing gum.

Secondly, neither the moisture content of sorbitol and glycerin, nor that of the further starting materials is disclosed in example 49 of D7. So there are choices to be made when this example is being repeated with regard to the moisture content of each of these starting materials. In D25, the respondent has merely picked two sets of starting materials out of an infinite number of starting materials and has shown that for one of these two sets of starting materials, a chewing gum with the claimed water content is obtained (low-moisture chewing gum: 0.62% water). However, the second set of starting materials chosen by the respondent, and potentially many more, leads to a water content outside the claimed range (high-moisture chewing gum: 1.1% water). Hence, D25 itself proves that example 49 of D7 may well lead

to a chewing gum with a water content outside the claimed range. The claimed water content is thus clearly not the inevitable result of this example.

4.3.5 The respondent argued in this respect that the high-moisture glycerine used for the high-moisture chewing gum in D25 was not a standard ingredient. Such a type of glycerin would therefore not have been used in example 49 of D7 and hence the water content in this example would not be as high as in the high-moisture chewing gum of D25. This argument is, however, not convincing. More specifically, it is acknowledged in the declaration itself (as filed with letter of 11 May 2012) that the high-moisture glycerine "is seldom used in the food industry" (point 10 of D25). This clearly does not exclude this type of glycerin from having been used in the food industry and by the same token in example 49 of D7.

The respondent further argued that on the basis of the results in D25, example 49 of D7 defined a range of water contents of 0.62% to 1.1% that overlapped with the claimed range and therefore was novelty-destroying. However, the board does not agree since the range of 0.62% to 1.1% is nowhere disclosed in D7 but in fact has been constructed by the respondent by means of selecting two specific sets of starting materials in D25. Consequently, no overlapping range with the water content required by claim 1 exists.

4.3.6 Novelty of the subject-matter of claim 1 and, by the same token, of all remaining claims, which are dependent on claim 1, therefore has to be acknowledged in view of D7.

5. *Inventive step*

5.1 The invention underlying the opposed patent concerns chewing gums containing biodegradable polymers which, after the chewing gum is dumped, are capable of undergoing physical, chemical and/or biological degradation whereby the dumped chewing gum waste becomes more readily removable from the site of dumping or eventually disintegrates into lumps or particles which are no longer recognisable as being chewing gum remnants (page 2, line 5 and page 5, lines 48-52).

5.2 In the respondent's view, D6 can be considered to represent the closest prior art. However, though accidentally disclosing biodegradable polymers as possible constituents of spherical particles contained in the chewing gums (see point 4.2 above), D6 does not at all address the issue of the easy removability or disintegration of discarded chewing gum. On the contrary, D6 refers to conventional chewing gum containing non-biodegradable gum base (column 6, lines 10-37). D6 therefore cannot be considered to represent the closest prior art.

Consequently, as argued by the opposition division and the appellant, D7 constitutes the closest prior art. In the same way as the opposed patent, this document is directed to chewing gums that contain a biodegradable polymer and that are degradable or easily removable from the surfaces on which they are discarded (first and last paragraphs on page 1).

5.3 The problem underlying the main request in the light of D7 is the provision of more easily removable chewing gums that have a prolonged shelf life (minimized degradation of biodegradable polymer) prior to chewing while at the same time exhibiting a faster gaining of softness during the initial chew compared to chewing gums made on the basis of conventional hydrophobic polymers (page 2, lines 11-12 and 28-30 and page 5, lines 48-52 of the opposed patent).

5.4 As a solution to this problem the patent proposes a chewing gum according to claim 1 of the main request which is characterised in that it contains at least 5% of biodegradable polymer (based on the chewing gum polymers) and less than 1.0 wt% of water (based on the chewing gum).

5.5 It has to be examined whether it is credible that this problem is solved over the entire scope of claim 1.

5.5.1 As not disputed by the respondent, at least at an amount of biodegradable polymer of 100%, the chewing gum is more easily removable after having been discarded than chewing gums based entirely on conventional polymers.

Furthermore, in example 13 of the opposed patent, two chewing gum compositions containing 100% biodegradable gum base (table on the bottom of page 8) and having a water content of 0.5% and 1.5% are stored for 0, 1, 2, 3 and 4 months and after each time period, the shelf life is characterised in terms of the texture and taste of the chewing gum (the higher the rating for texture and taste, the longer the shelf life). Table 3 of this

example shows that after a storage time of 2, 3 and 4 months, the taste and texture characteristics and hence the shelf life of the chewing gum composition with a water content of 0.5%, ie according to claim 1 of the main request, are superior to those of the chewing gum composition with a water content of 1.5%.

Finally, in examples 6-9, the speed of softening during the initial chew was tested for various chewing gums with different amounts of biodegradable polymer. It follows from these examples that the more biodegradable polymer there is present in the chewing gum, the faster the chewing gum softens during the initial chew (see concluding remark made in the examples on page 8, line 39).

The opposed patent thus contains evidence that the above problem of providing more easily removable chewing gums with a prolonged shelf life and a faster softening during the initial chew is solved.

5.5.2 However, the respondent argued that this problem was not credibly solved over the entire scope of claim 1.

(a) In the written proceedings (page 6 of the letter dated to 27 October 2011), the respondent expressed the view that an amount of 5% of biodegradable polymers would not improve the removability of the chewing gum, compared to conventional chewing gums.

It is true that in a gum base consisting of 95% of non-degradable polymers and only 5% of biodegradable polymers (the lower limit in

claim 1), only that 5% will degrade and hence only that amount will disappear after the chewing gum has been discarded. However, as has been explained by the appellant during the oral proceedings, in such a situation pores are created in the conventional chewing gum remnants which make these remnants more easily removable. Consequently, in the absence of any evidence to the contrary, it is credible that also at a level of biodegradable polymer as low as 5%, the claimed chewing gum is more easily removable than conventional chewing gums.

(b) The respondent further argued that a chewing gum containing an amount of biodegradable polymer as low as 5% is almost a conventional chewing gum. Just as a conventional chewing gum, such a chewing gum would be hard and brittle at the low water content of claim 1. Consequently the problem of achieving a faster softening during the initial chew is not solved at an amount of 5% biodegradable polymer.

However, the respondent has not provided any proof for this allegation and it is for this reason alone that its argument must fail. It is noted in this respect that the patent as granted already addressed the above problem (see page 2, lines 11-12 and 28-30) and did not restrict the amount of biodegradable polymer (claim 1). On the basis of the patent as granted, the above problem thus appears to be solved at low amounts of biodegradable polymers as well. If the respondent argues that this is not the case, it is he who has

to prove this allegation (*Qui excipit, probare debet, quod excipitur*).

Furthermore, biodegradable polymers used in chewing gum all have in common that they are hydrophilic such that they take up moisture more quickly than conventional gums (page 2, lines 28-30 of the opposed patent). Hence, if a biodegradable polymer is included in a conventional chewing gum, the water uptake becomes quicker, and faster softening upon chewing occurs. This mechanism is inherent in biodegradable polymers and therefore can be assumed to apply irrespective of the amount in which the biodegradable polymer is present in the chewing gum. Even though the effect produced in the entire chewing gum by this mechanism will certainly be less pronounced if the amount of biodegradable polymer is reduced, there is no reason to believe that it entirely disappears. Hence, contrary to the respondent's assertion, it is plausible that faster softening during the initial chew can also be obtained (even though to a lesser extent) at low amounts of biodegradable polymer.

(c) The respondent additionally argued that the chewing gums of examples 6 to 9 in the opposed patent contain 1.5% of water and hence are not according to claim 1. In the respondent's view, this meant that the conclusions drawn from these examples, namely that the more biodegradable polymer there is present in the chewing gum, the faster it softens, did not apply to the claimed chewing gums.

However, again no convincing argument, let alone proof, has been provided for this allegation. In fact, as has been set out above, it is inherent in biodegradable polymers that they soften faster than conventional gum-based polymers, and there is no reason to believe that this mechanism no longer applies if the water content in examples 6 to 9 is reduced to that required in the claims.

(d) The respondent finally argued during the oral proceedings that the effects aimed at in the opposed patent, ie prolonged shelf life and faster softening, would not be obtained with any type of biodegradable polymer as covered by claim 1.

No proof has been provided by the respondent for this allegation either, however, and the board does not see any reason why the above-explained mechanism should not apply to different types of biodegradable polymers.

5.5.3 Consequently, the above problem, ie the provision of more easily removable chewing gums with prolonged shelf life and faster softening during the initial chew, must be considered to have been credibly solved over the entire scope of claim 1.

5.6 It remains to be examined whether the solution chosen in claim 1 is obvious in view of the prior art.

5.6.1 The respondent in this respect argued that this solution was known from D9.

5.6.2 The board accepts that this document teaches that the water content of the chewing gum needs to be reduced in order to prolong the shelf life of chewing gums containing moisture-sensitive ingredients (page 3, lines 22-35 and page 4, lines 16-25).

However, D9 does not refer to biodegradable polymers or the problem of reduced shelf life caused by their presence. As was set out by the appellant during the oral proceedings, in fact neither D9 nor any of the prior art documents dealing with biodegradable polymers appreciate that shelf life stability and hence degradation prior to chewing is a problem if biodegradable polymers are present. The skilled person reading D9 would thus not have had any reason to reduce the water content in the biodegradable chewing gum of D7.

Furthermore, the skilled person would have expected that the chewing gum would be hard and brittle at a low water content such that the initial chew would not be acceptable. More specifically, it is disclosed in D9 itself (page 2, lines 1-3) that "[i]t is generally thought that conventional moisture levels of 2% to 6% are required to maintain a flexible chewing gum texture". In order to tackle this problem, D9 proposes a specific plasticiser. The skilled person would thus not only have had no reason to apply the teaching of a reduced water content in D9 to the biodegradable chewing gums of D7 but in fact would have been deterred from doing so.

5.6.3 The respondent argued that in view of column 4, line 68 to column 5, line 4 of D6, it was obvious that

biodegradable polymers absorb moisture and lead to fast softening. The skilled person would thus have known that if the water content in example 49 of D7 is reduced, fast softening could still be achieved due to the presence of the biodegradable polymer.

The respondent, however, misinterprets the above passage of D6, which reads as follows:

"The fine, porous nature of the spherical particles immediately absorb moisture from saliva when the chewing gum product is masticated. The particles swell and import juiciness to the gum."

Hence, it is the fine porous nature of the spherical particles rather than the material of which they are composed (which does not necessarily have to be a biodegradable polymer, see point 4.2.1 above) that leads to the absorption of moisture and the juiciness of the gum.

It can thus not be deduced from D6 that faster softening can be obtained at low water contents when biodegradable polymers are present in the chewing gum.

5.6.4 Consequently, the claimed solution is not obvious in view of D7 in combination with D9 and optionally D6.

5.7 Therefore, the subject-matter of claim 1 and, by the same token, of all the remaining claims, which are dependent on claim 1, is inventive.

6. No further objections were raised by the respondent and the board is satisfied that the further requirements of the EPC are also met by the claims of the main request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the opposition division with the order to maintain the patent on the basis of claims 1-52, filed as the main request with letter dated 5 October 2012, and a description yet to be adapted.

The Registrar: The Chairman:

M. Canueto Carbajo W. Sieber