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**Datasheet for the decision  
of 25 October 2007**

**Case Number:** T 1214/05 - 3.3.09

**Application Number:** 95202759.7

**Publication Number:** 0711506

**IPC:** A23G 3/30

**Language of the proceedings:** EN

**Title of invention:**

Polyester or polycarbonates as gum base for chewing gum

**Patentee:**

TATE & LYLE PUBLIC LIMITED COMPANY

**Opponent:**

Gumlink A/S

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 54, 56, 83, 111(1), 123

**Keyword:**

"Documents filed with the grounds of appeal - partly admitted"

"Remittal for further prosecution - no"

"Sufficiency - yes"

"Main request: novelty - no"

"First auxiliary request: added subject-matter - yes"

"Second auxiliary request: novelty - yes inventive step - yes"

**Decisions cited:**

T 1002/92, T 0966/95

**Catchword:**

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Case Number: T 1214/05 - 3.3.09

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.09  
of 25 October 2007

**Appellant:**  
(Opponent)

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**Respondent:**  
(Patent Proprietor)

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**Decision under appeal:**

Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
15 July 2005 concerning maintenance of European  
patent No. 0711506 in amended form.

**Composition of the Board:**

**Chairman:** P. Kitzmantel  
**Members:** J. Jardón Álvarez  
W. Sekretaruk

## Summary of Facts and Submissions

I. The grant of European patent No. 0 711 506 in respect of European patent application No. 95202759.7 in the name of Hycail B.V. (now Tate & Lyle Public Limited Company), which had been filed on 13 October 1995, was announced on 23 April 2003 (Bulletin 2003/17) on the basis of 8 claims. Independent Claims 1 and 8 read as follows:

"1. A biodegradable, *i.e.* degradable in the environment, chewing gum comprising one or more conventional chewing gum components and as gum base at least one biodegradable polymer selected from the group of polyesters and polycarbonates, which polymer has a glass transition temperature of at most 37 °C, and which polymer contains in the polymer chain chemically unstable compounds which can be broken under the influence of light and/or hydrolytically.

8. Use of at least one biodegradable polymer containing chemically unstable compounds in the polymer chain and having a glass transition temperature of at most 37 °C, which polymer is selected from the group of polyesters and polycarbonates, as gum base of chewing gum."

Claims 2 to 7 were dependent claims.

II. A Notice of Opposition was filed against the patent by Gumlink A/S on 23 January 2004. The Opponent requested the revocation of the patent in its full scope on the grounds of Article 100(a) EPC (lack of novelty and inventive step) and Article 100(b) EPC (insufficient disclosure).

In the course of the opposition proceedings were cited, *inter alia*, the following documents:

A3: US - 4 525 363;

A7: US - 4 731 435 and

A8: English translation of JP - 48-19950

III. By its interlocutory decision announced orally on 7 June 2005 and issued in writing on 15 July 2005, the Opposition Division held that the grounds for opposition raised by the Opponent did not prejudice the maintenance of the patent in amended form.

This decision was based on an amended set of claims filed by the Patent Proprietor during the oral proceedings. Claims 1 to 7 were identical to the granted claims and Claim 8 was amended to read as follows:

"8. Use of at least one biodegradable polymer containing chemically unstable compounds in the polymer chain and having a glass transition temperature of at most 37 °C, which polymer is selected from the group of polyesters and polycarbonates, as gum base of biodegradable chewing gum."

The Opposition Division found that the subject-matter of the main request met the requirements of Articles 83 and 54 EPC because (i) the Opponent had failed to provide evidence showing that the invention could not

be worked over the entire claimed scope, and (ii) none of the prior art documents disclosed a chewing gum wherein the conventional elastomers had been replaced by biodegradable polymers.

Concerning inventive step, the Opposition Division considered the technical problem to be solved to be to provide chewing gums which do not pollute the environment. The Opposition Division acknowledged an inventive step because neither A7 nor A3, either alone or in combination, would lead to the invention, A7 not disclosing any genuine chewing gum composition, and A3 being devoid of any suggestion to replace conventional chewing gum elastomers by biodegradable materials.

- IV. On 16 September 2005 the Opponent (Appellant) lodged an appeal against the decision of the Opposition Division. The appeal fee was paid on 15 September 2005.

In the Statement of Grounds of Appeal filed on 24 November 2005, the Appellant requested the revocation of the patent in its entirety on the grounds that the invention as defined in the claims approved by the Opposition Division was not disclosed in the patent specification in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art, contrary to Article 100(b) and 83 EPC; was not novel, contrary to Article 100(a) and 54 EPC; and did not involve an inventive step, contrary to Article 100(a) and 56 EPC.

The Appellant also filed the following new documents:

A10: US - 2 007 965;

A11: US - 2 353 927;

A12: US - 2 635 964;

A13: "Biodegradable Polymers and Packaging", Ed. By Ch. Ching, D.L. Kaplan & E.L. Thomas; Technomic Publishing Company Inc., 1993, pages 28 - 31;

A14: D.W. Grijpma *et al.*, "High molecular weight copolymers of L-lactide and  $\epsilon$ -caprolactone as biodegradable elastomeric implant materials"; Polymer Bulletin 25, 327 - 333 (1991);

A15: D.W. Grijpma *et al.*, "(Co)polymers of L-lactide, 1, Synthesis, thermal properties and hydrolytic degradation"; Macromol. Chem. Phys., 195, 1633-1647 (May 1994);

A16: Experimental report concerning preparation and testing polymers from examples 3, 4 and 12 of US - 2 007 965 (A10);

A17: Excerpt from "Hawley's Condensed Chemical Dictionary", 11<sup>th</sup> ed., Van Nostrand Reinhold Company, New York, 1987; page 564, definition of glass transition temperature; and

A18: Excerpt from Malcolm P. Stevens: "Polymer Chemistry - An Introduction", 2<sup>nd</sup> ed., Oxford University Press, 1990, Table 3.2.

V. By letter dated 10 June 2006, the Respondent (Patent Proprietor) disputed all the arguments submitted by the

Appellant and requested that the appeal be dismissed and the patent be maintained with the claims in accordance with the decision of the Opposition Division (main request).

The Respondent further filed sets of claims for nine auxiliary requests and the following documents:

A19: International Standard, ISO 472:1988 "Plastics - Vocabulary", 15.12.1988;

A20: International Standard, ISO 472:1988 "Plastics - Vocabulary. Amendment 3: General terms and terms relating to degradable plastics, 1.12.1993;

A21: Organic Chemistry by John McMurry, Brooks/Cole Publishing Company, 1984, pages 780 - 801;

A22: ASTM Standards: D 5247-92 "Standard Test Method for Determining the Aerobic Biodegradability of Degradable Plastics by Specific Microorganisms", published July 1992;

A23: ASTM Standards: D 5526-94 "Standard Test Method for Determining Anaerobic Biodegradation of Plastic Materials Under Accelerated Landfill Conditions", published May 1994;

A24: ASTM Standards: D 5510-94 "Standard Practice for Heat Aging of Oxidatively Degradable Plastics", published April 1994 and

A25: ASTM Standards: D 5272-92 "Standard Practice for Outdoor Exposure Testing of Photodegradable Plastics", published September 1992.

- VI. On 16 May 2007 the Board dispatched a summons to attend oral proceedings. In a communication dated 14 August 2007 the Board drew the attention of the parties to the points to be discussed during the oral proceedings.
- VII. During the oral proceedings held on 25 October 2007, the Respondent withdrew its previous first, third, fourth and fifth auxiliary requests and maintained as its only auxiliary requests the previous second and sixth auxiliary requests, now renamed as first and second auxiliary requests.

Claim 1 of the first auxiliary request, filed as second auxiliary request with letter dated 10 June 2006, reads:

"1. A biodegradable, i.e. degradable in the environment, chewing gum comprising one or more conventional chewing gum components and as gum base at least one biodegradable polymer selected from the group of polyesters and polycarbonates, which polymer has a glass transition temperature of at most 37 °C, and which polymer contains in the polymer chain chemically unstable compounds which can be broken under the influence of light and/or hydrolytically; in which at least one biodegradable polymer selected from the group of polyesters and polycarbonates is a polyester, based on one or more cyclic esters, such as lactide, glycolide, TMC and epsilon-caprolactone."



Claim 1 of the second auxiliary request, filed as sixth auxiliary request with letter dated 10 June 2006, reads:

"1. A biodegradable, i.e. degradable in the environment, chewing gum comprising one or more conventional chewing gum components and as gum base at least one biodegradable polymer selected from the group of polyesters and polycarbonates, which polymer has a glass transition temperature of at most 37 °C, and which polymer contains in the polymer chain chemically unstable compounds which can be broken under the influence of light and/or hydrolytically; in which said biodegradable polymer selected from the group of polyesters and polycarbonates is a polyester, based on one or more cyclic esters, such as lactide, glycolide, TMC and epsilon-caprolactone."

VIII. The arguments presented by the Appellant in its written submission and at the oral proceedings may be summarized as follows:

- The Appellant questioned the sufficiency of the patent's disclosure arguing that it did not contain any information about the nature of the "chemically unstable compounds which can be broken under the influence of light and/or hydrolytically" and that the specification did not include any test to check if a given polymer was biodegradable or not. Outside the polymers mentioned on paragraphs [0006] and [0007] of the specification, the skilled person was not given any information about potential candidates. The skilled person would have to rely on undue trial-and-error experimentation to determine whether

a particular polymer was covered by the claimed invention.

- The Appellant further contested the novelty of the subject-matter of Claim 1 of the main request having regard to the disclosures of A3, A8, A10, A11 and A12. In its opinion the wording of the claims did not exclude the presence of non biodegradable components in the gum base making the disclosure of A3 and A8 novelty destroying. Furthermore the reworking of the examples of A10 clearly showed that the polymers used there fulfilled the requirements of biodegradability and glass transition temperature of the claimed invention.
  
- Concerning the second auxiliary request, the Appellant did not have any novelty objections against its subject-matter but argued that it did not involve an inventive step. Starting from A10, which disclosed a biodegradable polyester for use in chewing gums as closest prior art, the Appellant saw the technical problem to be solved by the patent as being the provision of alternative chewing gums comprising biodegradable polymers other than those disclosed in A10. In its view, the claimed solution did not involve an inventive step because the polymers used according to the patent were already well known for their biodegradability.

IX. The Respondent essentially argued as follows:

- The requirement of sufficiency was fulfilled, since, as confirmed by the newly filed documents A19 to A25, the term "(bio)degradable in the environment" as

well as the corresponding standard tests were well known to a person skilled in the art, and because this person was also aware of the structural moieties providing this property.

- The Respondent criticized the filing of eight further documents and of a new experimental report for the first time in the appeal proceedings. This resulted in an entirely new case putting the Respondent in the detrimental position of having to defend the patent against an entirely new attack. It considered such filing as constituting an abuse of the proceedings and requested that these materials be not admitted into the proceedings. In any case, in its opinion none of these documents was *prima facie* sufficiently relevant to justify its admission.
  
- The Respondent also requested that, in the event that the newly filed documents were admitted into the proceedings, the case be remitted to the Opposition Division for further prosecution, in order not to deprive the Respondent of a hearing at two levels.
  
- Concerning novelty, the Respondent considered the scope of Claim 1 as being limited to biodegradable chewing gums wherein "the gum base comprises only biodegradable polymer(s), and no non-degradable elastomers". Consequently, documents A3, A8 and A12, which included the use of conventional elastomers, were not novelty destroying. Concerning A10 and A11, the Respondent pointed out that it was not clear if the ester polymers therein disclosed were indeed biodegradable and criticized the fact that the

experiments of A16 were carried out under conditions different from those of the examples they purported to repeat.

- Concerning inventive step, the Respondent saw the objective problem as being the provision of chewing gum formulations that lessen the burden for the environment, a problem that by itself was inventive and for whose solution the available citations did not provide any clue.
- X. The Appellant (Opponent) requested that the decision under appeal be set aside and that the European patent No. 0 711 506 be revoked. It further requested that documents A10 to A18 be admitted into the appeal proceedings and the Respondent's request for remittal to the Opposition Division be rejected.

The Respondent requested that the appeal be dismissed (main request), or alternatively, the patent be maintained on the basis of the second auxiliary request (in the oral proceedings auxiliary request 1) or auxiliary request 6 (in the oral proceedings auxiliary request 2) filed with letter dated 10 June 2006. It further requested that documents A10 to A18 be not admitted into the proceedings and - in case they were admitted - remittal to the Opposition Division.

## **Reasons for the Decision**

1. The appeal is admissible.

2. *Procedural matters*

2.1 *Documents not submitted in due time - Documents A10 to A18.*

2.1.1 According to the established practice of the Boards of Appeal, the decision whether or not a late filed document should be admitted into the proceedings falls under the discretion of the deciding body. This discretion is to be exercised having regard to *inter alia* the stage of the proceedings, the degree of relevance of the document and whether the party attempting to introduce it has acted in good faith.

In the present case documents A10 to A18 were filed with the Statement setting out the Grounds of Appeal, giving the Respondent enough time to study them and to comment on them, which it did in an exhaustive way. Moreover there is no indication on file suggesting any abusive conduct, the purpose of the late filing being to supplement the case lost before the Opposition Division. In these circumstances, the admittance of these documents depends essentially on their relevance. As to the degree of relevance required for a document to be admitted into the proceedings at a late stage, in accordance with the established case law of the Boards of Appeal such material should be *prima facie* highly relevant in the sense that it can reasonably be expected to change the eventual result and is thus highly likely to prejudice the maintenance of the European patent (see T 1002/92, OJ EPO 1995, 605, Reasons, point 3.4).

2.1.2 Document A10 relates to edible synthetic resins especially adapted for utilisation in *inter alia* chewing gum compositions. The resins are made from polyhydric alcohols such as diethylene glycol and polybasic acids such as malic acid (see page 1, left column, lines 1 - 8; see also Claim 1). Although this document is silent about the glass transition temperature and the biodegradability of the polyesters therein obtained, it appears, in view of the nature of the starting materials used for their preparation and the repetition of some examples of the document by the Appellant (see test report A16), that there are strong reasons to believe that this document is highly relevant and could prejudice the maintenance of the patent (see also below, point 4.3).

For these reasons A10, as well as the test report A16, are admitted into the proceedings.

2.1.3 The resins disclosed in A11 are the product of a polyhydric alcohol and a maleic adduct of an unsaturated cyclic material, eg unsaturated terpene (see Claims 1 and 3), its nature not being clearly described, and the chewing gums disclosed in A12 possibly including conventional (non-biodegradable) elastomers (see last paragraph of column 3). Documents A11 and A12 are therefore not more relevant for the claimed subject-matter than documents A10 and A3 already in the proceedings and there is no need to admit them into the proceedings.

2.1.4 Documents A13 - A15, A17 and A18 relate to general technical knowledge of the person skilled in the art with regard to biodegradable polymers. As this general

technical knowledge was not disputed by the parties, there is also no reason to admit these documents into the proceedings.

2.2 *Remittal (Article 111(1) EPC)*

2.2.1 Owing to the introduction of A10 into the proceedings the factual framework of the case has changed since the delivery of the contested decision. The Board has then to consider whether to remit the case to the Opposition Division, as requested by the Respondent, or not.

2.2.2 Under Article 111(1) EPC, the remittal of the matter to the first instance division for decision is within the discretion of the Board. Parties do not have a right to have each issue decided at two levels (see, for instance, Decision T 966/95, of 24 March 1999, not published in the OJ EPO, reasons 2.2).

2.2.3 In the present case, the Board considers that remittal is not appropriate, essentially because (i) it would delay the proceedings such that the final decision would be reached nearly at the end of the patent's life, possibly even after its expiration, the filing date of the present patent being October 1995, (ii) the Respondent has had the opportunity to fully present its arguments in respect of the newly filed evidence and has availed itself of this opportunity, and (iii) no particular reason relating to possible further procedural steps was given by the Respondent as justifying the need for remittal (e.g. it was not said that it needed to file further evidence which required more time for preparation).

2.2.4 Accordingly, the Board decides not to remit the case to the Opposition Division for further prosecution, but to decide the case itself under Article 111(1) EPC.

#### **MAIN REQUEST**

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

3.1 The Appellant did not dispute that the working examples in the patent indicate one way of carrying out the invention, but argued that the requirements of Article 83 EPC were not fulfilled essentially because the specification did not mention any test method to establish if a polyester or polycarbonate was biodegradable or not. In its opinion the skilled person was not given any information about how to work out other potential candidates to be used as biodegradable polyesters or polycarbonates.

3.2 The Board cannot accept this argument of the Appellant. As pointed out by the Respondent, the term "biodegradable" is explained in the patent as "degradable in the environment". It is also well known to the skilled person that biodegradable polymers are polymers which on disposal are designed to degrade by the action of living microorganisms. Although the specification is silent about the specific method to be used to determine if a polyester or polycarbonate is biodegradable, there is a range of international standard and test methods developed specifically for biodegradability, for instance the test methods established by the American Society for Testing and materials (ASTM-standard test methods have been provided by the Respondent, see A22 - A25), or the



International Standards Organisation, ISO. By applying these known test methods as well as others the skilled person can without undue experimentation establish if a given polyester or polycarbonate is biodegradable or not.

3.3 This finding is in fact confirmed by the experimental evidence submitted by the Appellant itself which showed that there was no problem in testing the biodegradation properties of the polymers synthesised following the teaching of A10 using a standardised composting method (see A16, page 2 and Appendix B, "Foil Compost Testing"). Moreover, the Appellant, which has the burden of proof in this respect, did not provide any experimental evidence showing that any embodiment covered by the scope of the claims could not be carried out by the skilled person.

3.4 For these reasons the Board is satisfied that the requirements of Article 83 EPC are fulfilled.

4. *Novelty (Article 54 EPC)*

4.1 The novelty of the subject-matter of Claim 1 of the main request has been contested by the Appellant having regard to the disclosures of A3, A8 and A10 (read in conjunction with the experimental report A16).

4.2 Documents A3 and A8 disclose chewing gums bases comprising both biodegradable and non-biodegradable polymers (see A3, column 4, lines 18 - 24 and A8, Claim 1).

As compared thereto, the gum base of present Claim 1 comprises only biodegradable polymers (cf. Claim 1, "A biodegradable chewing gum comprising ... as gum base at least one biodegradable polymer selected from..."; see also paragraphs [0003] and [0004] of the specification). Consequently, the disclosures of A3 and A8 do not anticipate the subject-matter of Claim 1.

- 4.3 Document A10 discloses edible synthetic resins made from polyhydric alcohols such as glycols and glycerol and polybasic acids such as malic acid, which are intended to be incorporated into chewing gum compositions to replace chicle (see Claims 1 to 8). In the examples, a hydroxy polycarboxylic acid is condensed with a polyhydroxyalcohol at high temperatures to obtain polyester.

Although A10 is silent about the properties of the polyesters therein prepared, it can be expected that said polyesters show a glass transition temperature below 37 °C because they are used as chicle replacement and a higher Tg would result in a useless chewing gum since the polymer would not be plastic.

Moreover, the polyester obtained are aliphatic polyesters and they are expected to be readily biodegradable because, as admitted by the Respondent during the oral proceedings, aliphatic polyesters are less resistant to microbial attack as compared to aromatic polyesters, which are known to be more resistant to microbial attack.

- 4.4 In order to confirm that the polyesters used in A10 fulfil the requirements of Claim 1 of the patent in

suit the Appellant prepared the polymers of examples 3, 4 and 12 of A10. The results as reported in A16 confirm that the polyesters of A10 are biodegradable as they all disintegrated within three days and have in all cases a Tg of below 37 °C (see experimental report A16).

- 4.5 The Respondent contested the accuracy of the test report A16 as showing that the polyesters of A10 actually were biodegradable. It pointed out that the experiments as repeated by the Appellant were carried out at lower temperatures than those actually used in A10 and it was of the opinion that the different conditions employed by A10 as compared with A16 would lead to a major difference in the molecular weights and degree of cross-linking of the resulting polymers. In its opinion A16 could not give any information about the biodegradability of the genuine products of A10.
- 4.6 The Board finds these arguments unconvincing. While it is true that the reaction conditions are not exactly the same, it is noted that an exact repetition of the experiments of A10 is not possible as some of the reaction conditions are not given in the document (for instance the reaction time). In any case the repetition of at least example 4 of A10 was carried out properly and with the correct amount of reactants and at a temperature only slightly below of the temperature used in A10 (200 °C instead of 220 - 240 °C) and resulted in a polymer having a Tg of 1 °C and being biodegradable (see A16: the product disintegrated after two days of composting). Moreover, although the slightly higher temperature used in A10 could result in a polyester having a slightly higher degree of cross-linking, this could, in the Board's judgment, not result in any

dramatic change of properties, ie from a rapidly biodegradable to a non-biodegradable polymer.

- 4.7 For these reasons the Board concludes that the disclosure of A10 anticipates the subject-matter of Claim 1 of the main request which is therefore not novel.

#### **FIRST AUXILIARY REQUEST**

5. *Amendments (Article 123(2) EPC)*

- 5.1 Claim 1 of the first auxiliary request has been amended by addition of the wording "in which at least one biodegradable polymer selected from the group of polyesters and polycarbonates is a polyester, based on one or more cyclic esters, such as lactide, TMC and epsilon-caprolactone."

- 5.2 By this amendment the gum base of the now claimed chewing gums may comprise more than one biodegradable polymer, one of them selected from the group of biodegradable polyesters based on the specified cyclic esters referred to the amended part of the claim and one or more further polyester(s) and polycarbonate(s).

- 5.3 The Respondent acknowledged that there was no explicit disclosure for such embodiments in the application as originally filed but argued that it was supported by paragraph [0006] of the specification where reference was made to both the generic definition of the polyesters as well as to the particularly preferred cyclic ester based polyesters; in the Respondent's view, this disclosure comprised the possible presence of the

latter polyesters together with polyesters which fulfilled only the general conditions of Tg and biodegradability.

- 5.4 The Board cannot accept this argument of the Respondent. According to paragraph [0006] of the specification polyesters based on cyclic esters are the preferred biodegradable polyesters to be used for the preparation of the chewing gums but this paragraph does not address the possibility of the combination of polyesters now encompassed in the amended claim.

The fact that the subject-matter now claimed would be encompassed by the original disclosure is not sufficient to give support to an amendment under Article 123(2) EPC. For an amendment to be allowable it must be directly and unambiguously derivable from the application as filed, which is not the case here.

- 5.5 Claim 1 of the first auxiliary request therefore does not fulfil the requirements of Article 123(2) EPC.

## **SECOND AUXILIARY REQUEST**

6. *Amendments (Article 123 EPC).*

- 6.1 The subject-matter of Claims 1 and 7 of this request has been limited to chewing gums wherein the biodegradable polyester of the gum base is a polyester based on one or more cyclic esters.

- 6.2 This amendment is supported by Claim 6 of the application as originally filed (Claim 2 of the granted

version). The amendment also clearly restricts the scope of the claims.

6.3 The subject-matter of the claims of the second auxiliary request therefore fulfils the requirements of Article 123(2) and (3) EPC.

7. *Novelty (Article 54 EPC)*

7.1 As pointed out under point 6.1 above, the chewing gums now claimed comprise as gum base a polyester based on one or more cyclic esters. Such polyesters are not covered by the disclosure of A10. The claimed subject-matter is therefore novel with respect to this document.

7.2 As the Appellant raised no objections to the novelty of the second auxiliary request no further comments are needed.

8. *Inventive step (Article 56 EPC)*

8.1 According to the established practice of the Boards of Appeal, the determination of the objective technical problem to be solved should normally take account of the problem acknowledged in the contested patent.

8.2 Closest prior art

8.2.1 The patent in suit relates to a chewing gum formulation having improved properties with regard to degradability.

8.2.2 It is well known that chewing gum gives rise to a certain amount of environmental pollution inasmuch as it is very difficult to dispose of in an

environmentally friendly way after use without special precautions being taken. According to paragraph [0002] of the description it had already been suggested that some components of the chewing gum be replaced by components that are either taken up by the user during chewing or have a less poor biodegradability than the components conventionally used. However the problems inherent in the use of conventional, synthetic elastomers remain.

8.2.3 It is also not disputed that in modern chewing gum bases natural rubber is not used at all, or only in small amounts, and that it has been replaced by synthetic elastomers such as butadiene-styrene rubber, polyethylene and polyvinylacetate (see for instance, A3, column 1), that is to say, non biodegradable elastomeric components.

8.2.4 In contrast to this background prior art, the Appellant relies on A10 as the closest prior art because it includes a biodegradable polyester component as gum base of a chewing gum (see point 4.3 above).

In the Board's judgment, the Appellant's approach to assessment of inventive step when starting from A10 is flawed, because this document does not address the objectives of the claimed invention, but rather seeks to provide resins which are suitable for ingestion (see. page 1, left column, lines 21 -25), the main aim of A10 being that the employed resins are free from any unpleasant or toxic actions on the human body (see page 1, right column, lines 25 - 27). The unsuitability of A10 as starting point for the assessment of inventive step when considering the technical problem

referred to above is furthermore conspicuous in view of A10's age, having been published on 1935, a time where environmental problems of this kind were of no concern.

Thus, since A10 does not relate in any way to the preparation of chewing gums which are biodegradable after use, it does not qualify as closest prior art document.

8.2.5 In the Board's judgment, therefore, the commercially available chewing gums based on conventional non-degradable synthetic elastomers as gum base component represent the closest prior art for the assessment of inventive step of the present subject-matter.

8.3 The objective problem to be solved and its solution.

8.3.1 The technical problem to be solved by the patent in relation to said prior art can thus be formulated as being the provision of alternative chewing gums which do not suffer from the pollution difficulty referred to above.

8.3.2 This problem is solved by the chewing gums according to Claim 1, wherein the conventional non-degradable elastomers have been replaced by biodegradable polyesters based on one or more cyclic esters.

The chewing gums thus obtained are said to have chewing gum characteristics comparable to that of conventional chewing gum (see Example 3). Moreover they can be easily removed from stones due to their comparatively slight adhesion to stone and smooth surfaces (see paragraph [0009]).



8.3.3 The Board is thus satisfied that the above mentioned problem has been credibly solved by the measure taken. This finding was not contested by the Appellant.

#### 8.4 Obviousness

8.4.1 It remains to be decided whether, in view of the available prior art documents, it would have been obvious for the skilled person to solve this technical problem by the means claimed, namely by using as gum base at least one biodegradable polyester based on one or more cyclic esters.

8.4.2 There is no hint to this solution in the available prior art. The documents dealing with conventional chewing gums do not suggest that biodegradable polyesters could be used as replacement for such non-biodegradable elastomers. Also A10, which uses biodegradable polyesters, gives no hint that the polyesters now used could be used to solve the problem underlying the patent in suit, essentially because A10, as explained above deals with a very different problem.

8.4.3 Neither does the fact that the biodegradable properties of the polyesters used were already known give any hint at the claimed chewing gums because the known uses of these polymers, as implant materials or for packaging, relate to very different technical fields requiring different properties. The skilled person would not find any information in the prior art as to how to solve the above mentioned problem and consequently the claimed subject-matter involves an inventive step.

8.4.4 Thus, the finding that conventional non-biodegradable polymers could be replaced by the biodegradable polyesters defined on Claim 1 to obtain chewing gums comparable to conventional chewing gums but biodegradable after use is not a teaching the skilled person, being confronted with the task to find a solution to the existing technical problem, would find in the available prior art.

8.5 Hence, the Board considers that, in the light of the cited prior art, it would not have been obvious to a person skilled in the art to arrive at the claimed subject-matter.

## **Order**

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

The decision under appeal is set aside.

The case is remitted to the Opposition Division with the order to maintain the European patent on the basis of Claims 1 to 7 of the second auxiliary request, filed as auxiliary request 6 with the letter dated 10 June 2006, after any necessary consequential amendment of the description.

The Registrar

The Chairman

G. Röhn

P. Kitzmantel