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D E C I S I O N
of 27 June 2003

Case Number: T 0013/00 - 3.3.2

Application Number: 85309010.8

Publication Number: 0185511

IPC: A23L 1/05

Language of the proceedings: EN

Title of invention:

Gel system

Patentee:

MARS UK LIMITED

Opponent:

Monsanto company

Headword:

Gel system/MARS

Relevant legal provisions:

EPC Art. 54, 56, 84, 88, 100, 102(1), 113(1), 123(2),(3)
EPC R. 71(2)

Keyword:

"Main request: right to priority (no)"

"Novelty (no)"

"Auxiliary request: right to priority (partial)"

"Novelty (yes) - the features of a prior patent specification as a whole do not disclose a specific, novelty-destroying example"

"Inventive step (no) - alleged advantages to which the appealing patentee refers, without offering sufficient evidence to support the comparison with the closest state of the art, cannot be taken into consideration in determining the problem underlying the invention and hence in assessing inventive step - proposed solution to the actual problem of providing further gellable compositions, in addition to those disclosed in the closest prior art, not inventive.

Decisions cited:

G 0004/92, G 0002/98, T 0341/92, T 0751/93

Catchword:

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Case Number: T 0013/00 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 27 June 2003

Appellant: MARS UK LIMITED
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Respondent: Monsanto Company
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 8 November 1999
revoking European patent No. 0185511 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: U. Oswald
Members: G. F. E. Rampold
P. Mühlens

Summary of Facts and Submissions

- I. The appellant is proprietor of European patent No. 0 185 511 ("the patent") which was granted with 12 claims on the basis of European patent application No. 85 309 010.8, filed on 11 December 1985. Claim 1 and dependent claims 5 and 10 as granted read as follows:
- "1. A gellable composition comprising a mixture of (1) gellan, (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum capable of forming a gel with xanthan gum, the gellan being present in the composition in an amount less than 50% of the total weight of the composition.
 5. A composition according to claims 1 to 4, wherein the gellan is a low acetyl gellan.
 10. A composition according to any one of claims 1 to 9, wherein the gellan and other gums are present in the composition in natural form."
- II. The legal predecessor of the current respondent (opponent) originally gave notice of opposition to the European patent granted and requested its revocation in full pursuant to Article 100(a) EPC for lack of novelty and inventive step (Articles 54 and 56 EPC) and also pursuant to Article 100(c) EPC on the ground of added subject-matter to claim 1 as granted (Article 123(2) EPC). Of the numerous documents cited during the first-instance opposition proceedings, the following are referred to in the present decision:

- (2) JP-A-5 988 051 (hereinafter in this decision reference is made to the English translation of (2) filed with the notice of opposition);
- (3) P. Kovacs, Reprint from Food Technology, 27, No. 3, 1973, pages 26-30;
- (4) Declaration by Keith Buckley, dated 17 August 1987, filed on behalf of the appellant at the USPTO during prosecution of US serial No. 903,857; filed on behalf of the respondent at the EPO on 21 November 1991 together with the notice of opposition;
- (5) Experimental report filed on behalf of the respondent on 21 November 1991 together with the notice of opposition;
- (6) EP-A-0 225 154
- (7) US serial No. 802,646 (priority document for (6))
- (8) GB 84 316 99 (priority document for the patent)
- (13) Declaration by Todd Anthony Talashek filed on behalf of the respondent on 3 April 1997, confirming that the procedures and conditions used to produce (5) conformed with those specified in (4).

III. The patent was revoked pursuant to Article 102(1) EPC by a decision of the opposition division posted on 1 June 1993. The stated ground for the revocation was that the claims as granted offended Article 123(2) EPC.

In its decision, the opposition division found that the feature in claim 1 "the gellan being present in the composition in an amount less than 50% of the total weight of the composition" had no basis in the application as originally filed.

IV. The proprietor lodged an appeal against the above decision of the opposition division (case T 751/93).

V. In its decision of 15 September 1995 in case T 751/93, Board 3.3.4 decided to set aside the decision under appeal and to remit the case to the first instance for further prosecution on the basis of claims 1 to 5 in the appellant's auxiliary request filed at the oral proceedings held on 15 September 1995 before Board 3.3.4. Claim 1 and dependent claim 3 read as follows:

"1. A gellable composition comprising a mixture of (1) low acetyl gellan, (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum capable of forming a gel with xanthan gum, the galactomannan and/or glucomannan gum being in the form of carob or cassia or konjac gum and the ratios of gellan : xanthan gum : carob or cassia or konjac gum lying in the ranges 1 : 1 to 2 : 1 to 2.

3. A composition according to claim 1 or 2 wherein the gellan and other gums are present in the composition in natural form.

VI. The patent was revoked *de novo* pursuant to Article 102(1) EPC by a decision of the opposition division which was posted on 8 November 1999 and is subject of the present appeal. The stated ground for

the revocation was that the claimed subject-matter in the patent did not meet the requirement of inventive step. The decision of the opposition division was based on claims 1 to 5 maintained by Board 3.3.4. in its decision of 15 September 1995 in case T 751/93 (see V above).

The essence of the reasoning in the opposition division's decision was as follows:

The **objections as to the clarity of claim 1** made by the opponent were said in the decision of the opposition division to concern some alleged ambiguities which were already present in the granted patent and which did not arise out of the amendments made to the claims *post* grant. In said decision it was pointed out that Article 102(3) EPC did not allow objections to be based upon Article 84 EPC if they did not arise out of the amendments made. Regarding the opponent's objection that the extent of protection was indeterminate because of a **contradiction** between the terms "**low acetyl gellan**" in claim 1 and "**gellan in natural form**" in dependent claim 3 (see V above), the opposition stated in its decision that it did not recognise the alleged contradiction and that claims 1 and 3 were, in its opinion, perfectly clear. In this respect the opposition division essentially argued that the meaning and scope of the term "low acetyl gellan" in claim 1 was well known to a person skilled in the art and that the term "gellan in natural form" used in dependent claim 3 would then be construed by a skilled person as including only gellan in the form of a "low acetyl gellan" (see Reasons, point 3).

As regards the objection of **lack of novelty** of claim 1 based on **citation (2)**, the opposition division mentioned in its decision that citation (2) taught in Example 7 on page 21 a composition comprising a tertiary mixture of (1) low acetyl gellan, (2) xanthan gum and (3) carob gum in the ratio of 2 : 1 : 1. It found, however, that this ratio was outside claim 1 and that citation (2) was therefore not prejudicial to the novelty of the claimed subject-matter in the patent.

As regards the **attack on the novelty of claim 1** on the basis of **citation (6)**, the opposition division considered that the claimed subject-matter in the patent as a whole was entitled to the priority of an earlier application, filed in Great Britain on 14 December 1984 [GB 84 316 99 - see priority document (8)] and that the content of citation (6), filed on 25 November 1986 and published on 10 June 1987, claiming priority from a prior application in the United States of 27 November 1985, was therefore not comprised in the state of the art under Article 54(3) EPC.

Concerning **inventive step**, the opposition division considered citation (2) to represent the closest state of the art. It saw the **problem to be solved** as the provision of a gellable composition comprising a ternary mixture of gellan, xanthan gum and a gum selected from carob, cassia or konjak gum which will form very strong elastic gels. According to the opposition division, the **solution to the problem** consisted (a) in choosing the particular ranges of the relative ratios specified in claim 1 for the three gum components (ie low acetyl gellan : xanthan gum : carob,

cassia or konjak gum in the ranges of 1 : 1 to 2 : 1 to 2 - see V above) and (b) in simultaneously increasing the total gum concentration in the claimed composition.

In the opposition division's decision it was stated that, although ratio of the constituents of the ternary mixture disclosed in Example 7 of citation (2) was substantially different from the ranges of the ratios claimed in claim 1, a skilled person, knowing the state of the art and being guided by the technical problem, would have readily arrived at the claimed ratios without undue burden within a reasonable number of tests.

The opposition division found that the data referred to in Table 1 of the patent and likewise the data presented in the Declaration by Keith Buckley (4) did not demonstrate any surprising increase in gel strength. In this respect it noted that in Table 1 of the patent and in the experiments presented in the Buckley Declaration (4) as well, the ratios of gellan gum : xanthan : galactomannan/glocomannan gum were varied **together** with the total gum concentration. The opposition division also noted that long before the contested patent's priority date, it was already well known in the state of the art, *inter alia* from the teaching of citation (3), that gel strength of gum combinations was a function of both the relative ratio of the various gum components and the total gum or total colloid concentration in a particular gel system. It was moreover known that gel strength increased with increasing gum concentration. In the view of the opposition division, the experiments carried out by the appellant would thus have been expected by those

skilled in the art to show an increase in gel strength. Accordingly, the claimed subject-matter in the patent lacked an inventive step.

VII. The proprietor (appellant) lodged an appeal against the decision of the opposition division by notice of 10 January 2000 and paid the appeal fee on the same date. Together with its statement setting out the grounds of appeal, filed by facsimile dated 20 March 2000, the appellant submitted again the set of claims 1 to 5, already presented in the proceedings before the opposition division (see V above), as its main request and filed an amended set of claims 1 to 4 as its auxiliary request. Claims 1 and 2 of the latter read as follows:

"1. A gellable composition comprising a mixture of (1) low acetyl gellan, (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum capable of forming a gel with xanthan gum, the galactomannan and/or glucomannan gum being in the form of carob or cassia or konjac gum, and the ratios of gellan : xanthan gum : carob or cassia or konjac gum being 1 : 1.5 : 1.5.

2. A composition according to claim 1 wherein the gellan and other gums are present in the composition in natural form."

VIII. With its reply dated 15 September 2000 to the appeal statement, the respondent filed arguments supporting its request for the appeal to be dismissed.

IX. By facsimile dated 23 June 2003, the appellant's representative informed the board that the appellant did not intend to attend or be represented at the oral proceedings, fixed for 27 June 2003. The hearing thus took place in the appellant's absence as provided for in Rule 71(2) EPC.

X. The arguments submitted by the appellant in its statement setting out the grounds of appeal may be summarised as follows:

The reasons for the opposition division's decision indicated that it was only because of a perceived lack of inventive step that it revoked the patent. In the decision under appeal, the opposition division took the view that the problem to be solved by the patent was the provision of gellable compositions comprising a mixture of gellan, xanthan gum and a gum selected from carob, cassia or konjac gum which will form very strong elastic gels. In fact, the problem solved by the claimed invention was one step back from that, namely the provision of strong elastic gellan gels, as set out on page 2, lines 15 and 16, of the patent specification. The passage referred to by the opposition division at page 2, lines 41 to 42, of the patent ("The invention is based on the invention that tertiary combinations of (1) gellan, (2) xanthan gum and (3) a galactomannan and/or glucomannan gum that will form a gel in combination with xanthan gum produce very strong elastic gels") indicated that it was the composition containing gellan, xanthan and a gum selected from carob, cassia or konjac gum which went part of the way to solving this problem; the problem

was fully solved by employing the three components in the ratios specified in claim 1.

The opposition division considered that citation (2) was the closest prior art; the appellant had no argument with this proposition, nor with the statement that (2) referred to low acetyl gellan gum. However, the appellant did not agree that (2) dealt with the same problem as the present invention. Citation (2) indicated at page 3, lines 12 to 15 that "a single gelling hydrocolloid which is simple to use and effective in many of the products in these areas would be of tremendous benefit to the food industry", and it was this which was the object of (2). Citation (2) was concerned with gellan gels and did indeed disclose the possibility of other gelling agents being included. However, (2) was not seeking to provide the strong elastic gels of the present invention, and indeed generally failed to do so; where a strong gel was provided, the strength was achieved not from the particular combination of gels employed, but by other means such as the introduction of magnesium ions. There was no suggestion in (2) that a hard elastic gel could be provided by the three-component system presently claimed. There was likewise no suggestion whatever in citation (2) that the ratios of the components should be as specified in present claim 1. Page 9 of (2) disclosed that "xanthan/LBG (locust bean gum = carob gum) could usefully be added to gellan to decrease brittleness, that is, increase elasticity. Again this indicated that the authors of (2) did not recognise the synergistic effect of the claimed invention, which provided a gel which was not only elastic but hard. This was reflected in Example 7 of (2), which disclosed

a gellan/xanthan/locust bean (2:1:1) gel. This gel was hardened by the addition of magnesium chloride. Someone seeking to make a strong elastic gel from gellan and reading citation (2) would almost certainly quickly conclude that this citation had nothing to offer.

Citation (3) had little or nothing to offer someone searching for a strong elastic gel. This citation disclosed that certain xanthan and locust bean gum mixtures showed synergism, and made it clear that they produced a soft elastic gel. Figure 2 of this citation, to which the opposition division and the respondent specifically referred showed that gel strength increased more than linearly with colloid concentration in the three gelling systems exemplified. However, the appellant disputed that this disclosure of (3) made the increase in strength exhibited by the gels of the claimed invention predictable. At the low colloid concentrations employed in the examples of the patent, the increase in gel strength achieved with the gels according to the claimed invention could not be accounted for simply by the increase in total gum (colloid) concentration.

Both documents, the Buckley Declaration (4) and the respondent's Experimental Report (5) in combination with (13) were, in the appellant's opinion, problematic. The results in Table 1 and 2 of (4) indicated a relationship between gel strength and total gum concentration which could not be accounted for simply by an increase in total gum (colloid) concentration. The results shown in (5) were in complete contrast to those achieved by the appellant. In (5) only the 25 : 75 mixture of

gellan/(xanthan/carob gum) was according to the claimed invention. Comparison of the strength figures for this blend, and indeed for the other blends, did not bear out the suggestion that the very significant increase in gel strength achieved by the invention could be accounted for solely by an increase in total gum concentration. However, the figures in (5) were so much at variance with those obtained by the appellant that it was very difficult to comment in detail on them. If conflicting evidence was brought by the parties, the benefit of doubt occasioned by conflicting experimental evidence should be given to the appealing patentee. The opposition division had accepted without question that the experimental data in (5), prepared by the respondent (opponent), were correct despite the fact that they conflicted directly with the data in the patent and in (4).

The opposition division reached the conclusion that the prior art according to (2) and (3) contained sufficient information for the skilled person to be reasonably certain that the very specific blends of colloids of claim 1 would lead to the very impressive strength and elasticity results achieved. There was, however, no evidence of this in the prior art documents, where the ratios of the blends were scarcely mentioned and, when they were, the ratios were well outside those of the claims and would appear to provide weak gels rather than the strong gels of the claimed invention.

- XI. The arguments of the respondent submitted in writing and during the oral proceedings as regards the appellant's current requests and related issues can be summarised as follows:

The respondent objected in its observations dated 26 March 1997 and in its reply dated 15 September 2000 to the statement of the grounds of appeal and again at the hearing before the board to the clarity of the amended claims of both the appellant's main request and its auxiliary request. In this respect it essentially argued that the terms "native" (see page 2, line 8, of the patent) and "natural" used in dependent claim 3 (main request) and dependent claim 2 (auxiliary request) were synonymous. It found that claim 3 in the main request and claim 2 in the auxiliary request were thus improperly dependent on claim 1 since **native (natural) gellan was fully acetylated** (see page 2, lines 9 to 10, of the patent) and **claim 1** was now restricted to **low acetyl gellan**. This latter expression was intended to mean either **wholly or partially deacetylated gellan**, ie as defined in the patent at page 2, lines 50 to 51. In view of the foregoing the respondent concluded that a contradiction existed between claim 1, on the one hand, which was clearly restricted in both requests to **low acetyl gellan gum** (thereby excluding gellan in its natural or native form), and dependent claim 3 in the main request and dependent claim 2 in the auxiliary request, on the other, which both defined the gellan gum as being in **natural** form. It was well known to a person skilled in the art and was, moreover, explicitly stated in the patent (see 2.1 above) that the natural form of gellan was a highly acetylated form. In the respondent's opinion, it was therefore unclear to the skilled person what exactly the scope of protection should be and, accordingly, the amended claims in both requests presently on file offended Article 84 EPC.

The claims under consideration **did not deserve the right to the priority** of 14 December 1984. The disclosure of the priority document (8) did not relate to cassia gum containing tertiary gum mixtures. Furthermore, the priority document did not disclose the ratio of components as defined in claim 1. The respondent could not agree with the opposition division's statement on page 5 of its decision according to which (8) disclosed the same invention, ie a preferred range similar to that in the present claims. In actual fact, all citation (8) disclosed was the broad range of 1 : 5 : 5 to 5 : 1 : 1 and the single combination ratio 1 : 1.5 : 1.5 for some gum combinations only. This could surely not generate a priority right for a newly defined range, like 1 : 1-2 : 1-2. The respondent's conclusion was that the priority document (8) did not disclose the same invention as now claimed. Insofar as the patent was not entitled to the date of priority, its actual date was the filing date of 11 December 1995. Citation (6), the content of which was comprised in the state of the art under Article 54(3) and (4) EPC, disclosed, *inter alia*, gum blends comprising gellan, xanthan and locust bean (carob) gum in ratios 1 : 1 : 1 and 1 : 2 : 2. **Claim 1 of the main request was therefore anticipated by citation (6).**

At least as far as cassia gum was concerned, claim 1 in the auxiliary request had a first date of 11 December 1985. Table 4-1 of citation (6) showed experimental data for gellan/xanthan/carob combinations in a ratio 1 : 1.5 : 1.5. Since (6) also taught on page 5 that cassia gum could be used instead of carob gum, the

subject-matter of **claim 1 in the auxiliary request was likewise anticipated by citation (6).**

Should the board nevertheless consider that the claims were entitled to claim priority and were novel for some parts at least, then the claimed subject-matter did not, in the respondent's opinion, involve an **inventive step**. The problem of the invention in relation to (2) was to provide gellable tertiary compositions of gellan gum, xanthan gum, and carob, cassia or konjac gum that form strong and elastic gels. The solution to that problem allegedly was the selection of the range of ratios claimed. Such tertiary gum combinations had already been disclosed in citation (2) prior to the priority date of the patent. This citation disclosed that adding to the gellan gum a combination of xanthan and carob gum was to be recommended when seeking to decrease brittleness, ie increase elasticity, of gellan gum gels. To the extent that the claimed ratios of the three components did not define a window of operation that involved some unexpected effects, the claimed subject-matter was not inventive, but was fully obvious in the light of the prior art. Citation (2) already taught how to improve the elasticity of brittle deacetylated gellan gels and thus guided the skilled person in the direction of the claims. Citation (3) taught in Figure 2 that the total gum concentration had an impact on gel strength. It also showed in Figure 1 how the gel strength was influenced, for instance, by the ratio of xanthan gum/carob gum.

The appellant had not demonstrated any unexpected or synergistic effect linked to the selection of the particular range of ratios claimed. The increased gel

strength shown in the Buckley Declaration (4) was clearly due to increased total gum concentration. Fine optimisation of the strength and elasticity of the tertiary combination lay within the expertise of the skilled person. The effects shown by the appellant were thus fully predictable in the light of the prior art of record. The respondent pointed out that the appellant raised doubts about the accuracy of the data presented by the respondent in its Experimental Report (5), because it was at variance with the appellant's data. The respondent's counter-argument was that it was well experienced in gum technology and that the results presented in (5) were certainly reliable. It was likely that, if experimental data were so much at variance, there must be another essential feature missing in claim 1, which made it to an even greater extent objectionable, because the technical problem was not solved over the whole range defined by the claims. Hence, the claims under consideration lacked an inventive step.

XII. The appellant requested in writing that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of claims 1 to 5, forming the basis of the decision of the opposition division, or on the basis of claims 1 to 4 in the auxiliary request filed by facsimile dated 20 March 2000.

The respondent requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.

Clarity

2. In its decision of 15 September 1995 in case T 751/93 (see especially points 4 and 5), Board 3.3.4 reached the conclusion that amended claims 1 to 5, forming the appellant's current main request, complied with Article 123(2) and (3) EPC. The board's decision did not include a finding as to whether or not the amended claims were to be considered as satisfying the requirements of clarity laid down in Article 84 EPC. In the decision under appeal the amended claims were found to meet the requirement of clarity.

- 2.1 The patent contains in the introductory portion of the description the following statements (see page 2, lines 8 to 10): "**Gellan** is commercially available both in its **native (fully acetylated) form** and in **wholly or partially deacetylated form**. For the purposes of this application [patent] the expression "**high acetyl gellan**" is used for the **fully acetylated native form** and "**low acetyl gellan**" is used for the **wholly or partially deacetylated forms**."

- 2.2 **Claim 1 as granted** related to

- a gellable composition comprising a mixture of (1) **gellan** [as this term is used in its broadest sense in the patent], (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum
(see I above);

dependent claim 10 as granted related to

- a composition according to any one of claims 1 to 9, wherein the **gellan** and other gums are present in the composition in **natural form** (see I above).

2.3 Although **claim 1 of the appellant's current main request** has been amended (restricted) so as to define the claimed subject-matter now as a gellable composition comprising a mixture of (1) **low acetyl gellan**, (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum (see V above), **dependent claim 10 as granted** has been maintained in the appellant's current main request as **dependent claim 3** reading as follows:

a composition according to claim 1 or 2, wherein the **gellan** and other gums are present in the composition in the **natural form** (see V above).

2.4 **Claim 1 of the auxiliary request** has similarly been amended (restricted) so as to define the claimed subject-matter now as a gellable composition comprising a mixture of (1) **low acetyl gellan**, (2) xanthan gum, and (3) a galactomannan and/or glucomannan gum (see VII above). Irrespective of the above amendment to claim 1, **dependent claim 10 as granted** has been maintained in the appellant's auxiliary request as **dependent claim 2** reading as follows:

a composition according to claim 1, wherein the **gellan** and other gums are present in the composition in the **natural form** (see VII above).

2.5 Although an objection under Article 84 EPC cannot in itself be a ground of opposition under Article 100 EPC, the board accepts that such an objection can be raised during opposition or opposition appeal proceedings if amendments made in those proceedings emphasise a problem of clarity.

2.6 In the present case the board finds that the contradiction to which the respondent objected (see XI above), arises out of amendments made to the claims *post grant* in both requests. Claim 1 as granted related to a gellable mixture comprising gellan (as used in its broadest sense in the patent, including both low acetyl gellan and gellan in its natural form, ie fully acetylated gellan). Dependent claim 5 as granted related to a composition **according to claims 1 to 4**, wherein the gellan is low acetyl gellan. Dependent claim 10 as granted related to a composition **according to any one of claims 1 to 9**, wherein the gellan is present in natural form. From the foregoing it follows that no contradiction between claim 1 and dependent claim 4 and/or dependent claim 10 existed in the claims of the patent as granted.

2.7 The board also agrees that the claims in both the current main request and the auxiliary request are not well drafted. However, the board considers that in the present case the above-mentioned drafting defect or inconsistency in both requests would be immediately evident to a reader skilled in the art, ie the person

to whom the patent is addressed. It is reasonable to suppose that he would, in the light of the content of the patent, attempt to formulate dependent claim 3 in the main request and dependent claim 2 in the auxiliary request as independent claims which would enable him to make sense of what he reads. The board accordingly considers the claims in both requests to be sufficiently clear that the issue of clarity was not crucial to an understanding of the other issues which are relevant to the present decision.

Priority

3. The patent was filed on **11 December 1985**, claiming priority from an earlier application filed in Great Britain on **14 December 1884** [GB 84 316 99 - see priority document (8)].
- 3.1 The priority document (8) discloses gellable compositions comprising a ternary mixture of (1) low acetyl gellan, (2) xanthan and (3) either carob gum or konjac gum; **the ratio of (1) low acetyl gellan : (2) xanthan gum : (3) carob gum or konjac gum is within the range of from 5 : 1 : 1 to 1 : 5 : 5** and particularly good gels have been found in (8) to be formed in a **ratio of 1 : 1.5 : 1.5** (see (8): especially page 2, lines 3 to 16).
- 3.2 The following examples of gellable compositions comprising a ternary mixture of (1) low acetyl gellan, (2) xanthan and (3) carob gum or konjac gum are specifically disclosed in (8):

low acetyl gellan : xanthan: carob gum **0.3 : 0.45 :**
0.45 (1 : 1.5: 1.5) - see the Table on page 4, Entry 5;

low acetyl gellan : xanthan: konjac gum **0.3 : 0.45 :**
0.45 (1 : 1.5: 1.5) - see the Table on page 5, Entry 3;

low acetyl gellan: xanthan: carob gum **0.2 : 0.3 : 0.3**
(1 : 1.5 : 1.5) - see the Table on page 6, Entry 5;

low acetyl gellan : xanthan : carob gum **0.4 : 0.3 : 0.3**
(1.33 : 1 : 1) - see the Table on page 6, Entry 6;

low acetyl gellan : xanthan : konjac gum **0.2 : 0.3 :**
0.3 (1 : 1.5 : 1.5) - see Table on page 6, Entry 8;

low acetyl gellan : xanthan : konjac gum **0.4 : 0.4 :**
0.4 (1 : 1 : 1) - see Table on page 5, Entry 9.

3.3 In decision G 2/98 (OJ EPO 2001, 413), the Enlarged Board of Appeal ruled that the requirement for claiming priority of "the same invention", referred to in Article 87(1) EPC, means that priority of a previous application in respect of a claim in a European patent in accordance with Article 88 EPC is to be acknowledged only if the skilled person **can derive the subject-matter of the claim directly and unambiguously**, using common general knowledge, from the previous application as a whole.

3.4 Closer inspection of the disclosure of the priority document (8) (see 3.1, 3.2 above) reveals that gellable compositions comprising a mixture of (1) low acetyl gellan, (2) xanthan and (3) carob (locust bean) gum in **a ratio of 1 : 1 : 1 or 1 : 2 : 2** according to present

claim 1 (main request) are neither directly and unambiguously derivable from the priority document (8) nor in any way implied by it, thus failing to meet the requirements laid down in decision G 2/98 (*loc. cit.*) for an entitlement to priority. Accordingly, the claimed gellable compositions are only entitled to the filing date of the European patent application, ie 11 December 1985.

Main request; Novelty

4. Citation (6) was filed on **25 November 1986** and **published on 10 June 1987**, claiming priority from a prior application in the United States of **27 November 1985**. Except for AT, citation (6) designates the same Contracting States as the patent and, accordingly, needs to be considered for novelty purposes (Article 54(3) EPC).
- 4.1 Citation (6) discloses, *inter alia*, gellable compositions comprising a mixture of (1) low acetyl gellan (see page 2, lines 18 to 19), (2) xanthan and (3) carob (locust bean) gum wherein the ratio of the constituents is 1 : 1 : 1 (see Example 1, Table I, Blend 8; Claim 4, Blend 8) or 1 : 2 : 2 (see Example 1, Table I, Blend 17; Claim 4, Blend 17). This disclosure in (6), ie both gum blends 8 and 17, is entitled to the priority of an earlier application in the United States of 27 November 1985 (Serial-Number 06/802,646)- see priority document (7).

More specifically, priority document (7) discloses already gellable compositions comprising a mixture of (1) low acetyl gellan (see page 2, lines 17 to 19), (2)

xanthan and (3) carob (locust bean) gum in a ratio of 1 : 1 : 1 (see pages 7 to 8, Example 1, Table I, Blend 8; page 24, Claim 4, Blend 8) and in a ratio of 1 : 2 : 2 (see pages 7 to 8, Example 1, Table I, Blend 17; page 24, Claim 4, Blend 17).

- 4.2 It follows that claim 1 lacks novelty by virtue of Article 54(3) and (4) EPC in view of the gellable compositions disclosed in (6) comprising the specific gum blends 8 or 17 - see 4 and 4.1 above. Claims 2 to 5 of the main request fall with claim 1, since the board can only decide on the request as a whole. The appellant's main request must therefore be refused.

Auxiliary request

5. There are no formal objections, under Article 123 EPC, to the claims in accordance with the auxiliary request since the set of claims 1 to 4 is adequately supported by the original disclosure and does not extend the scope of protection conferred.

Novelty

6. Closer inspection of the content of the priority document (8) (see 3.2 above) makes it clear that gellable compositions comprising a mixture of (1) low acetyl gellan, (2) xanthan gum and (3) either carob or konjac gum in a ratio of 1 : 1.5 : 1.5 according to present claim 1 are undoubtedly disclosed in (8) and therefore entitled to claim priority from the priority document (8). The board agrees, however, with the respondent's finding that the disclosure of the

priority document (8) does not relate to cassia gum containing ternary gum mixtures.

- 6.1 Citation (6) discloses in Example 1, Table I (Blend 9) on pages 7 and 8 and in Table 2-1 (Entry 7) on page 10, gellable compositions comprising a mixture of **(1) low acetyl gellan, (2) xanthan gum and (3) locust bean (carob) gum** in a ratio of **0.66 : 1 : 1** corresponding to a ratio of **1 : 1.5 : 1.5**.

Citation (6) teaches on page 5, lines 21 to 23, in general terms that "in place of locust bean gum (carob) **or** tara gum **either** cassia gum **or** konjac gum may be used on a weight-for-weight basis. The respondent argued during the hearing that the specific examples in Table I (Blend 9) and Table 2-1 (Entry 7) must be read in conjunction with the above-mentioned general teachings in lines 21 to 23 on page 5 of citation (6) as an overall disclosure which would then anticipate, in the respondent's opinion, a gellable composition comprising a mixture of (1) low acetyl gellan, (2) xanthan gum and (3) cassia gum in a ratio of 1 : 1.5 : 1.5 and, accordingly, the subject-matter of claim 1, because ternary gum mixtures containing cassia gum are not entitled to the priority date.

- 6.2 The board does not share this view. In accordance with the boards' established case law, the disclosure of a patent specification forms part of the state of the art under Article 54(2) or (3) EPC only as regards to those elements which the person skilled in the art would incontestably infer from the document as a whole (see eg Case Law of the Boards of Appeal, I.C.2.2, 4th edition 2001).

The general teaching in (6) that within the framework of the disclosure in the cited document in place of **either one** of locust bean (carob) gum **or** tara gum **either one** of cassia gum **or** konjac gum may be used, ie the teaching that one variable parameter may be replaced by another variable parameter, means nothing other than the disclosure of a generically defined, broad **range of different gum blends**. Replacement of the locust bean (carob) gum component in Blend 9 or in the composition of Entry 7 in Table 2-1 of (6) specifically with cassia gum so as to arrive at a composition of (1) low acetyl gellan, (2) xanthan gum and (3) cassia gum, wherein the ratio of the constituents is 1 : 1.5 : 1.5, would represent only one arbitrarily selected embodiment from the whole range of different possibilities envisaged in citation (6) which is neither directly and unambiguously derivable from the disclosure of this citation nor in any way implied by it. It follows therefrom that the subject-matter of claim 1 cannot be said to be anticipated by the state of the art according to citation (6). Novelty of the claimed subject-matter in the auxiliary request within the meaning of Article 54(1) EPC is therefore acknowledged.

Inventive step

7. There was general agreement that citation (2) constitutes the closest prior art under Article 54(2) EPC in the light of which the problem to be solved by the claimed invention has to be determined. Citation (2) discloses various applications of low acetyl gellan food gel systems and teaches in this context ways to

alter both the hardness (gel strength) and brittleness (a measure of the amount of deformation a gel will tolerate before breakage) of deacetylated gellan gum gels (see especially the last three lines on page 8 and page 9).

Citation (2) already teaches that adding to the low acetyl gellan gum a combination of xanthan and carob gum as additional gum components is to be recommended when seeking to decrease the brittleness, ie increase, the elasticity, of gellan gum gels (see page 9, lines 28 to 29). This teaching is exemplified in Example 7 on page 21 of (2) which describes a gellable composition comprising a mixture of (1) low acetyl gellan, (2) xanthan gum and (3) locust bean (carob) gum wherein the ratio of the constituents is **2 : 1 : 1**. Hence, the only difference between the gellable composition disclosed in Example 7 of (2) and the one claimed consists in a modification of the relative ratio of the three constituents which is **1 : 1.5 : 1.5** in present claim 1.

7.1 As regards the problem underlying the patent in suit, the appellant referred in the proceedings before the opposition division and again in its statement of grounds of appeal to an additional advantage allegedly associated with the proposed modification of the state of the art, namely that the claimed relative ratios of the constituents in the patent provide a gel which is not only elastic but hard in the sense that it exhibits improved gel strength in comparison with gels disclosed in (2). This alleged advantage over the closest state of the art according to (2) is said to be proved by the results of the comparative tests in Tables 1 and 2 of

the patent and in the experiments conducted in the Buckley Declaration (4) and reported in Table 2 thereof.

7.2 The board concurs with the opinion of the opposition division in the decision under appeal that, contrary to the submissions of the appellant, the results of the comparative tests mentioned above are not pertinent, since in all these tests the ratios of gellan gum : xanthan gum : carob or cassia or konjac gum vary **together** with the total gum concentration which is progressively increased. According to Table 2 in the Buckley Declaration (4) a series of tests was carried out by progressively adding increasing amounts of a 50 : 50 mixture of xanthan gum and locust bean (carob) gum to 0.3% low acetyl gellan, thereby simultaneously increasing the total gum concentration and lowering the gellan gum ratio. For example, in Table 2 of (4) the properties of a gellable composition comprising only **0.6% by weight** of a mixture of (1) low acetyl gellan, (2) xanthan gum and (3) locust bean (carob) gum, wherein the ratio of the constituents is 2 : 1 : 1 in accordance with the disclosure in Example 7 of citation (2)(see (4): Table 2, Entries 2 and 8), are compared with those of a gellable composition comprising the **double amount of 1.2% by weight** of the mixture of (1) low acetyl gellan, (2) xanthan gum and (3) locust bean (carob) gum, wherein the ratio of the constituents is 1 : 1.5 : 1.5 in accordance with present claim 1 (see (4): Table 2, Entries 6 and 12).

7.3 However, citation (3) teaches that gel strength normally depends on both the relative ratio of the different gum components and the total gum concentration in a gellable composition (see especially

page 26, right-hand column, last paragraph, to page 27, left-hand column, end of first full paragraph).

Figure 2 of (3) shows that gel strength increases more than linearly with total gum concentration. It is thus clearly derivable from the disclosure in citation (3) that, if the relative ratio of the individual gum components in gellable compositions is kept constant, gel strength is a function of the total gum concentration and *vice versa*. From the foregoing it is clear that any experiment designed to establish the criticality of the relative ratio of the gum components in a gellable composition for the strength of a gel must maintain total gum concentration at constant value. On the basis of the teaching in the state of the art the comparative experiments carried out by the appellant in the patent and in (4) would reasonably be expected by those skilled in the art to show an increase in gel strength because in these experiments the relative ratio of xanthan/carob gum has been progressively increased simultaneously with the total gum concentration.

- 7.4 The appellant has failed to persuade the board with its argument that it would appear from the results in Table 1 of the Buckley Declaration (4) that gel strength is inversely related to gum concentration and That Figures 1 and 2 of (4) indicate a relationship between gel strength and colloid concentration which could not be accounted for simply by an increase in total gum concentration. In each of the three pairs of examples in Table 1 (Examples 1 and 2, 3 and 4, 5 and 6) the properties of a gellable composition comprising **0.4% by weight of low acetyl gellan as the sole gum component** are compared with those of a composition

comprising **0.8% by weight of a mixture of (1) low acetyl gellan, (2) xanthan gum and (3) locust bean (carob) gum, wherein the ratio of the constituents is 2 : 1 : 1.** It is thus clear that in Table 1 of (4) **none of the experiments** is according to the claimed invention. Moreover, as explained above, any experiment designed to establish the criticality of the total gum concentration for the strength of a gel must keep the composition and relative ratio of the gum components constant. As demonstrated above, this is clearly not the case in the pairs of examples in Table 1 of (4). From the results provided in (5) it is apparent that low acetyl gellan as such exhibits a significantly increased gel strength compared with mixtures comprising low acetyl gellan in combination with xanthan gum and carob gum (see (5): Figures 1 and 2, gels containing 100% gellan gum in comparison with gels containing 75%, 50%, 25% or 0% gellan gum).

7.5 In the decision under appeal, the opposition division had already objected that the results presented by the appellant in the patent and in (4) did not, in view of the above-mentioned deficiencies, credibly demonstrate any unforeseeable or unexpected increase in gel strength for the claimed composition ratios. This objection has not been met at the appeal stage by the submission of a strictly comparable experiment, as might have been expected, but by an argument of the appellant that both documents (4), ie the Declaration by Keith Buckley **originating from the appellant itself**, and (5) are "problematic" and that the benefit of doubt occasioned in the present case by conflicting experimental evidence should be given to the appealing patentee.

The board does not recognise that in the present case conflicting evidence was produced by the parties. As already mentioned above, the credibility and reliability of any experiment designed to establish the criticality of the relative ratio of the gum components in a gellable composition for the strength of a gel depends on the adherence to certain experimental conditions, one of these being that total gum concentration must be maintained at constant value. The technical findings presented in (5) in combination with (13) [the latter confirming that the procedures and conditions used to produce (5) conformed with those specified in (4)] are based on an experimental programme designed to comply with the above-mentioned experimental conditions (see especially (5), Figures 1 and 2) and to avoid the error committed by the appellant in the patent and in (4) of simultaneously varying the relative ratios of the three component gums and the total gum concentration. Since there is a fundamental error in the experimental tests conducted and presented in the patent and Tables 1 and 2 of (4) and this error has been avoided in the experimental tests conducted and presented in Figures 1 and 2 of (5), the results obtained from the tests in (4) may be different from those of the tests in (5) but do not of course constitute conflicting evidence.

7.6 The comparative experiments presented in (5) represent, in the board's judgment, a credible investigation of the relationship

- between the relative ratios of the three gum components (low acetyl gellan/xanthan gum/carob gum) and gel strength and

- between total gum concentration and gel strength, because (5) contains comparative experiments wherein only one parameter, ie either the relative ratio of the gum components or the total gum concentration has been varied.

In (5) the gel strength of different ratios of the three gum components was investigated for total gum concentrations of 0.4%, 0.6%, 0.9% and 1.2%. The results in Figures 1 and 2 of (5) show that, if the relative ratio of the three gum components is kept constant, the gel strength significantly increases with increasing total gum concentration. This finding is in full agreement with the above discussed teaching of citation (3).

On the other hand, Figures 1 and 2 of (5) show that, if the total gum concentration is kept constant, there are only insignificant differences in gel strength between a blend comprising gellan : xanthan gum: carob gum in a ratio 2 : 1 : 1 in accordance with the state of the art of (2) and a blend comprising the same constituents in a ratio 1 : 1.5 : 1.5 in accordance with claim 1.

- 7.7 It follows from the foregoing that the additional advantageous properties of the claimed gellable compositions referred to by the appellant have not been properly demonstrated. According to the boards' case law, such alleged advantages to which the patent proprietor (appellant) merely refers, without offering sufficient evidence to support the comparison with the closest state of the art, cannot be taken into consideration in determining the problem underlying the

invention and therefore in assessing inventive step (see the various decisions listed under point I.D.4.4 of the Case Law of the Boards of Appeal, 4th edition, 2001).

7.8 In view of the above circumstances the technical problem underlying the claimed subject-matter in relation to the closest state of the art according to (2) can only be seen in the provision of further gellable compositions comprising low acetyl gellan, xanthan gum and carob gum. The solution proposed in claim 1 is the provision of a gellable composition comprising the above-mentioned constituents in a relative ratio of 1 : 1.5 : 1.5. According to Table 3 of the patent (see especially page 6, lines 18 to 21) a gellable composition comprising low acetyl gellan : xanthan gum : carob gum (1 : 1.5 : 1.5) has fairly firm, elastic properties and likewise fairly firm, elastic pack qualities. The board is thus satisfied that the stated problem has been solved.

7.9 As already mentioned in 7 above, citation (2) suggests already in general terms that, in order to decrease brittleness (that is in order to increase elasticity), of low acetyl gellan other gum components should be added. The addition of xanthan gum and carob gum to low acetyl gellan is stated in (2) to be very good for this (see end of page 9).

A skilled person, faced with the problem defined above, would in the first place consider solving this problem by the provision of further ternary compositions comprising the same three gum components as the closest state of the art before he would think of other

possible modifications of the state of the art, for example, the preparation of compositions comprising different gum components. Once the proposed solution to the stated problem by preparing a gellable composition comprising the aforesaid combination of gums in which merely the relative ratio between the various gums differs from the specific ratio (2 : 1 : 1) disclosed in (2) became obvious, determination of the specific relative ratios required to obtain a gellable composition exhibiting qualitatively the same or at least similar properties and capabilities as the state of the art would then be purely a matter of routine experimentation for the skilled practitioner.

7.10 The above conclusions are directly supported by the experimental data reported in document (5). The experimental evidence in (5) clearly demonstrates that it is possible to obtain gels having comparable gel strength over a wide range of different relative ratios of gellan : xanthan gum : carob gum and that there are as many gels exhibiting a similar gel strength with a gellan content of more than 50% as with a gellan content below 50%. Consequently, the claimed ratio of 1 : 1.5 : 1.5 cannot be considered to provide an unexpectedly advantageous specific teaching but merely represents one of a number of possible modifications of the state of the art, all showing about the same or at least similar properties and capabilities.

7.11 In the judgment of the board, the subject-matter of claim 1 does not involve an inventive step, and this claim is therefore not allowable. Since a decision can only be taken on a request as a whole, there is no need to consider the patentability of the other claims. Thus

the appellant's auxiliary request cannot be allowed either.

Procedural rights under Article 113(1) EPC

8. Under Article 113(1) EPC a decision of the EPO may only be based on grounds or evidence on which the parties concerned have had an opportunity to present their comments. This procedural right is intended to ensure that no party is caught unawares by reasons being given in a decision turning down his request on which he has not had the opportunity to comment. In decision G 4/92 (OJ EPO 1994, 149), the Enlarged Board of Appeal interpreted the provisions of Article 113(1) EPC concerning the right to be heard and to present comments as meaning that a decision against a party which has been duly summoned but which fails to appear at oral proceedings may not be based on facts put forward for the first time during those oral proceedings. However, new arguments may - in principle - be used in the reasons, based on the facts and evidence already put forward (see G 4/92, especially conclusion 1).

- 8.1 In the above-mentioned decision, the Enlarged Board of Appeal viewed the possibility of holding oral proceedings in a party's absence, as provided for in Rule 71(2) EPC, in relation to the need for the proper administration of justice, in the interests of which no party should be able to delay the issue of a decision by failing to appear at oral proceedings (loc. cit., especially point 4 of the reasons). This can only mean that parties to the proceedings must be prepared for the possibility that, on the basis of the established

and plainly relevant facts, the decision may go against them. It can further be inferred from this that a decision may be based on a ground discussed for the first time during oral proceedings which would prevent the patent being maintained, at least if the stage reached is such that the absent - albeit duly summoned - appellant (proprietor) could have expected the question to be discussed and was aware from the proceedings to date of the actual bases on which it would be judged (see also decision T 341/92, OJ EPO 1995, 373).

8.2 The requirements set forth above are fulfilled in the present case. The decision to dismiss the appeal is entirely based on grounds, facts and evidence which were already known to the appellant from the proceedings before the opposition division and which were once again brought to the appellant's attention in writing during the appeal proceedings.

8.3 On the basis of the above considerations, the board is satisfied that, in the circumstances of the present case, considering and deciding in substance on the dismissal of the appeal does not conflict with the conclusions of the Enlarged Board of Appeal in decision G 4/92 and does not contravene the appellant's procedural rights as laid down in Article 113(1) EPC, in spite of its absence at the hearing.

Order

For these reasons it is decided:

The appeal is dismissed.

The Registrar:

The Chairman:

A. Townend

U. Oswald