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**Datasheet for the decision  
of 17 August 2017**

**Case Number:** T 1331/14 - 3.3.09

**Application Number:** 07110026.7

**Publication Number:** 2005838

**IPC:** A23L1/0528, A23L1/39, A23L1/40

**Language of the proceedings:** EN

**Title of invention:**

Packaged concentrate for preparing a bouillon, soup, sauce, gravy or for use as a seasoning, the concentrate comprising konjac mannan

**Patent Proprietor:**

Unilever N.V.  
Unilever PLC

**Opponent:**

NESTEC S.A.

**Headword:**

**Relevant legal provisions:**

EPC Art. 100(b)

**Keyword:**

sufficiency of disclosure - yes  
remittal for further prosecution

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
**Chambres de recours**

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Case Number: T 1331/14 - 3.3.09

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.09**  
**of 17 August 2017**

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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted on 14 April 2014 revoking European patent No. 2005838 pursuant to Articles 101(2) and 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman**            W. Sieber  
**Members:**            N. Perakis  
                              F. Blumer

## Summary of Facts and Submissions

I. This decision concerns the appeal filed by the joint patent proprietors against the decision of the opposition division to revoke European patent No. 2 005 838.

Claims 1 to 5, 7 and 12 as granted read as follows:

"1. Packaged concentrate for preparing a bouillon, broth, soup, sauce, gravy or for use as a seasoning, said concentrate comprising:

- 20-80% water (weight% based on total packaged concentrate),
- 0.8% to 4%, preferably 0.9%-2%, more preferably 1-1.5% (weight% based on water content of concentrate) of a gelling agent comprising konjac mannan and optionally one or more other gelling agents,
- 15-30% (weight% based on water content of concentrate, preferably 15-26%) of salt,
- 0.5-60% (weight% based on the total composition) of taste imparting components."

"2. Packaged concentrate according to claim 1, wherein the concentrate has the rheology of a gel."

"3. Packaged concentrate according to any of claim 1-2, wherein the concentrate has the appearance or rheology of a gel as expressed by a ratio of elastic modulus  $G'$ : viscous modulus  $G''$  of at least 1, preferably at least 3."

"4. Packaged concentrate according to any of claim 1-3, wherein viscous modulus  $G''$  is at least 10 Pa."

"5. Packaged concentrate according to any of claim 1-4, wherein the other gelling agent is selected from the group consisting of: agar, carrageenan, xanthan [*sic*] gellan, starch."

"7. Packaged concentrate according to any of claim 1-6, wherein the taste-imparting components comprise one or more of liquid or dissolvable extracts or concentrates of one or more of meat, fish, herbs, fruit or vegetables, and/or flavours, and/or yeast extract, and/or hydrolysed protein of vegetable-, soy-, fish-, or meat origin and /or herbs, vegetables, fruits, meat, fish, crustaceans, or particulates thereof."

"12. Process for preparing a concentrate for preparing a bouillon, broth, soup, sauce, gravy or for use as a seasoning, said concentrate comprising:

- 20-80% water (weight% based on total packaged concentrate),
- 0.8% to 4%, preferably 0.9%-2%, more preferably 1-1.5% (weight% based on water content of concentrate) of a gelling agent comprising konjac mannan and optionally one or more other gelling agents,
- 3-30% (weight% based on water content of concentrate, more preferably 15-30%, most preferably 15-26%) of salt,
- 0.5-60% (weight% based on the total composition) of taste imparting components,

and wherein the concentrate has the appearance of a gel, the process comprising the steps of mixing all ingredients, filling the mixture into the packaging or moulds, closing the packaging, whereby a heating step

is applied prior to, and/or during and/or after filling into the packaging or moulds."

II. With its notice of opposition the opponent requested revocation of the patent in its entirety on the grounds under Article 100(a) (lack of novelty and of inventive step) and (b) EPC.

III. The documents submitted during the opposition proceedings included:

By the opponent

A1 : Handbook of hydrocolloids, edited by G.O. Phillips *et al*, 2000, Woodhead Publishing Limited, Chapter 25 "Konjac Mannan", 413-424;

A2 : Gums and Stabilisers for the Food Industry 6, edited by G.O. Phillips *et al*, 1992, IRL Press at Oxford University Press, "Interactions between xanthan gum and konjac mannan", 201-208;

A5a : Toshio Hata *et al*, "Research Relating to Konjac Mannan (Reports 1 and 2)", Tokyo Institute of Technology, February 1950, fifteen pages (translated from the Japanese);

A22: Images of products prepared according to examples 1a and 1c of the patent in suit;

A24: US 2003/0044503 A1;

A35: Experimental report dated 20 December 2013;

A36: D.R. Picout *et al*, "Rheology of Biopolymer Solutions and Gels", Mini-Review, *The Scientific World Journal*, (2003) 3, 105-121;

A41: BHJ A/S Protein Foods, SCANPRO™ product catalogue, 1-32.

By the patent proprietors:

A23: Experimental report filed on 28 January 2011;

A37: Experimental report dated 6 February 2014;

A38: Experimental report dated 7 March 2014;

A39: BHJ A/S Product specification SCANPRO™ 1015/SF.

By the opposition division:

A40: Main properties of CongelK®, Andi-Johnson Group.

IV. The opposition division decided that the claimed invention as defined in the patentee's requests - mainly the main request (claims as granted) and auxiliary request 1 to 3 - was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

The opposition division dealt with the following two issues:

(a) the patent did not disclose how to prepare a concentrate which had the rheology of a gel and comprised only konjac mannan as gelling agent (relating to claim 2 as granted) and



(b) the patent did not disclose how to prepare a concentrate which had the rheology of a gel and comprised konjac mannan and a carrageenan as gelling agents (relating to claim 5 as granted).

The opposition division assessed sufficiency taking into consideration the three aspects which had an effect on gel formation but were not disclosed in the patent in suit, namely the specific pH, the specific type of pork protein and the specific temperature cooling ramp.

The opposition division held that the experimental evidence filed by both parties with respect to these aspects (A35, A37, A38) was of equal credibility and quality. Since, however, the results were conflicting, it could not rely on them. Therefore it relied on the technical knowledge of the skilled person as supported by the scientific literature (A1, A2, A40) and reached its decision based on the balance of probabilities.

Regarding the issue of pH, the opposition division considered that the skilled person was aware of the importance of the pH adjustment in order to obtain gelation of konjac mannan. However, he did not find any guidance in the patent in suit regarding the pH adjustment.

Regarding the issue of pork protein, the opposition division considered that in view of the patent proprietor's evidence (A38), this component was not essential to obtain gelation of konjac mannan.

Regarding the issue of the temperature cooling ramp, the opposition division mentioned that it could only

speculate on its contribution to the gelation of konjac mannan.

Thus, the opposition division decided that it was most probable that some important process parameters to obtain gelation of konjac mannan were missing.

- V. On 11 June 2014 the joint patent proprietors (in the following: the appellants) filed notice of appeal against the opposition division's decision. The statement setting out the grounds of appeal was filed on 8 August 2014 accompanied by the following additional document:

A42: Experimental report by TNO, 2014 R11099, Final Report; "Evaluation of patent EP 2 005 838".

The appellants requested that the decision of the opposition division be set aside and that the patent be maintained either as granted, or, alternatively, on the basis of auxiliary requests 1 to 3 before the opposition division.

- VI. With letter of 23 December 2014 the opponent (in the following: the respondent) requested that the appeal be dismissed and that A42 not be admitted into the proceedings. The respondent filed the following additional document:

A43: Experimental report by M. Schwaegerl and Dr J. Resemann, dated 19 December 2014, Nestlé Product Technology Centre, Singen.

- VII. With letter of 4 November 2015, the appellants replied to the respondent's observations and filed the following additional documents:

A44: Encyclopedia of Food Science, Peterson & Johnson, The AVI Publishing Company Inc, 1978, 642;

A45: "Further experimental evidence in support of EP 2 005 838", dated 23 October 2015; and

A46: Specification sheet of Pork Protein 170112 from DPS/Dutch Protein & Services BV, Tiel, Netherlands.

- VIII. With letter of 11 April 2016, the respondent commented on the new documents submitted by the appellants.
- IX. On 6 June 2017 the board issued a communication and pointed out that the only issue to be discussed during the scheduled oral proceedings was sufficiency of disclosure and that, if any of the requests was found to fulfil the requirements of sufficiency, the case would be remitted to the opposition division for assessing the remaining issues.
- X. With letter of 17 July 2017, the appellants replaced the respective auxiliary requests 2 and 3 by corrected versions and filed new auxiliary requests 4 and 5.
- XI. With letter of 28 July 2017, the respondent requested that auxiliary requests 4 and 5 and the amendments made to auxiliary requests 2 and 3 not be admitted into the proceedings.
- XII. Oral proceedings were held on 17 August 2017 before the board.

XIII. The relevant arguments put forward by the appellants in their written submissions and during the oral proceedings may be summarised as follows:

Late-filed documents A42 and A43

- A42 should be admitted into the proceedings. It was filed as a direct response to the decision to revoke the patent and in order to counter the speculation that the information in the patent was not sufficient.
- Examples 1A- and 2 of A43 should not be admitted into the proceedings because they were late-filed and irrelevant.

Sufficiency of disclosure

- Contrary to the assertions of the respondent, the inventions underlying the subject-matter of claims 2, 5 and 12 were sufficiently disclosed in the patent for them to be carried out by a person skilled in the art.
- Regarding the issue of pH, the patent disclosed in the description (paragraph [0022]) a pH range, which obviously applied to the examples. The fact that the prior art (D1, D2, D5 and D40) disclosed gelation of konjac mannan compositions at alkaline pH values and high temperatures was irrelevant, since those compositions did not contain or contained hardly any salt. The reproducibility of the examples of the patent which resulted in a gel at various pH values (5-9) was shown in the experimental reports A37 and A38.

- Regarding the issue of a "pork protein", the technical evidence submitted by the appellants showed, on the one hand, that this ingredient was not necessary for the gelation of konjac mannan compositions (A38) and, on the other hand, that the gelation was not dependent on the type of the pork protein (A45). Furthermore, A45 confirmed what was disclosed in the patent (paragraphs [0035] and [0042]), namely that gelation was time dependent and that a certain setting time was necessary to obtain a gel.
  
- Regarding the issue of a cooling temperature ramp, this had nothing to do with the preparation of the claimed concentrate. It only concerned the method for measuring the rheological characteristics of the konjac mannan-containing composition. Regarding the latter, A42 showed that an independent institute, namely TNO, had no difficulty measuring the rheological characteristics of the claimed composition and confirming that it had the rheology and appearance of a gel. Anyway, the respondent did not file any evidence to show the criticality of an alleged cooling temperature ramp.
  
- Regarding the "failed" examples of the respondent in A35 and A43, they did not demonstrate that the claimed invention was not reproducible over the entire breadth of the claims. The failed example of A35 (Trials PTC 12/2013) did not reproduce example 1a of the patent because a different taste-imparting component was used. The failed examples of A43 (example 1A- and example 2) either reproduced a concentrate whose composition was against the general technical knowledge of the skilled person - it did not contain any ingredient

to emulsify the pork fat (example 1A-) - or was wrongly carried out because the setting time was not sufficiently long to allow gelation to take place (example 2).

XIV. The relevant arguments put forward by the respondent in its written submissions and during the oral proceedings may be summarised as follows:

Late-filed documents A42 and A43

- A42 should not be admitted into the proceedings because it was late-filed and not *prima facie* relevant. A42 did not discuss any new issues of which the proprietors had not already been aware after the notice of opposition. Furthermore, it did not specify the kind of pork protein used and disclosed a rather specific temperature cooling ramp.
- A43 should be admitted into the proceedings since it was filed in response to the proprietors' appeal. Furthermore the experiments of A43 could not have been submitted before the opposition division because the appellants specified the pork protein they had used only some days before the oral proceedings before the opposition division.

Sufficiency of disclosure

- The inventions of claims 2, 5 and 12 were not sufficiently disclosed for them to be carried out by a person skilled in the art.
- On the one hand, the experimental part of the patent did not disclose all features necessary to

reproduce a konjac mannan-containing composition having the appearance or the rheology of a gel. In particular, this experimental part did not disclose the applied pH, the type of pork protein used and the specific process steps required to obtain a composition with the sought properties.

- The technical evidence submitted by the appellants with A37, A38, A42 and A45 might disclose compositions with the sought properties, however, it contained technical information regarding the pH, the type of pork protein, the cooling temperature ramp and the gel setting time (maturation time/storing time) that was not disclosed in the patent in suit.
- The technical evidence submitted by the respondent with A35 and A43 showed that some compositions ("failed" examples) which fell within the scope of the claims did not provide the sought properties. On the basis of these "failed" examples, it could be concluded that the invention was not sufficiently disclosed over the entire breadth of the claims.

XV. The appellants (patent proprietors) requested that the decision under appeal be set aside and that the patent be maintained as granted (main request), or on the basis of the claims of auxiliary request 1 as filed with letter of 13 February 2014, or auxiliary requests 2 to 5 as filed with letter of 17 July 2017.

XVI. The respondent requested that the appeal be dismissed and that auxiliary requests 2 to 5, all as submitted with the appellants' letter of 17 July 2017, not be admitted into the proceedings.

### **Reasons for the Decision**

1. Admittance of documents D42 and D43

1.1 The appellants requested that A42 be admitted but that examples 1A- and 2 of A43 not be admitted into the proceedings, whereas the respondent requested that A42 not be admitted but that A43 be admitted into the proceedings.

1.2 A42 is an experimental report carried out by the independent laboratory TNO on behalf of the appellants, which reproduced examples 1a and 1c of the patent in suit. A42 was filed with the statement setting out the grounds of appeal in order to rebut the argument of the opposition division that crucial information was missing from the patent with the consequence that the skilled person was not able to put the claimed invention into practice. A42 was filed at the outset of the appeal proceedings in direct response to the decision to revoke the patent, i.e. a natural legitimate response of the appellants. Thus the board admitted this document into the proceedings by virtue of Article 12(2) RPBA.

1.3 A43 is an experimental report filed by the respondent in response to the proprietors' appeal and concerned questions open from the appealed decision in relation to the issue of sufficiency of disclosure. A43 could not have been filed earlier since the proprietors



specified the type of pork protein used in the examples of the patent in suit only with their letter of 7 March 2014 (see A39), i.e. some days before the oral proceedings held before the opposition division, i.e. on 13 March 2014. Document A43 was also filed in direct response to A42. A43 repeats the examples of A42 in order to assess the influence of the ingredient "pork protein" on the rheology of the composition of example 1 of the patent in suit containing konjac mannan as the sole gelling agent. For these reasons A43 was admitted into the proceedings.

2. Sufficiency of disclosure (claims as granted)

2.1 The respondent reiterated in appeal its objection that the patent in suit did not enable the skilled person to put the claimed invention into practice. It essentially argued that neither the general disclosure of the patent nor the experimental part of it enabled the skilled person to carry out the invention over the whole range claimed without undue burden.

In particular the respondent argued that:

- the patent did not provide the skilled person with sufficient guidance to prepare a packaged concentrate having the rheology of a gel using konjac mannan as the sole gelling agent (claims 2 and 3 as granted) [aspect 1],
- the patent did not provide the skilled person with sufficient guidance to prepare a packaged concentrate having the appearance of a gel using konjac mannan as the sole gelling agent (claims 3 and 12 as granted) [aspect 2], and

- if the concentrate comprised further gelling agents besides konjac mannan, in particular lambda-carrageenan, the packaged concentrate did not have the rheology of a gel (claim 5 as granted) [aspect 3].

## 2.2 Aspect 1

With regard to a concentrate comprising only konjac mannan as gelling agent and having the rheology of a gel, the respondent argued that the skilled person did not find in the patent in suit all information necessary to repeat example 1a and to obtain a concentrate which had the rheology of a gel. The respondent insisted in particular on the dependence on a specific pH value, a specific type of pork protein and a specific cooling temperature ramp.

### 2.2.1 The pH

The appellants did not dispute that the skilled person on the basis of his common general knowledge (see A1 and A2) and the prior art (see A5a and A40) was aware of the fact that konjac mannan compositions gelled by heating in mild alkaline conditions.

Indeed A1 (page 413, last paragraph) discloses:

*"Irreversible konjac mannan gel is prepared by alkali treatment of grated konjac tuber or konjac flour aqueous solution",*

A2 (page 201, second paragraph, lines 7-8) discloses:

*"Konjac does not form gel at neutral pH, gelation can be achieved in alkaline medium",*

A5a (page 4, lines 21-24) discloses:

*"What should be noted in Figure 1 is that a gel that is completely elastic is formed only at a specific konjac concentration and sodium hydroxide concentration",*

A40 (fifth paragraph) discloses:

*"Thermo-irreversible gels CongelK<sup>®</sup> solution does not form gel because its acetyl group prevents the long chains of Glucomannan from approaching each other. However, it does form gel by heating to 85°C with mild alkali conditions (pH 9-10)".*

However, as the appellants pointed out - without having been contradicted by the respondent - the above-mentioned gel formation takes place in the absence of any salt. Contrary to this, the claimed invention requires large amounts of salt, namely 15-30 weight% based on water content of concentrate. Under these circumstances, the skilled person would not rely on his common general knowledge or the above-cited prior art in order to reproduce example 1a of the patent in suit, according to which konjac mannan is the only gelling agent and which requires a large amount of salt, namely 24.6% salt based on water (see paragraph [0040]).

Rather, the skilled person would rely on the patent specification (paragraph [0022]), which provides the necessary guidance regarding the pH and discloses:

*"Preferably, the pH of the concentrate is between 5 and 9, preferably 5-7".*

That this disclosure is indeed sufficient has been shown by the technical evidence filed by the appellants (A37 and A42) and has been confirmed by the technical evidence filed by the respondent (A43).

- (a) Experimental report A37 concerns the reproduction by the appellants of example 1a at the pH values of 5, 6, 8 and 9. The concentrate obtained at each pH has indeed the rheology of a gel as evident from the rheological characteristics disclosed in table 2 of A37. More precisely, table 2 shows that for each concentrate the ratio of elastic modulus  $G'$  to viscous modulus  $G''$  is greater than 1, a requirement for the typical definition of a gel according to scientific literature (patent in suit: paragraph [0033]).
- (b) Experimental report A42 concerns the reproduction of example 1a (using pork protein 170112 from DPS/Dutch Protein and Services BV (see D46)) by TNO, an independent technical institute in the Netherlands. TNO was able to reproduce example 1a of the patent in suit and to obtain a konjac mannan concentrate which had the rheology of a gel at a pH of 5.7. The rheological characteristics of the gel were measured using an AR2000 TA Instruments rheometer and are provided in table 3-1, where it is shown that the ratio  $G'/G''$  is 9.46, i.e. greater than 1 as required by paragraph [0033] of the patent in suit.
- (c) Lastly, even the technical evidence submitted by the respondent in appeal, namely A43 (using pork protein SCANPRO 1015/SF from BHJ (Denmark) and a Physica MCR 300 rheometer), which reproduced example 1a of the patent in addition to examples

from the TNO report, confirmed the gel characteristics described in A42.

As regards the technical evidence of A35, namely Trial PTC 12/2013 (table 1), which the respondent considered as a "failed" example, this experiment does not correspond to an accurate reproduction of example 1a since the "pork protein" was replaced by "veal powder". Moreover, A35 does not disclose that the rheological characteristics of the "failed" example were measured after a maturation time of at least 12 h or after storage at least overnight as required by the patent in suit (see paragraphs [0035] and [0042]).

It is noted in this context that for the reproduction of the examples of the patent in A35, A37, A38, A42 and A43 a Vorwerk Thermomix system was used. Although such a system is not disclosed in the patent in suit, it belongs to the general knowledge of the skilled person that high-shear mixing is required to make a homogeneous and stable emulsion, with the consequence that the use of an appropriate mixing system such as the one used by the appellants, the independent organisation TNO and the respondent, is obvious.

In view of the above, on the basis of the information provided by the patent in suit, the skilled person would not have any difficulty reproducing example 1a and obtaining a concentrate having the rheology of a gel after adjusting the pH to the values disclosed by the patent in suit.

### 2.2.2 The pork protein

The respondent asserted that, if the concentrate of example 1a had a rheology of a gel at a pH within 5 and

9, this was not only because of the presence of konjac mannan but also because of the particular type of "pork protein" used in this example which, however, had not been disclosed in the experimental part of the patent in suit.

The respondent based its assertion on the experimental data of A43, in particular on example 1A-, another "failed" example, which corresponded to example 1a of the patent in suit but did not contain any pork protein. The resulting concentrate was not shape-retaining and after removal from its packaging the composition immediately fell apart (figures 1 and 2).

The board is not convinced by the respondent's conclusion based on the experimental data of A43. The board notes that the respondent used the ingredient "pork fat" in the concentrate preparation of example 1A-, which was actually present in the concentrate of example 1a but which could not be emulsified in the absence of the emulsifier "pork protein". In this context reference is made to the common general knowledge illustrated by A44 (page 642, left column, first full paragraph) which relates to the ability of proteins to emulsify lipids. It is thus obvious that under the circumstances of example 1A- the pork protein, besides its principal function as a taste-imparting component (see paragraph [0019] of the patent), also has the additional function as emulsifier and emulsifies the "pork fat". It is noted that according to the patent (paragraph [0021]) emulsifiers are optional ingredients of the concentrate. Thus, in the absence of an emulsifier, namely "pork protein", from the concentrate of example 1A- the "pork fat" is not emulsified with the consequence that the concentrate of this example obviously does not have the

rheology of a gel. Thus, the "failed" example 1A- cannot demonstrate that the pork protein, or any specific type of it, is an essential ingredient for the gelation of the konjac mannan. Thus this argument of the respondent must fail.

Furthermore, the appellants filed experimental report A38 which disclosed concentrates with no pork protein but with the rheology of a gel. More precisely, experiment 3 was carried out combining water, konjac mannan, salt and yeast extract, the latter as a taste-imparting component (table 6), and the concentrates obtained at pH values of 5, 7 and 9 had the rheological characteristics of a gel with a ratio  $G'/G''$  greater than 1 (table 7).

The appellants also filed experimental report A45 in which the concentrate of example 1a of the patent in suit was reproduced using four different pork proteins taken from the SCANPRO catalogue (A41) and belonging to three groups of protein products. The results showed that a gel could be obtained (in terms of gel strength and appearance) irrespective of the type of pork protein used and irrespective of whether the type of pork protein was suggested for emulsified food products or not. Admittedly A45 shows that the rigidity of the gel and thus its rheology depends on the maturation time. However, the patent in suit discloses the necessity of a maturation time: paragraph [0042] discloses that the sample should be stored at ambient conditions (21°C) at least overnight before measurement. On the basis of this disclosure the skilled person is aware that he has to apply a maturation time which will obviously depend on the selected type of pork protein and the production requirements of the concentrate.

In view of the above, the respondent's assertion that the type of pork protein used in the preparation of the concentrate of example 1a of the patent in suit contributed to its rheology so that it had a rheology of a gel must fail.

### 2.2.3 The cooling temperature ramp

The respondent also asserted that "the rheology of a gel" was due to a specific cooling temperature ramp used in example 1a of the patent in suit but not disclosed in the patent. However, paragraph [0041] of the patent in suit clearly discloses that the last step of the preparation of the concentrate is:

*"8. Hot filling into containers, followed by sealing and leaving to cool to room temperature".*

It is clear that this cooling step does not disclose any specific cooling temperature ramp. Anyway, in all experimental reports of the appellants (A37, A38, A42, A45), this was the cooling step used when reproducing example 1a of the patent in suit.

Thus the objection of the respondent can only concern the cooling temperature ramp used in the method for measuring the rheological characteristics  $G'$  and  $G''$  of the concentrate. Regarding this measuring step the patent in suit provides in paragraph [0035] the following indications:

*"The above given values need should be measured under the following circumstances:*

- *a maturation time of at least 12 h under ambient conditions,*



- measurement temperature of 25°C,
- an oscillatory frequency of 1 rad/s and
- a strain of 1%.

*This set of parameters refers to a standard oscillatory test conducted with a standard state of the art low deformation rheometer as commercially available from e.g. Bohlin or TA Instruments".*

Thus the patent in suit refers to a standard rheometer and a standard oscillatory test without any disclosure concerning any cooling step preceding the maturation step.

A detailed measuring step using a rheometer with a specific cooling step is disclosed for the first time in A37 (page 2) in the context of the measurement of the samples' rheological properties (emphasis added):

*"Rheological characterisation of the samples was performed on a standard stress controlled rheometer (Anton Paar Physica MCR 300/MCR301, or TA Instruments AR 2000 ex) operating a concentric cylinder geometry. Concentric cylinder geometry was preferred over cone-plate or plate-plate geometries due to a potentially higher risk of evaporation of water and subsequent crystallization of salt, due to the long time tested. Mineral oil was added on top of the samples to minimize water evaporation with time. **The sample was hot-filled directly after setting pH into the pre-heated cup, set at 90°C.** After lowering the bob, **the temperature was lowered to 25°C at a rate of 2°C/min.** After reaching 25°C, the temperature was controlled at 25°C for an additional 50 hours. All the time measurements were performed by oscillating the bob at 1 Hz and 1% strain."*

This method was also used in A38.

It is noted in this context that in view of A36 (last three lines of page 114) the measurement of  $G'$  and  $G''$  in gel systems is frequency insensitive and thus it is irrelevant that paragraph [0035] of the patent requires an oscillatory frequency of 1 rad/s (about 0.16 Hz) whereas A37 requires a frequency of 1 Hz. The objection of the respondent concerning this point must fail.

In A42 TNO used a rheometer AR2000 from TA Instruments which was typically pre-conditioned at 90°C and performed **a temperature ramp from 90°C to 22°C at a rate of 5°C/min** with a  $10^{-4}$  strain amplitude and 1 Hz frequency. The values of  $G'$  and  $G''$  were determined after 24 h (page 6, point 2.3).

The respondent argued that the patent in suit did not disclose any cooling temperature ramp and concluded that TNO had more information than the information disclosed in the patent in suit in order to obtain a concentrate with the rheology of a gel. The board notes, however, that the respondent did not submit any evidence to show that only the above-mentioned cooling temperature ramps provide the sought result. Moreover, it did not show that these cooling temperature ramps were not typical for the rheometers used.

Thus this objection of the respondent is unsubstantiated and must also fail.

#### 2.2.4 The rheology of a gel over the whole claimed range

Lastly the respondent argued that the technical evidence filed with A35 and A43 showed that concentrate compositions falling within the scope of claim 2 did

not have the rheology of a gel and concluded that the patent in suit did not give the skilled person the necessary guidance to carry out the invention over the whole breadth of claim 2.

The board does not agree and refers to points 2.2.1 and 2.2.2 above, where it was explained why trial PTC 12/2013 submitted with D35 and example 1A- submitted with A43 failed.

Regarding example 2 of A43, in which the concentrate combines water, konjac mannan, salt and yeast extract as the taste-imparting component (paragraph [0019] of the patent in suit) and thus falls within the scope of claim 2 but does not have the rheology of a gel after 24 h, the board refers to the counter-evidence filed by the appellants with A45. This counter-evidence shows, on the one hand, that the gel formation was not instantaneous but a time-dependent process and, on the other hand, that a gel was indeed formed after a much longer period of time, namely after 3.5 months (the samples were inadvertently not checked in the period between 10 days and 3.5 months as the responsible person was transferred to another project). The latter has not been contested by the respondent on the basis of technical evidence.

Thus also this argument of the respondent must fail.

### 2.3 Aspect 2

The board considers that the appellants submitted sufficient evidence to confirm that the concentrate using konjac mannan as the sole gelling agent had the appearance of a gel. In A23, filed before the opposition division, the appellants showed that the

concentrate of example 1a had the appearance of a gel (see figures 1 and 3). The same was shown in A37, also filed before the opposition division (see figure 1), in A42, filed before the board (see figure 3-3) and in A45, also filed before the board. Even the evidence filed by the respondent confirms that the concentrate using konjac mannan as the sole gelling agent had the appearance of a gel. Reference is made to A43 (figures 1 and 2) in which the respondent acknowledges that the concentrate of example 1a has a shape-retaining and free-standing behaviour.

#### 2.4 Aspect 3

The board considers that the appellant filed sufficient evidence to show that the rheology and appearance of a gel was also achieved when the gelling agent konjac mannan was combined with other gelling agents such as those of claim 5. The board refers to experiment 2 of A37 filed before the opposition division, which demonstrates that the further gelling agents used, namely the hydrocolloids iota-carrageenan, kappa-carrageenan, agar, xanthan gum, gellan gum and starch (table 4), yielded products with the rheological characteristics of a gel (table 5) and had the appearance of a gel (figure 3).

Regarding the particular case of using lambda-carrageenan as the other gelling agent, the board does not consider that the respondent, who carries the burden of proof, convincingly showed that a concentrate combining konjac mannan and lambda-carrageenan did not have the rheology or appearance of a gel. It is true that example 1c of A35 filed by the respondent combined each of the carrageenans (iota-, kappa- and lambda carrageenan) with konjac mannan and obtained

concentrates which appeared to be a paste rather than a shape-retaining product (see figure 4). However, the composition of the concentrate in example 1c of A35 differed from that of example 1c of the patent, on the one hand, because "veal powder" was used instead of "pork protein" as the taste-imparting ingredient and, on the other hand, because the concentrate was not stored at ambient temperature at least overnight before measurement. Thus this objection of the respondent must fail.

2.5 In view of the above, the skilled person is able to reproduce the claimed invention on the basis of the patent specification and his common general knowledge. Hence, the invention as defined in the claims as granted is sufficiently disclosed.

3. Remittal

The decision of the opposition division exclusively dealt with the issue of sufficiency of disclosure. Since, however, further outstanding issues raised in the notice of opposition have not been dealt with yet, the case is remitted to the opposition division for further prosecution.

## 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 for further prosecution.

The Registrar:

The Chairman:



M. Cañueto Carbajo

W. Sieber

Decision electronically authenticated