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**Datasheet for the decision  
of 23 October 2014**

**Case Number:** T 1822/12 - 3.3.09

**Application Number:** 04709050.1

**Publication Number:** 1605774

**IPC:** A23L1/01, A23L1/164, A23L1/217

**Language of the proceedings:** EN

**Title of invention:**  
METHOD FOR REDUCING ACRYLAMIDE FORMATION IN THERMALLY  
PROCESSED FOODS

**Patent Proprietor:**  
Frito-Lay North America, Inc.

**Opponent:**  
The Procter & Gamble Company

**Headword:**

**Relevant legal provisions:**  
EPC Art. 54(2)

**Keyword:**  
Novelty - main request (no) - auxiliary request (no)

**Decisions cited:**  
G 0002/88, G 0006/88, G 0001/92, T 0210/93, T 0848/93,  
T 1049/99, T 1343/04, T 1179/07, T 0304/08, T 2215/08

**Catchword:**



**Beschwerdekammern  
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Case Number: T 1822/12 - 3.3.09

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.09**  
**of 23 October 2014**

**Appellant:** Frito-Lay North America, Inc.  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
5 June 2012 concerning maintenance of the  
European Patent No. 1605774 in amended form.**

**Composition of the Board:**

**Chairman** W. Sieber  
**Members:** N. Perakis  
E. Kossonakou

## Summary of Facts and Submissions

I. Mention of the grant of European patent No. 1 605 774 in the name of Frito-Lay North America Inc. was published on 1 July 2009 (Bulletin 2009/27). The patent was granted with 33 claims. Claims 1 and 2 read as follows:

"1. A method for reducing acrylamide formation in thermally processed foods, said method comprising the steps of:

- (a) providing a food having a moisture level prior to cooking of at least 4% by weight;
- (b) cooking said food to form a cooked food with a reduced level of less than 3% by weight, wherein said cooking comprises heating at a temperature below about 120°C while the moisture level of said food is less than 3% by weight."

"2. The method for reducing acrylamide formation in thermally processed foods of Claim 1 wherein said cooking step b) further comprises first heating at a temperature above about 120°C while the moisture level is at least 3% by weight."

II. A notice of opposition was filed by Procter & Gamble Company requesting the revocation of the patent in its entirety on the grounds that the granted subject-matter was neither novel nor inventive (Article 100(a) EPC) and that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC).

The documents filed by the opponent included the following:

E1: D.S. Mottram *et al.*, "Acrylamide is formed in the Maillard reaction", *Nature*, 2002, vol 419, p 448;

E2: R.H. Stadler *et al.*, "Acrylamide from Maillard reaction products", *Nature*, 2002, vol 419, p 449;

E3: F. Fleck, "Experts launch action on acrylamide in staple foods", *British Medical Journal*, 2002, vol 325, p 120;

E4: US 3 436 229 A;

E5: GB 1 132 296 A; and

E7: US 3 634 095 A.

III. By an interlocutory decision announced orally on 24 April 2012 and issued in writing on 5 June 2012 the opposition division maintained the patent on the basis of the claims of auxiliary request 2 filed during the oral proceedings.

Regarding the hierarchically higher requests, the opposition division held that claim 1 of the main request and the first auxiliary request, both filed during the oral proceedings, lacked novelty over E4, E5 and E7. The main request corresponded to granted claims 1-28 (with granted claims 29-33 being deleted); the first auxiliary request corresponded to the main request whereby claims 1 and 2 were combined.

IV. On 13 August 2012 the patent proprietor (in the following: the appellant) filed an appeal against the

interlocutory decision of the opposition division and paid the appeal fee on the same day. On 15 October 2012 the appellant filed the statement setting out the grounds of appeal. The appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request or the first auxiliary request both of the appealed decision (see point III above). The appellant also requested that the patent be maintained on the basis of a new auxiliary request 2 filed with the statement setting out the grounds of appeal. The appellant finally requested that a question be referred to the Enlarged Board of Appeal if the main request was not considered allowable.

- V. By letter of 29 April 2013 the opponent (in the following: the respondent) filed observations on the appeal. It requested that the appeal be dismissed and that no question be referred to the Enlarged Board of Appeal.
- VI. In a communication dated 18 September 2014 the board expressed its preliminary non-binding opinion.
- VII. By letter of 22 September 2014 the appellant filed a revised second auxiliary request.
- VIII. On 23 October 2014 oral proceedings were held before the board. At the beginning of the oral proceedings the appellant withdrew the second auxiliary request as well as the request for referral of a question to the Enlarged Board of Appeal.
- IX. The relevant arguments put forward by the appellant in its written submissions and during the oral proceedings may be summarised as follows:

Main request

- Claim 1 of the main request was novel over E4, E5 and E7. Although it was acknowledged that these documents disclosed the sequence of steps (a) and (b) required by method claim 1, they did not disclose the functional technical features "for reducing acrylamide formation in thermally processed foods" and "cooking said food to form a cooked food with a reduced concentration of acrylamide". These features related to the purpose of reducing the acrylamide formation/concentration and in accordance with G 2/88 and G 6/88 and distinguished the method of claim 1 from the methods of the prior art. The provisions of G 2/88 and G 6/88 were general and were not linked to any specific claim category.
  
- Furthermore, the prior art documents E4, E5 and E7 did not disclose that heating the food at a temperature below about 120°C while the moisture level was at least 3% by weight, i.e. step (b) of claim 1, would reduce the concentration of acrylamide. The temperature and moisture control in the method of E4, E5 and E7 aimed at the control of the Maillard reaction which was the origin of the browning of the food products.
  
- Nor could prior art documents E1, E2 and E3 be of any help in the interpretation of E4, E5 and E7, because they did not disclose the relation between acrylamide formation and temperature/moisture control during food cooking.

First auxiliary request

- Claim 1 of the first auxiliary request was novel over E5 and E7 for the reasons given for claim 1 of the main request.

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

Main request

- Claim 1 lacked novelty in view of E4, E5 and E7 which disclosed all the method steps recited in that claim. Contrary to the assertions of the appellant, the intended use of the claimed method did not distinguish it from the methods of E4, E5 and E7. The appellant, citing G 2/88 and G 6/88, argued that claim 1 differed from the prior art by the functional technical feature of its purpose, namely "for reducing acrylamide in thermally processed foods" and "to form a cooked food with a reduced concentration of acrylamide and a moisture level of less than 3% by weight". However, G 2/88 and G 6/88 did not concern method claims but use claims, namely the new use of a known product for a new purpose.
- Furthermore, the boards of appeal of the EPO had constantly interpreted G 2/88 and G 6/88 in a restrictive manner (T 1343/04, T 304/08, T 1179/07, T1049/99, T 2215/08, T 910/98), i.e. related only to the new use of a known product for a new purpose. Thus, G 2/88 and G 6/88 did not offer legal basis for considering the purpose of a



method as a functional technical feature of that method.

- Furthermore, the acrylamide concentration of the cooked food product was an inherent property of the food product which was available to the public by E4, E5 and E7 in view of G 1/92. G 1/92 ruled that the chemical composition of a product is state of the art when the product as such is available to the public and can be analysed and reproduced by the skilled person.
  
- Finally, even the technical effect of reducing acrylamide formation was known in the prior art. The central issue in E4, E5 and E7 was how to avoid or reduce the Maillard reaction and so prevent browning of the food product. Although these documents did not disclose the link between the Maillard reaction and acrylamide formation, this was disclosed in E1 and E2 (see title) and E3 (bottom of middle column) which made a clear link between temperature control and acrylamide formation. Thus the skilled person would interpret E4, E5 and E7, which control the Maillard reaction by controlling the temperature, as also controlling acrylamide formation.

First auxiliary request

- Claim 1 of the first auxiliary request lacked novelty in view of the disclosure of E4, E5 and E7. The arguments provided in the context of the main request likewise applied to claim 1 of the first auxiliary request.

XI. The appellant (patent proprietor) requested that the decision under appeal be set aside, that the subject-matter of the main request or the first auxiliary request be found to satisfy the requirements of novelty and that the case be remitted to the opposition division for further prosecution.

The respondent (opponent) requested that the appeal be dismissed.

### **Reasons for the Decision**

1. The appeal is admissible.

#### *Main request*

2. The issue in this appeal is the novelty of the subject-matter of claim 1.

2.1 The board remarks that the appellant has acknowledged that various documents of the prior art disclose a method comprising:

- a step according to which a food is provided having a moisture level prior to cooking of at least 4% by weight, and
- a step according to which said food is cooked by heating it at a temperature below about 120°C while the moisture level of said food is less than 3% by weight.

Reference is made to E4 (column 3, line 63 to column 4, line 11), E5 (page 3, lines 20-39) and E7 (column 4, lines 32-48).

2.2 The appellant argued the prior art did not disclose:

- the purpose of the method steps, which is defined in claim 1 as granted (point I above) as "a method for reducing acrylamide formation in thermally processed foods", and
- the step of "cooking said food to form a cooked food with a reduced concentration of acrylamide and a moisture level of less than 3% by weight".

According to the appellant, the above purpose and step are features limiting the scope of claim 1 and distinguishing it over the disclosures of the prior art.

2.2.1 With regard to the above purpose, the appellant submitted that the principles established by G 2/88 (and G 6/88) concerning limiting functional features of a claim should equally apply to the present method claim. The relevant order (iii) of G 2/88 (identical to the order of G 6/88) reads as follows:

"A claim to the use of a known compound for a particular purpose, which is based on a technical effect which is described in the patent, should be interpreted as including that technical effect as a functional technical feature, and is accordingly not open to objection under Article 54(1) EPC provided that such technical feature has not previously been made available to the public."

2.2.2 With regard to the above step, the appellant considered that it led to a product which had extrinsic properties not revealed in the prior-art documents.

With regard to the meaning of "reduced concentration" in this step, the appellant took the view that the acrylamide concentration of the cooked product should be interpreted as being reduced when compared to a method not containing the specific steps of claim 1.

3. Contrary to the assertions of the appellant, the board considers that neither the purpose of the claimed method nor the specific step of claim 1 limits the claimed method over the methods of the prior art, with the consequence that these "features" cannot confer novelty on the subject-matter of claim 1 of the main request.

- 3.1 "A method for reducing acrylamide formation in thermally processed foods"

- 3.1.1 Claim 1 relates to a method carried out for the purpose of reducing acrylamide during the manufacture of foods following a thermal process including steps (a) and (b) (see above section I).

However, the order of G 2/88 recited by the appellant relates **only** to a use claim, namely to a claim for the new use of a known compound.

- 3.1.2 Furthermore the case law has constantly interpreted G 2/88 in a very restrictive manner, i.e. in a manner that only claims related to the use of a known compound for a particular purpose, based on a technical effect described in the patent, should be interpreted as including that technical effect as a functional technical feature, provided that such technical feature has not previously been made available to the public.

The board makes reference to the following decisions cited by the respondent in this appeal proceedings:

In T 1343/04 claim 1 related to a method for the treatment of raw coffee for removing non-characteristic impairments in taste and aroma. According to the decision there was no basis in the EPC for the purpose of carrying out a method to act as a distinguishing technical feature from a known method having identical features, but carried out for a different purpose. The principle set out in G 2/88 and G 6/88 for a second non-medical use was considered to be applied exclusively to the use of a product for attaining a technical effect underlying this use (points 2.1 and 2.2 of the reasons).

This principle was confirmed in T 304/08. Claim 1 underlying this decision related to a method for reducing the malodour associated with a disposable absorbent product intended for the absorption of body fluids. The board clearly indicated that decisions G 2/88 and G 6/88 pertained to claims which were directed to the use of a known substance for a novel purpose. The criteria set out by the Enlarged Board of Appeal in the aforementioned decisions could only be applied to claims directed exclusively to the use of a known substance for achieving a new effect. They could not be extended to interpreting a claim to a method for producing a product, which included one or more physical steps, wherein the purpose of carrying out said method was defined, as including said purpose as a functional technical feature (section 3.3.2 of the reasons).

In T 1179/07 claim 1 related to a method for reducing the formation of C<sub>1</sub>-C<sub>2</sub> aldehydes in substances,

dispersions or solutions. The board considered that the relevant considerations of G 2/88 and G 6/88 concerned only a claim which was directed to the use of a known substance for a purpose which had not been known. Methods for a specific purpose were not concerned by those decisions (see section 2.1.3 of the reasons).

In T 1049/99 claim 1 of auxiliary request 6 concerned a method for stabilising the derivatives of dibenzoyl methane vis-à-vis UV radiation. The board considered that the Enlarged Board of Appeal in decisions G 2/88 and G 6/88 had drawn a fundamental distinction between a claim defining the use of a compound (use claim) and a claim defining a method using the compound (method claim), and that the criteria set out in the above decisions assessing novelty of a claim defining the use of a compound could not be merely and simply transposed to a claim defining a method using the compound (see section 8.5 of the reasons).

In T 2215/08 claim 1 of auxiliary request II concerned a process for improving the stability of the hue of a granulated product. The board considered that this claim was not a use claim in the sense of decisions G 2/88 and G 6/88, which related exclusively to claims directed to the use of a known substance for achieving a new effect. Thus, the purpose of the process in claim 1 could not be regarded as a functional technical feature and hence could not distinguish the subject-matter of the claim from the prior use. The criteria set out by the Enlarged Board of Appeal in the aforementioned decisions could only be applied to claims directed to the use of a substance for achieving an effect and could not be extended to claims to a process for producing a product characterised by process steps wherein the purpose of carrying out said

process steps was indicated in the claim (section 2.4.1 of the reasons).

In T 910/98 the claim related to a method for preparing a coilbreak-free hot rolled strip. This board considered likewise that decisions G 2/88 and G 6/88 concerned only the use of a known product for an unknown purpose. While a use claim could be regarded as a kind of method claim because it dealt with an activity, such an activity did not usually result in a new product (section 2.2.2 of the reasons).

- 3.1.3 In summary, in view of G 2/88 and G 6/88 and their interpretation given by the boards of appeal of the EPO, claim 1 of the main request relating to the known method of thermally processing foods following steps (a) and (b) for the unknown purpose of reducing acrylamide formation cannot be construed to include that purpose as a distinguishing functional technical feature.

In the board's view there is no possibility to expand the ruling in G2/88 and G 6/88 to a claim worded otherwise, namely a claim relating to a known method for a new purpose.

- 3.1.4 Consequently, the wording of claim 1 "a method for reducing acrylamide formation" should be construed as concerning a method "suitable" for reducing acrylamide formation. Thus the indication of the intended purpose of the method may at the most be seen as limiting to the extent that the method has to be suitable for that use (T 304/08; section 3.3.4 of the reasons). However, the disclosure in the art of the same method without indication of the particular purpose, as long as the method is suitable for that purpose, anticipates a

method for that particular purpose. In the present appeal case, the appellant did not dispute that the otherwise identical method of E4, E5 and E7 was suitable for the reduction of acrylamide formation. Thus the indication in claim 1 of the specific purpose does not confer novelty over E4, E5 and E7.

3.2 "Cooking said food to form a cooked food with a reduced concentration of acrylamide and a moisture level of less than 3% by weight"

3.2.1 This feature concerns a process step, namely cooking food to form a cooked food, which aims at a specific cooked product, namely a product with a reduced concentration of acrylamide and a specific moisture level. Claim 1 defines the means to obtain this food product, namely cooking at a temperature below about 120°C while the moisture level is at least 3% by weight.

3.2.2 The appellant did not dispute that the method of E4, E5 and E7 discloses the cooking step in so far as it aims at cooking the food product and uses the same means. Nor did the appellant contest the fact that the product obtained by the known method was not different from the product obtained by the claimed method. The appellant only argued that E4, E5 and E7 did not disclose that the cooked food product had a reduced concentration of acrylamide and a moisture level of less than 3% by weight. Therefore the novelty issue boils down to whether E4, E5 and E7 made available to the public a product that had a reduced concentration of acrylamide and a moisture level of less than 3% by weight.



3.2.3 In order to answer this question the board refers to G 1/92 (OJ EPO, 1993, 277; headnote 1) which ruled that:

"The chemical composition of a product is state of the art when the product as such is available to the public and can be analysed and reproduced by the skilled person, irrespective of whether or not particular reasons can be identified for analysing the composition."

This ruling has been constantly followed in the case law of the boards of appeal when the product was the result of a manufacturing method (T 210/93, sections 3.2.4.2 to 3.2.5 and T 910/98, section 2.2.2 of the reasons).

Considering that the product of the method of E4, E5 and E7, which is obtained by a method which involves the same steps as the claimed method, cannot be distinguished from the product resulting from the claimed method, and considering that this product has obviously been made available to the public, since the skilled person can analyse it, it can be concluded that the skilled person can also determine its acrylamide content and moisture level applying standard procedures in the art.

Consequently the step of cooking food to form a cooked food with a reduced concentration of acrylamide and a moisture level of less than 3% by weight is part of the state of the art and cannot establish novelty over E4, E5 and E7.

4. In view of the above considerations the subject-matter of claim 1 of the main request lacks novelty over E4,

E5 and E7, with the consequence that the main request is not allowable.

*First auxiliary request*

5. Claim 1 of the first auxiliary request corresponds to the combination of claims 1 and 2 of the main request. In comparison to claim 1 of the main request it contains the additional feature:  
  
"said cooking of step b) further comprises first heating at a temperature above about 120°C while the moisture level is at least 3% by weight".
6. However, this additional feature is also disclosed in E5 and E7. Reference is made to E5, page 3, lines 20-25, and E7, column 4, lines 32-46 and column 5, lines 1-8 . The appellant did not dispute this fact but argued, as in the context of claim 1 of the main request, that the novelty was based on the undisclosed functional technical features of "for reducing acrylamide" and "of cooking said food to form a cooked food with a reduced concentration of acrylamide".
7. The board, for the reasons set out in the context of claim 1 of the main request, considers likewise that the alleged functional technical features do not impart novelty to claim 1 of the first auxiliary request. Consequently claim 1 lacks novelty over E5 and E7 and is therefore not allowable.
8. As neither the main nor the first auxiliary request is allowable, the appeal must be dismissed.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:



M. Cañueto Carbajo

W. Sieber

Decision electronically authenticated