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Datasheet for the decision of 29 October 2009

Case Number: T 1333/07 - 3.3.09

Application Number: 00941980.5

Publication Number: 1180942

IPC: A23G 9/16

Language of the proceedings: EN

Title of invention:
Process and apparatus for production of a frozen food product

Patentee:
Unilever PLC, et al

Opponent:
NESTEC S.A.

Headword:
-

Relevant legal provisions:
EPC Art. 112(2)(c), 113
EPC R. 106
RPBA Art. 12(2), 13(1)(3)

Relevant legal provisions (EPC 1973):
EPC Art. 54, 56, 83

Keyword:
"Main request (novelty - yes; inventive step - no)"
"Request for remittal - rejected"
"Auxiliary request 3 (inventive step - yes)"
"Objection pursuant Rule 106 EPC - dismissed"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1333/07 **-** 3.3.09

D E C I S I O N
of the Technical Board of Appeal 3.3.09
of 29 October 2009

Appellant: (Opponent)
NESTEC S.A.
Avenue Nestlé 55
CH-1800 Vevey (CH)

Representative:
Marchant, James Ian
Elkington & Fife
Prospect House
8 Pembroke Road
Sevenoaks
Kent TN13 1XR (GB)

Respondent: (Patent Proprietor)
Unilever PLC
Unilever House
Blackfriars
London
Greater London EC4P 4BQ (GB)

Representative:
Glawe, Delfs, Moll
Patent- und Rechtsanwälte
Rothenbaumchaussee 58
D-20148 Hamburg (DE)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 28 June 2007 rejecting the opposition filed against European patent No. 1180942 pursuant to Article 102(2) EPC.**

Composition of the Board:

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

Summary of Facts and Submissions

I. The grant of European patent No. 1 180 942 in respect of European patent application No. 00941980.5 in the name of UNILEVER PLC and UNILEVER N.V., which had been filed on 17 May 2000 as International application PCT/EP00/04724 (WO - 00/72697), was announced on 28 July 2004 (Bulletin 2004/31) on the basis of 11 claims. Independent Claims 1, 7 and 11 read as follows:

"1. Single screw extruder comprising an extruding screw and cooling means, said extruding screw being **characterised by** between 2 and 6 thread starts and a pitch angle of between 28 and 45 degrees, preferably between 32 an[d] 42 degrees.

7. Single screw extruder comprising an extruding screw and cooling means, wherein said extruding screw has a pitch angle of between 28 and 45 degrees, preferably 32 and 42 degrees, and a LT/De ratio of between [~~and~~] 2 and 10, preferably between 2 and 5, more preferably between 2 and 4.

11. Process for the manufacturing of frozen food product, wherein a food composition is mixed, aerated and cooled down to a temperature of between -4° and -7° and then processed in an extruder for further cooling down to a temperature of between -12° and -20°, **characterised in that** the extruder is the single screw extruder as defined in any of claims 1 to 10."

Claims 2 to 6 and 8 to 10 were dependent claims.

II. Notice of Opposition requesting the revocation of the patent in its entirety on the grounds of Article 100(a) EPC, for lack of novelty, inventive step and industrial applicability, Article 100(b) EPC for lack of sufficient disclosure and Article 100(c) EPC for subject-matter which extended beyond the content of the application as originally filed, was filed by Nestec S.A. on 22 April 2005.

During the opposition proceedings ***inter alia*** the following documents were cited:

D2: WO - A - 97/26800;

D7: WO - A - 98/09534; and

D40:"Engineering principles of plasticating extrusion", R.E. Krieger Publishing Company, New York, 1978, Chapter 3, pages 39, 42 and 43;

III. By its decision orally announced on 18 April 2007 and issued in writing on 28 June 2007, the Opposition Division rejected the opposition.

The Opposition Division held in its decision that the requirements of Article 83 EPC were fulfilled because upon reading the patent specification the skilled person would be able to manufacture an extruder as defined in the claims and to put it into operation such as to carry out the invention.

The Opposition Division acknowledged novelty of the claimed subject-matter because none of the cited documents disclosed all the features of the claims. As

to document D2 this document did not disclose a screw having 2 to 6 thread starts. As to the other citations, the Opposition Division did not accept the argument of the Opponent that features not disclosed therein would be implicitly contained.

Concerning inventive step, the Opposition Division saw the problem to be solved as the provision of an extruder with optimised geometry such as to minimize friction and temperature increase. The solution to this problem, namely the extruder as defined in independent Claims 1 and 7 was not obvious for the skilled person, because in order to arrive at the claimed invention various non-obvious modifications of the known extruders would have to be accomplished.

Concerning industrial applicability, the Opposition Division pointed out that the patent itself clearly referred to industrial applications such as processing foods and that there were no serious doubts that the claimed subject-matter could be put into practice in at least one kind of industry, particularly the food industry.

IV. On 1 August 2007 the Opponent (Appellant) lodged an appeal against the decision of the Opposition Division and paid the appeal fee on the same day.

In the Statement of Grounds of Appeal filed on 6 November 2007, the Appellant requested that the decision of the Opposition Division be set aside and the patent be revoked because of insufficient disclosure of the invention (Article 100(b) EPC) and because of lack of novelty and lack of inventive step

(Article 100(a) EPC). The Appellant also filed a full copy of document D40 and a declaration by Mr. Erich J. Windhab, a technical expert in the field of the patent:

D40 (appeal): "Engineering principles of plasticating extrusion", R.E. Krieger Publishing Company, New York, 1978, Chapter 3, pages 39 to 45; and

DEJW: Declaration of Erich J. Windhab dated 5 November 2007, 11 pages plus Annexes EJW1 and EJW2.

V. The Patent Proprietors (Respondents) presented their counterstatement in a written submission dated 25 March 2008. The Respondents disputed all the arguments submitted by the Appellant and requested that the patent be maintained in unamended form. The Respondents requested auxiliarily the maintenance of the patent on the basis of the auxiliary requests 1 to 6 filed in first instance proceedings with letter of 15 February 2007.

VI. On 18 May 2009 the Board dispatched the summons to attend oral proceedings on 29 October 2009. In a communication dated 22 July 2009 the Board gave its preliminary opinion on the issue of sufficiency of disclosure and drew the attention of the parties to the points to be discussed during the oral proceedings.

VII. The Respondents, in a submission dated 9 September 2009, filed six sets of claims for auxiliary requests 1 to 6, corresponding to the auxiliary requests filed in first instance proceedings with additional minor amendments.

VIII. By letter dated 18 September 2009, the Appellant informed the Board that it would not be represented at the oral proceedings and that it did not intend to make any further written submissions.

IX. During the oral proceedings held on 29 October 2009, after discussion of the main request, the Respondents filed the following objection under Rule 106 EPC:

"Respondent objects to the finding of the Board that there is no evidence for a technical effect of claim 1 as granted over the prior art as being a fundamental violation of Art. 113 (Art. 112(2)c)).
This technical effect has never been challenged by the opponent/appellant on the basis of any substantive data. The Board for the first time in the oral proceedings has asked the respondent for evidence for this technical effect and has denied the request to remit the case to the first instance to be given an opportunity to provide such evidence. Respondent could not be aware that there should be any burden of evidence for such a technical effect on him and therefore considers this to be a fundamental violation of Art. 113 EPC."

Also during the oral proceedings the Respondents withdrew auxiliary requests 1 and 2.

The claims of the main request are the claims as granted (see above point I).

Independent Claims 1 and 6 of auxiliary request 3 as filed with letter dated 9 September 2009 read as follows:

"1. Single screw extruder for the production of a frozen product comprising an extruding screw and cooling means, said extruding screw being characterized by between 2 and 6 thread starts and a pitch angle of between 28 and 45 degrees, preferably between 32 and 42 degrees, and a LT/De ratio of between 2 and 10, preferably between 2 and 5, more preferably between 2 and 4.

6. Process for the manufacturing of frozen food product, wherein a food composition is mixed, aerated and cooled down to a temperature of between -4° and -7° and then processed in an extruder for further cooling down to a temperature of between -12° and -20°, characterized in that the extruder is the single screw extruder as defined in any of claims 1 to 5."

X. The Appellant's arguments filed in writing with the Grounds of Appeal may be summarised as follows:

- The Appellant maintained that the requirements of Article 83 EPC were not fulfilled, essentially because the opposed patent did not contain a clear and unambiguous disclosure of the pitch length (Sp) and the screw diameter (De); the relevant information in paragraphs [0008] and [0011] of the specification and in Figure 1 was contradictory.

- The Appellant denied the novelty of the subject-matter of Claims 1, 2, 5, 7, 8 and 11 of the patent in suit having regard to the disclosure of D2, arguing (i) that the reference in D2 to "the pitch of the worm winding or winding**S**" should be

understood as a reference to multiple thread starts, (ii) that D2 disclosed pitch angles in the range of 19.31° to 41.7°, and (iii) that the disclosure of D2 also comprised ratios LT/De of 5.56 to 11.11. In that respect the Appellant relied on the Declaration of Mr. Windhab dated 5 November 2007.

- Concerning inventive step, the Appellant, starting from D2 as closest prior art document, saw the technical problem to be solved as being to optimise the geometry of the extruder to minimise the heat generated by viscous friction. In the absence of any evidence establishing an improvement over the disclosure of D2, the solution to this problem according to Claim 1, namely the use of multiple thread starts was a non-inventive routine modification, in particular because the use of extruders with two threads starts was known in the field of ice cream manufacture from D7 and was moreover a well known extruder screw design, as established by D40.

- A similar obviousness argumentation was presented by the Appellant on the basis of document D7.

- The Appellant did not comment on the auxiliary requests.

XI. The arguments presented by the Respondents in their written submissions and at the oral proceedings may be summarised as follows:

- The Respondents contended that most of the attacks in the grounds of appeal were completely new and had

not been pleaded before the Opposition Division. Concerning the objection under Article 100(b) EPC they argued that this opposition ground had not been substantiated, was thus not validly raised, and could not be pursued now on the basis of new arguments. This notwithstanding, the Appellant's arguments in that respect were unfounded.

- Concerning the novelty of the subject-matter of Claim 1 they argued that D2 did not disclose an extruder having 2 to 6 thread starts, nor a pitch angle in the claimed range, the calculations made by the Appellant concerning the pitch angle being based on assumptions not clearly supported by D2. As to the objections against Claims 7 and 11, it was noted that the opposition brief failed to contain a substantiated attack against them and that they could not be attacked on the basis of new submissions. Anyway, D2 failed to disclose the specified LT/De ratio and the schematic representation of Figure 2 of D2 could not be used for taking measurements. This feature was also non-obvious because D2 would not suggest that such a ratio was suitable for achieving the desired objectives of a more efficient energy management of the extruder.

- Concerning inventive step the Respondents, starting from D2 as closest prior art, stated that the object of the invention was the optimization of the geometry of the extruder in such a way that the increase in friction which was generated when the product was cooled was minimized in order to reach a temperature as low as possible. This problem was

solved by the extruder having the more efficient geometry of Claim 1 and which allowed the achievement of ice cream temperatures of below -12°C using cooling media temperatures of around -25°C. D2 gave no hint to this solution as it did not place any emphasis on the parameters of the present claims. Actually D2 taught away, as it required the use, downstream of the freezer, of a narrow area to adjust the flow resistance of the ice cream.

- The Respondents admitted that in the patent in suit there was no direct comparison with the disclosure of D2, but argued that the examples in the patent showed that the claimed process was more efficient, resulting in a better energy management.

- As the Board did not accept that the subject matter of the main request involved an inventive step, they regarded this finding of the Board as a fundamental violation of Article 113 EPC and filed an objection pursuant to Rule 106 EPC. The reason for the objection was the refusal of the Board to remit the case to the Opposition Division to enable the Respondents to file further evidence.

- Concerning the subject-matter of auxiliary request 3, the Respondents pointed out that the use of shorter extruders clearly increased the cooling performance of the extruder, as was explained in paragraph [0017] of the specification.

XII. The Appellant requested that the decision under appeal be set aside and that the European patent No. 1 180 942 be revoked.

The Respondents, after raising the objection pursuant to Rule 106 EPC, requested that

- the case be remitted to the Opposition Division for continuation of the opposition proceedings, or
- the appeal be dismissed, or
- the European patent be maintained on the basis of the claims of auxiliary request 3 filed with the letter of 9 September 2009.

Reasons for the Decision

1. The appeal is admissible.

MAIN REQUEST

2. *Sufficiency of disclosure (Article 83 EPC 1973).*

2.1 The Board agrees with the finding in the appealed decision that the patent discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

2.2 The requirements of Article 83 EPC 1973 are met if (i) at least one way is clearly indicated in the patent specification enabling the skilled person to carry out the invention, and (ii) if the disclosure allows the invention to be performed in the whole area claimed without undue burden, applying common general knowledge.

2.3 Having regard to the disclosure of the patent, including several working examples, it is clear that the first requirement cited above is met. Moreover,

there is no experimental evidence on file showing that an embodiment covered by the claims cannot be carried out by the skilled person.

2.4 The Appellant has not contested that it is possible to manufacture the claimed screw extruders having a pitch angle of between 28 and 45 degrees and between 2 and 6 thread starts. The objections of the Appellant concerning Article 83 EPC 1973 are founded mainly on the possible discrepancy between the specification and the figure in relation with the measurement of the pitch angle of the extruder. Or, in the words of the Appellant, in that "the European patent does not describe clearly and unambiguously how pitch angle can be determined" (see point 3.5 of the Notice of Appeal). These objections concern the question whether the claims define clearly the subject-matter for which protection is sought, that is to say, in relation to Article 84 EPC, which is not itself a ground for opposition. Moreover, these objections are unfounded (see point 3.2 below).

3. *Novelty (Article 54 EPC 1973).*

3.1 The subject-matter of Claim 1 is directed to a single screw extruder comprising:
a) an extruding screw, and
b) cooling means,
the extruding screw being characterized by having
a1) between 2 and 6 thread starts and
a2) a pitch angle of between 28 and 45 degrees.

3.2 The feature "pitch angle" is defined in paragraph [0011] of the description by the angle whose tangent is equal

to [Sp/πDe], wherein Sp represents the pitch length and De the screw diameter, i.e. the diameter of the barrel less the distance between the root of the screw and the inner surface of the barrel.

The Board sees no need for interpretation of the expression "pitch angle" used in the claims, the definition given in the description being entirely clear.

Insofar as the Appellant questions the definition of the screw diameter, De, it is noted that the distance between the root of the screw and the inner surface of the barrel therein mentioned would be understood by the skilled person as corresponding to the distance on both sides. This is also the conclusion of Mr. Windhab in paragraph 12 of DEJW.

The same applies to the definition of pitch length in paragraph [0008], which corresponds to the axial distance of a full turn (screw lead). The fact that in the drawing of the patent the upper end of the dimension marked Sp runs from the lower contour line of the flight whereas the lower end of this dimension runs from the upper contour line of the flight would be interpreted by the skilled person as a mistake, as it contradicts the skilled person's understanding of the term pitch length, which requires that this distance is determined with regard to the same reference points on the screw flights. This is also the conclusion of Mr. Windhab in paragraph 9 of DEJW.

3.3 The Appellant contested the novelty of Claim 1, having regard to the method of producing ice-cream disclosed in D2.

3.4 Document D2 relates to a method and a system for the continuous production of an ice-cream, the apparatus including a single screw extruder (see Claims 1 and 2 and Figure 2). The dimensions of the screw are given on page 7 of D2 but there is no explicit disclosure of the pitch angle (feature (a2) of Claim 1). The figure undisputedly shows a screw with a single thread start.

3.5 The Appellant pointed to page 3, lines 28 and 29 of D2 which refers to the "pitch of the worm winding or windings" (emphasis by the Appellant) and concludes that the reference to "the worm winding" is a disclosure of the case where the screw has one thread start and the reference to "the worm ... windings" is a disclosure of the case where the screw has multiple (more than one) thread starts.

3.6 The Board disagrees with this interpretation of the teaching of D2. The mention of "windings" cannot be considered as a clear an unambiguous disclosure of multiple thread starts. The reason for that is that, as pointed out by the Respondents, an extruder screw may comprise a single thread start with screw windings of different pitch angle over the screw length. D2 specifically emphasizes this alternative (see page 7, lines 19 - 22). Consequently feature (a1) of Claim 1 is not disclosed in D2.

3.7 For these reasons the subject-matter of Claim 1 of the main request is novel.

4. *Inventive step (Article 56 EPC 1973).*

4.1 Closest prior art.

4.1.1 Document D2 represents the closest prior art document. As discussed above in relation to novelty, D2 discloses a single screw extruder with a single thread start for the continuous production of ice-cream. There is no explicit disclosure of the pitch angle in D2 but its value can be calculated from the dimensions of the screw extruder given on page 7, lines 1 to 16. As calculated by Mr. Windhab in point 21 of his declaration, by combining the relationships P/D1 = 1-2 and D2/D1 = 1.1-1.4 (wherein P is the pitch length, D1 is the diameter of the rotor core and D2 the outer diameter of worm on this core) the range for the pitch angle disclosed in D2 can be determined. This calculation leads to a pitch angle variation between 19.31° and 41.70°, a range which overlaps to a large extent the pitch angle range of the screw extruder of Claim 1 of the patent.

4.1.2 The Respondents questioned that it was possible to calculate the value of the pitch angle with the information given in D2. They pointed in particular to the fact that the equation from document D2: P/D2 = 150/105 = 1-2 was incorrect as the ratio 150/105 was precisely 1.428 and could not be reconciled with the range 1-2. Moreover, before the Opposition Division the Appellant itself had argued that the pitch angle range was to be calculated as being from 22.5° to 45°, i.e. different from the one now presented, confirming

thereby that D2 failed to provide a clear and unambiguous disclosure of the pitch angle.

4.1.3 The Board cannot accept these arguments of the Respondents. While it is right that the equation 150/105 = 1 - 2 is mathematically not sound, the skilled person when reading the document would immediately notice this inconsistency and would look for a reasonable interpretation. He would notice from the information on page 4, lines 3 to 5: "[the worm pitch is] between one to two times the outer diameter of the worm" that the value 150/105 is to be seen as one point within the range 1 - 2 , exactly corresponding to the range 1 - 2 given on page 7, line 14. This value has been used by Mr. Windhab for his calculations. This is the only meaningful interpretation of the teaching of D2.

The correctness of this interpretation is corroborated by the analogous equation for the ratio D2/D1 on page 7, lines 16 - 17: "D2/D1 = 105/(75-90) = 1,1-1,4" which, by the correspondence of the ranges "75-90" for the divisor and "1,1-1,4" for the result of the division, highlights the way in which the previous range P/D2 is to be interpreted.

As to the argument that the Appellant itself had arrived at a different value during the first stage of the opposition proceedings, the Board notes that the range therein mentioned is quite close to the one now calculated and also overlaps to a great extent the range of Claim 1. In any case this different range, presented without any explanation of how it was obtained, cannot throw into doubt the accuracy of the

calculations of Mr. Windhab based only on the disclosure of D2, which are undoubtedly mathematically correct.

4.1.4 As a consequence, the pitch angle range specified in Claim 1 cannot be considered as a distinguishing feature. The only difference between the single screw extruder of Claim 1 of the patent in suit and the extruder of D2 is thus the use of an extruder screw having "between 2 and 6 thread starts" as compared to a screw with only one thread start according to D2.

4.2 Problem to be solved.

4.2.1 According to the Respondents, prior art extruders, including those of D2, present some drawbacks concerning the cooling efficiency, as a low temperature is required while keeping an acceptable flow. These two properties are generally incompatible because lower temperatures enhance the product's viscosity leading to higher friction and re-heating of the product (see [0006]).

4.2.2 The Respondents define the problem to be solved by the patent in suit as to optimize the geometry of the extruder in such a way that the increase in friction which is generated when the product is cooled is minimized in order to reach a temperature as low as possible. Or in other words to provide an extruder with improved energy efficiency.

4.2.3 The Respondents stated that the claimed extruders having the geometry as specified in Claim 1 showed this improved efficiency. Although a direct comparison with

the results of D2 had not been made, the examples in the patent in suit in its opinion established that the performance of the extruder has been enhanced.

Thus the extruder of D2 requires operation at very low temperatures with a cooling medium in the temperature range of -40 to -100°C to bring the extruded ice cream to a temperature of -12 to -15°C (or -12 to -25°C), whereas the extruders of the patent in suit require a cooling media temperature of only around -25°C to achieve ice cream temperatures of below -12°C (see Table in the patent, entries 4 to 13); this comparison showed that the claimed extruders had a more efficient geometry.

4.2.4 The Appellant disputed that the claimed geometry resulted in an improved efficiency. It pointed out that the only comparison that could be made within the results of the patent was that of experiments 10 and 11, the extruders in these experiments having about the same geometry, the only variation being that the number of thread starts has been changed from 3 to 6. The consequence of this change being an (undesired) increase of the ice cream temperature of 0.5°C (-13.1°C compared to -13.6°C).

4.2.5 The Board agrees with the Respondents that the extruders used in the examples of the patent in suit show improved efficiency when compared with those of D2.

There is however no evidence that this improvement is due to the distinguishing feature of the claim, namely the number of thread starts. On the contrary the

comparison between experiments 10 and 11 discussed above undisputedly question that this is the case.

4.2.6 In addition to the results in the patent, the Respondents relied during the oral proceedings on paragraph [0007] of the specification in order to establish that an increase of performance has been achieved. According to this paragraph it was possible to dramatically increase the performance of an extruder when used in the manufacture of ice cream by:

(a) operating with a pitch angle which is outside what has been used up until now in the manufacture of ice cream,
(b) operating with screws which have more than one thread start, whereas up until now screws with only one thread start have been disclosed, and
(c) operating with extruders which are much shorter than what has been used up until now.

4.2.7 The Board notes: that feature (a) is not a distinguishing feature of the claimed extruder; that the results in the Table of the patent question the affirmation of the Respondents that feature (b) is responsible for the increased performance of the extruder; and that feature (c) is not a feature of the subject-matter of Claim 1 of the main request.

With respect to feature (b) the Board notes furthermore that, in the absence of supporting evidence, an improved performance of an extruder having a screw with more than one thread start over an extruder with a single threaded screw is not ***per se*** credible, because given the complexity of the parameters influencing the

rheological properties in an extruder, this feature by itself can in all probability not be assumed to influence the cooling performance in the desired fashion independently of other parameters.

The Board thus concludes that an improvement of the efficiency of the extruder relating to the distinguishing feature of the invention is not derivable from the patent in suit.

4.3 Reformulation of the problem and its solution.

4.3.1 In view of the above, an improvement of the energy efficiency of the extruders according to Claim 1 cannot be acknowledged as the objective technical problem underlying the invention as claimed in the main request. As a consequence, the problem has to be reformulated in a less ambitious manner, not involving such improvement.

4.3.2 The objective problem can thus be reformulated as the provision of further screw extruders for the manufacture of ice cream.

4.3.3 It is not disputed that this less ambitious problem is solved by the claimed single screw extruders having between 2 and 6 thread starts according to Claim 1 as it is an alternative design when compared to that of D2.

4.4 Obviousness

4.4.1 The question which remains to be decided is whether this solution involves an inventive step, that is to say, if in view of the reformulated problem the claimed subject-matter is obvious or not.

4.4.2 In the absence of an improvement of the efficiency of the extruder, the use of a screw extruder with more than one thread start is regarded by the Board as obvious for the skilled person and therefore lacking inventive step.

4.4.3 The reason for this conclusion is that it is undisputed that multiple thread starts are well known in the design of screw extruders (see, for instance, D40 appeal, Figure 3.1). Moreover extruders with multiple thread starts have already been used in the manufacture of ice creams, for instance in Example 1 of D7.

4.4.4 As this finding was not disputed by the Respondents, who even admitted during the oral proceedings that if the improvement of the efficiency of the extruder was not accepted, there was no inventive step in the use of a screw with multiple thread starts, no further comments are needed.

4.5 For the reasons set out above the subject-matter of Claim 1 of the main request lacks inventive step.

5. Request for remittal.

5.1 During the oral proceedings before the Board, the Respondents, after having been informed that the main request was not considered allowable, pointed out that if the reason for the rejection of the main request was the lack of evidence for a technical effect, then it regarded this finding of the Board as amounting to a fundamental violation of Article 113 EPC, because the superior technical effect of the claimed screw extruder

had not been challenged by the Opponent/Appellant on the basis of any substantive data and the existence of such an effect was challenged for the first time by the Board during the oral proceedings without acceding to the Respondent's request to remit the case to the Opposition Division to afford the Respondents an opportunity to provide such evidence.

5.2 The Respondents' assertion that the technical effect had never been challenged by the Appellant is not in agreement with the facts.

5.2.1 This point, i.e. the absence of a technical effect due to the use of multiple thread starts, was raised by the Appellant in the Statement of Grounds of Appeal (see the discussion on inventive step on pages 5 to 10, in particular page 8, under paragraph 5.11 and paragraph 17 of the declaration of Mr. Windhab also filed with the Statement of Grounds).

5.2.2 Moreover, the Board in its preliminary opinion dated 22 July 2009 observed that it was to be discussed during the oral proceedings, ***inter alia***, what was the problem to be solved and whether the problem was actually solved within the whole claimed area (see page 6, point 7.1).

5.2.3 The Respondent even commented on this issue in its letter of 25 March 2008 (cf. pages 10 - 13, in particular page 11, fourth full paragraph which starts with the phrase "The appellant contests that there is any technical effect of the invention over D2..."). Finally, this issue was discussed in detail during the oral proceedings before the Board.

5.3 In view of these facts, the Board can only come to the conclusion that the Respondents had sufficient opportunity to defend themselves against the attack of the Appellant based on the absence of a technical effect of the claimed subject-matter, which it duly did before and during the oral proceedings.

5.4 Insofar as the Respondents relies on the lack of experimental data in the argument of the Appellant, it is noted that, according to the Boards' case law, alleged advantages which the patent proprietor asserts, without offering sufficient evidence to support the comparison with the closest prior art, cannot be taken into consideration in determining the problem underlying the invention and therefore in assessing inventive step (see Case Law of the Boards of Appeal of the European Patent Office, 5th edition, 2006, I.D.4.2). Additionally the evidence on file in fact challenges the assertions of the Respondents (see the reasons already discussed in detail above under 4.2). As to the Respondents' argument that in opposition proceedings the burden is on the Opponent to disprove any effect accepted by the granting authority, this obligation has been met, as set out above. The Board notes in this respect that in order to meet this obligation it is sufficient to establish a reasonable case, which does not necessarily require experimental evidence. In the Board's judgment, the Appellant has met this obligation by casting considerable doubt on the unsupported allegations of the patent in suit.

5.5 Article 12(2) of the Rules of Procedure of the Boards of Appeal states that the Statement of Grounds and the

reply shall contain a party's complete case. Amendments to a party's case are only possible under the conditions of Article 13(1) and (3) of these Rules. The request to be allowed to present new evidence in further proceedings before the Opposition Division would be contrary to Art. 13(3) of the Rules of Procedure of the Boards of Appeal. Consequently, the Board refused the Respondent's request for remittal of the case to the Opposition Division for further prosecution.

6. Objection under Rule 106 EPC

6.1 The Respondent's objection filed during the oral proceedings fulfils the formal requirements of Rule 106 EPC; it was explicitly directed against an alleged fundamental violation of Article 113 EPC (cf. Article 112a(2)(c) EPC) committed and was dismissed by the Board.

6.2 In the Board's judgment dismissal of the objection was required as no violation of Article 113 EPC had occurred because the Respondents had had sufficient opportunity to comment on the relevant issues.

AUXILIARY REQUEST 3

7. *Amendments (Article 123 EPC)*

7.1 The main amendment made to Claim 1 is the requirement that the screw length (LT)/screw diameter (De) ratio of the screw is now defined in accordance with granted Claim 5 (see also Claim 5 as originally filed). The claim further specifies that the single screw extruder

is for the production of a frozen food product, in accordance with the application as filed (see for instance Claim 13).

The requirements of Article 123(2) EPC are thus fulfilled.

7.2 By requiring that the extruder has a defined LT/De ratio, the subject-matter of the claims has clearly been limited and does not extend the protection conferred by the granted patent (Article 123(3) EPC).

8. *Inventive step (Article 56 EPC 1973)*

8.1 Claim 1 of auxiliary request 3 differs from the disclosure of D2 by the use of a screw having between 2 and 6 thread starts and by the further feature that the LT/De ratio has a value of between 2 and 10.

8.2 Closest prior art

8.2.1 Document D2 remains the closest prior art document. It is silent about the LT/De ratio of the extruder.

8.2.2 The Appellant accepted that no value was given in D2 for this feature but argued that it could be derived from the Figure 2 of D2 (see point 22 of DEJW).

8.2.3 The argument of the Appellant is not convincing. Figure 2 of D2 is a schematic representation and cannot be used as a basis for taking any measurements. The calculations of the Appellant are speculative and do not allow any conclusion to be drawn with regard to the value of the LT/De ratio of the screw extruder of D2.

8.3 The problem to be solved and its solution.

8.3.1 The Board has already concluded, when discussing the main request (see point 4.2 above), that an improvement of the efficiency of the extruder relating to the then distinguishing feature of the invention, namely the use of an extruder screw having "between 2 an 6 thread starts" was not derivable from the patent in suit.

8.3.2 Similar considerations apply for the subject-matter of Claim 1 of auxiliary request 3, which further includes the feature that the LT/De ratio has a value of between 2 and 10. The reason for this finding is again the absence of any technical effect due to this feature, the examples in the patent being silent about the value of the LT/De ratio of the used extruder.

8.3.3 The objective problem to be solved by the subject-matter of Claim 1 of auxiliary request 3 remains the less ambitious problem defined under point 4.3.2 above, that is to say, the provision of an alternative screw extruder for the manufacture of ice cream.

8.3.4 It is not disputed that this problem is solved by the claimed single screw extruders of Claim 1 of auxiliary request 3 having in addition to the features of the main request, the further feature that the LT/De ratio lies between 2 and 10.

8.4 Obviousness

8.4.1 There is no indication in D2 or in the other documents cited during the appeal proceedings as to the use of

extruders having the claimed LT/De ratio in order to provide alternative screw extruders. D2 is completely silent about this parameter and cannot give any incentive to use extruders as now claimed. On the contrary, the Respondents pointed out that the prior art suggested that long screws were preferable (see paragraph [0017] of the specification). The claimed single screw extruders are therefore a non-obvious alternative to the extruders of D2.

9. For these reasons the subject-matter of Claim 1 of auxiliary request 3 involves an inventive step.

Claims 2 to 6 are directly or indirectly dependent on Claim 1 and therefore also satisfy the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

1. The request for remittal of the case to the Opposition Division for continuation of the opposition proceedings is rejected.

2. The objection filed in writing during the oral proceedings is dismissed.

3. The decision under appeal is set aside.

4. The case is remitted to the Opposition Division with the order to maintain the European patent on the basis of Claims 1 to 6 of auxiliary request 3 filed with the letter of 9 September 2009, the drawing as granted, after any necessary consequential amendments of the description.

The Registrar The Chairman

G. Röhn P. Kitzmantel