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**Datasheet for the decision  
of 17 February 2022**

**Case Number:** T 1187/19 - 3.3.09

**Application Number:** 14382558.6

**Publication Number:** 3037003

**IPC:** A23L3/00, A23L3/3418, A23L3/36

**Language of the proceedings:** EN

**Title of invention:**  
Food preservation process combining cryogenic freezing and  
modified atmosphere packaging

**Patent Proprietor:**  
AIR PRODUCTS AND CHEMICALS, INC.

**Opponents:**  
Praxair, Inc.  
L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET  
L'EXPLOITATION DES PROCEDES GEORGES CLAUDE

**Headword:**  
Food preservation process/AIR PRODUCTS

**Relevant legal provisions:**  
EPC Art. 56

**Keyword:**

Main Request and Auxiliary Requests 1 and 2 - Inventive Step  
(No)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern**  
**Boards of Appeal**  
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Case Number: T 1187/19 - 3.3.09

**D E C I S I O N**  
**of Technical Board of Appeal 3.3.09**  
**of 17 February 2022**

**Appellant:** Praxair, Inc.  
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**Appellant:** L'AIR LIQUIDE, SOCIETE ANONYME POUR L'ETUDE ET  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
7 March 2019 concerning maintenance of the  
European Patent No. 3037003 in amended form.**

**Composition of the Board:**

**Chairman**            A. Haderlein  
**Members:**            A. Veronese  
                             E. Mille

## Summary of Facts and Submissions

I. The decision concerns the appeals filed by the two opponents (appellants) against the opposition division's decision finding that European patent No. EP 3 037 003 B1, as amended in accordance with the main request filed by letter dated 5 April 2018, met the requirements of the EPC.

II. In their notices of opposition, the opponents requested that the patent be revoked in its entirety *inter alia* on the grounds under Article 100(a) (lack of inventive step).

III. Claim 1 of the main request reads as follows:

*"1. A method of food preservation comprising providing a frozen food product in modified atmosphere packaging by the steps of:*

- cryogenic freezing of the food product; and*
- modified atmosphere packaging of the food product,*

*wherein the steps can be conducted in either order, the method further comprising a step of thawing the food product and storing it under chilled conditions for at least 10 days, preferably for at least 20 days."*

IV. The following documents, among others, were filed during the opposition proceedings:

D2: DE 31 40 337 A1; 21 April 1983

D13: Redmond G. et al., Freeze Chilling of Ready-to-eat Meal Components, Agriculture and Food Development Authority; Project RMIS No. 4885, March 2004

V. In its decision, the opposition division decided *inter alia* that the subject-matter claimed in the main request involved an inventive step starting from D2 and D13 as closest prior art. Concerning D2, the division noted that this document defined a method for preserving a food involving cryogenic freezing, and modified atmosphere packaging followed by thawing and storing for several days. However, D2 did not suggest storing the product for 10 days under chilled conditions. Even if the skilled person could have carried out tests to assess the stability of the product over time, there was no incentive to do so. Analogous conclusions were arrived at starting from D13 as closest prior art.

VI. With its reply to the appellants' statements setting out the grounds of appeal, the proprietor (respondent) filed a main request, corresponding to the request found allowable by the opposition division, and two auxiliary requests.

Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it is characterised by the following additional feature:

"...wherein the modified atmosphere includes carbon dioxide, nitrogen and optionally oxygen and/or argon,..."

Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that it is characterised by the following additional feature:

*"...comprising one or more of fish, vegetables and ready made food products comprising fish, meat and/or vegetables..."*

VII. As far as relevant to the decision, the **appellants'** arguments can be summarised as follows:

The claimed subject-matter did not involve an inventive step. D2, rather than D13, was the closest prior art because it described a method having the same purpose and more technical features in common with the claimed method.

The claimed method differed from that of D2 in the duration - at least 10 days - of the storage under chilled conditions. Starting from D2, the problem was to provide a further method for preserving a food product which had been frozen and then thawed.

The method of D2 tripled typical storage periods at room temperature after thawing. Even longer periods were predicted if the food was stored in a refrigerator under chilled conditions. It would have been obvious to store the food for 10 days under chilled conditions and to test its properties after this period. Such tests were routine: therefore the skilled person would have arrived at the claimed solution without the need for inventive skill.

VIII. The arguments presented by the **respondent** can be summarised as follows:

The claimed subject-matter involved an inventive step. D13, which like the opposed patent focused on freeze-chilling of foods and ready-to-eat meals, was the closest prior art. D2 was an old document relating to food preservation at room temperature which did not represent a realistic starting point. Therefore it was not the closest prior art for assessing inventive step.

Even considering D2 as the starting point, the claimed invention involved an inventive step over the teaching of this document. D2 did not suggest storing the thawed product for 10 days under chilled conditions, but focused on storage at room temperature after thawing. Furthermore, the appellant had purposely drawn attention to the longest preservation times at room temperature mentioned in D2, ignoring that shorter ones were also provided for.

IX. Requests:

- the **appellants** requested that the decision under appeal be set aside and the patent be revoked in its entirety.
- The **respondent** requested that the appeals be dismissed or, alternatively, that the patent be maintained on the basis of one of auxiliary requests 1 or 2 filed with the reply to the appellants' statements setting out the grounds of appeal.



## Reasons for the Decision

### Main request

1. *Inventive step*
- 1.1 The claimed method relates to "freeze-chilling" of food products. Freeze-chilling involves freezing and frozen storage of a food product, followed by thawing and preservation under chilled conditions.
- 1.2 The freeze-chilling method defined in claim 1 involves the following steps:
  - cryogenic freezing of the food product
  - modified atmosphere packaging (MAP)
  - thawing
  - storing under chilled conditions for at least 10 days
- 1.3 D2 relates to a method of food preservation involving cryogenic freezing of a food and packaging in an inert atmosphere: see claim 1 and the passage from page 6, line 32 to page 7, line 27. As noted by the respondent, D2 focuses primarily on a process for preparing a frozen food which is conserved at room temperature after thawing. However, D2 teaches that food preservation can even be prolonged if the food is stored in a refrigerator at chilled temperature after thawing: see page 7, lines 18-21. Thus D2, like the opposed patent, relates to a method for freeze-chilling food products.

- 1.4 Furthermore, the food preservation method of D2 is closer, in terms of relevant technical features, to the one claimed than that disclosed in D13, proposed by the respondent as the closest prior art. D13 is an article discussing the use of "freeze chilling" for the preservation of food products. It refers to rapid freezing methods, such as blast freezing, but does not mention cryogenic freezing, the freezing method characterising claim 1.
- 1.5 The respondent argued that D2 should not be considered the closest prior art because of its age. Age of a document is not as such a ground for excluding a document as a starting point for assessing inventive step. The case law acknowledges that there may be circumstances where a document may not be a realistic starting point because it relates to outdated technology and/or is associated with such well-known disadvantages that the skilled person would not even consider trying to improve on it (Case Law of the Boards of Appeal of the EPO, section I-D,3.5.4). However, the present case does not relate to any such circumstances. As noted by the appellants, the steps of cryogenic freezing, packaging under modified atmosphere and thawing, which characterise both the method of D2 and the one claimed, have not changed over time and are still in use. Thus there are no grounds for assuming that D2 relates to technology which is outdated or associated with well-known disadvantages.
- 1.6 For these reasons, it is concluded that D2 is a realistic and feasible starting point for assessing inventive step.
- 1.7 It was not contested that the only technical feature distinguishing the claimed method from that of D2 is

the length of the period over which the food is maintained under chilled conditions after thawing. This period is at least 10 days according to claim 1, and is not specified in D2.

- 1.8 The effect of keeping the food in chilled conditions for at least 10 days is that the food can be preserved for this period of time. In this respect, the respondent's argument that the claimed method resulted in better bacteriological stability is not convincing because, apart from the above feature, the steps of the method of D2 are the same.
- 1.9 Starting from D2, the underlying problem is the provision of a further method for preserving a food product which has been frozen and then thawed.
- 1.10 The question to be answered is whether, starting from D2, the skilled person would have considered maintaining the food described therein under chilled conditions for at least 10 days after the thawing step.
- 1.11 D2 teaches that, usually, water-containing food products can be preserved for a time of from a few hours to two days (see page 6, lines 12 to 15), and furthermore that, when subjected to cryogenic freezing and packaging under inert atmosphere according to the disclosed invention, this time can be tripled: see page 7, lines 8 to 15. What is more, D2 teaches that if, after thawing, the food is conserved in a refrigerator under chilled conditions, the preservation period can be further prolonged: see page 7, lines 18 to 21. This means that D2 provides for preservation times of up to 6 days at room temperature, and envisages even longer times if the food is maintained under chilled conditions.

- 1.12 The respondent noted that the appellants only referred to the longest storage period of 2 days mentioned in D2, ignoring that shorter periods were also mentioned. However, it is evident that there will be variability in the storage period depending on different factors including, for example, the type of food and its method of manufacture. Since claim 1 contains no limitation as to any of these factors, there is no reason to disregard the disclosed 2-day period.
- 1.13 The board considers that the skilled person having normal means and capacity for routine work and experimentation would conduct further attempts to implement and optimise the invention disclosed in D2. When doing this, the skilled person would conduct tests to monitor the state of preservation of the food for periods extending beyond the 6-day period mentioned in D2. They would also, with a reasonable expectation of success, contemplate conducting the testing under chilled conditions for 10 days. This is certainly not a period differing by far from the aforementioned 6-day period at room temperature.
- 1.14 For these reasons, it is concluded that the skilled person would arrive at the claimed solution without the need for inventive skill (Article 56 EPC).

### **Auxiliary request 1**

#### 2. *Inventive step*

- 2.1 Claim 1 of auxiliary request 1 differs from claim 1 of the main request in that it specifies that the modified atmosphere includes carbon dioxide and nitrogen.
- 2.2 The respondent submitted that auxiliary request 1 was filed to address a lack-of-novelty objection over D1, but it did not explain how this request might overcome the inventive-step objection over D2.
- 2.3 Since D2 discloses an atmosphere comprising carbon dioxide and nitrogen (see claim 4), the same conclusions already arrived at when discussing the main request apply (Article 56 EPC).

### **Auxiliary request 2**

#### 3. *Inventive step*

- 3.1 Claim 1 of auxiliary request 2 differs from claim 1 of the main request in that it specifies that the food comprises one or more of fish, vegetables and ready-made food products comprising fish, meat and/or vegetables.
- 3.2 The respondent submitted that this request was filed to address a lack-of-novelty objection over D1, but did not explain how this request might overcome the inventive-step objection over D2.
- 3.3 Since D2 relates generally to preservation of "water-containing foods", and vegetables and fish are examples of these water-containing foods, the same conclusions

already arrived at when discussing the main request also apply to auxiliary request 2 (Article 56 EPC).

## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:



A. Nielsen-Hannerup

A. Haderlein

Decision electronically authenticated