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D E C I S I O N
of 20 April 2004

Case Number: T 0407/00 - 3.3.1
Application Number: 93916698.9
Publication Number: 0649453
IPC: C09K 5/04
Language of the proceedings: EN

Title of invention:

Azeotropic compositions of perfluoroethane and
trifluoromethane

Patentee:

E.I. DU PONT DE NEMOURS AND COMPANY

Opponent:

Imperial Chemical Industries PLC

Headword:

Refrigeration composition/ DU PONT DE NEMOURS

Relevant legal provisions:

EPC Art. 54

Keyword:

"Novelty (no) - disclosure of a process for achieving a
certain purpose by specifying the suitability of a composition
for said purpose"

Decisions cited:

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Catchword:

-



Case Number: T 0407/00 - 3.3.1

D E C I S I O N
of the Technical Board of Appeal 3.3.1
of 20 April 2004

Appellant: Imperial Chemical Industries PLC
(Opponent) Imperial Chemical House, Millbank
London SW1P 3JF (GB)

Representative: Dee, Ian Mark
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58 The Ropewalk
Nottingham NG1 5DD (GB)

Respondent: E.I. DU PONT DE NEMOURS AND COMPANY
(Proprietor of the patent) 1007 Market Street
Wilmington,
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Representative: Matthews, Derek Peter
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179 Queen Victoria Street
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
17 February 2000 concerning maintenance of
European patent No. 0649453 in amended form.

Composition of the Board:

Chairman: A. J. Nuss
Members: J. M. Jonk
S. C. Perryman

Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal against the interlocutory decision of the Opposition Division indicating that subject-matter of the patent in suit No. 0 649 453 (European patent application No. 93 916 698.9) as amended was found to meet the requirements of the EPC.

II. The decision was based on one single claim filed during oral proceedings before the Opposition Division on 14 December 1999, said claim reading as follows:

"A process for producing refrigeration in refrigeration equipment comprising condensing an azeotropic or azeotropic-like binary mixture of perfluoroethane (FC-116) and trifluoromethane (HFC-23) and thereafter evaporating the mixture in the vicinity of a body to be cooled, said mixture having differences in dew point and bubble point temperature of less than or equal to 1°C, wherein the mixture comprises about 54 weight percent of FC-116 and about 46 weight percent of HFC-23."

The opposition was filed against the patent as a whole, and based on the grounds of lack of novelty and inventive step as indicated in Article 100(a) EPC. It was supported by several documents including:

- (5) "Investigations of the Phase Equilibrium and Critical Curve for the R-23/R-116 Mixture", Yu. V. Semenyuk et al., Kholod. Tekhn. i Tekhnol, No. 51 (1990), pages 79 to 81.

III. The Opposition Division held that the subject-matter of the patent in suit as amended was found to meet the requirements of the EPC.

IV. Oral proceedings before the Board were held on 20 April 2004.

V. During these oral proceedings the Respondent (Patentee) filed a new claim as his sole request in order to meet formal objections under Article 123(2), Article 84 and Rule 57a EPC, said claim reading as follows:

"A process for producing refrigeration comprising condensing an azeotropic or azeotropic-like binary mixture of perfluoroethane (FC-116) and trifluoromethane (HFC-23) and thereafter evaporating the mixture in the vicinity of a body to be cooled, characterised in that the mixture comprises 54 weight percent of FC-116 and 46 weight percent of HFC-23."

VI. The Appellant maintained with respect to the subject-matter of this claim formal objections under Article 123(2) EPC, and also argued that said subject-matter lacked novelty and inventive step.

Concerning novelty, he argued in particular that document (5) disclosed an azeotropic composition comprising perfluoroethane (R-116) and trifluoromethane (R-23) in which the mole fraction of the R-116 was 0.36. This equated to a composition comprising 52.5 weight % R-116 and 47.5 weight % R-23, so that it was evident that in using said composition in a refrigeration system one would inevitably arrive at a composition as claimed. He also submitted that said document disclosed

the use of the disclosed azeotropic mixture as a high pressure refrigerant and that it was suitable as a replacement of R-503.

- VII. The Respondent disputed that the claimed subject-matter would not meet the requirements of the EPC.

Concerning novelty he contended that document (5) did not disclose a method of producing refrigeration using an azeotropic composition containing R-116 and R-23 as the refrigerant. Accepting that in view of the normal fluctuation of the weight ratio of R-116 and R-23 in a refrigeration cycle the weight ratio of the constituents of the azeotropic mixture as claimed did not represent a distinguishing feature, he emphasised that document (5) only speculated that the azeotropic composition as disclosed therein was suitable as a refrigerant and might be used as a replacement of R-503. In order to anticipate the present claim it would be necessary that said document directly and unambiguously disclosed the actual realisation of the announced suitability as a refrigerant. In support of this point of view he referred to the decision T 753/00.

- VIII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the claim of the request submitted at the oral proceedings on 20 April 2004.

- IX. At the conclusion of the oral proceedings the Board's decision was pronounced.

Reasons for the Decision

1. The appeal is admissible.
2. *Amendments*
 - 2.1 Having regard to the Board's findings indicated below concerning the question of novelty of the claimed process, the Board sees no reason to consider this matter.
3. *Novelty*
 - 3.1 According to the Respondent's submissions in this respect the disclosure of document (5) and the subject-matter of the present claim only differed in that said document did not disclose a process directly and unambiguously demonstrating the actual use of the azeotropic mixture of R-116 and R-23 for producing refrigeration.
 - 3.2 However, it is stated in document (5) on page 3, lines 4 to 7, that:

"We should draw attention to an important merit of this mixture - the presence of an azeotrope, which makes it possible to use it as a high-pressure refrigerant for the lower stage of cascade refrigerators."

Contrary to the Respondent's submission, the Board finds that this disclosure is not speculative in the sense that the azeotropic mixture of R-116 and R-23

might possibly be used as a refrigerant. This disclosure teaches that the presence of an azeotrope **makes** it suitable for being used as a refrigerant and indicates **the specific conditions** for this use, namely, as a high-pressure refrigerant for the lower stage of cascade refrigerators, thus making the process of the present claim publicly available to the skilled person.

3.3 In this context, the Board observes that the decision T 753/00 cited by the Respondent in support of his submissions is not applicable, since it was based on particular factual circumstances which are absent in the present case. According to said decision the there claimed method was not prior published since a document relating to the complex technical field of recombinant DNA technology, gene technology, where the outcome of any transfer of technology to a new area was quite unpredictable, only speculated that the method disclosed therein using hybridoma cells might also be applied to single B-cells, so that the skilled person had not been provided with any technical teaching demonstrating the actual experimental realisation of this suggestion (see Point 2 of the Reasons of the Decision). In the present case, however, the skilled person provided with the technical information of document (5) indicated above would certainly know which refrigerant to use, how to put it into praxis, and expect it to work.

3.4 Therefore, the Board concludes that the disclosure of document (5) as a whole directly and unambiguously makes available to the skilled person a process falling within the scope of the present claim, and that consequently the Respondent's sole request fails

because of lack of novelty of the subject-matter of the present claim.

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:

N. Maslin

A. Nuss