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**D E C I S I O N**  
**of 8 July 2004**

**Case Number:** T 0826/98 - 3.3.1

**Application Number:** 91905195.3

**Publication Number:** 0519948

**IPC:** C11D 7/50

**Language of the proceedings:** EN

**Title of invention:**

Azeotropic composition of 1,1,1,2-tetrafluoroethane and dimethyl ether

**Applicant:**

E.I. DU PONT DE NEMOURS AND COMPANY

**Opponent:**

-

**Headword:**

Non-flammable mixtures/DU PONT DE NEMOURS

**Relevant legal provisions:**

EPC Art. 54(3), 82, 123(2)

**Keyword:**

"Sole request: novelty (yes) - unity of invention (yes)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 0826/98 - 3.3.1

**D E C I S I O N**  
of the Technical Board of Appeal 3.3.1  
of 8 July 2004

**Appellant:**

E.I. DU PONT DU NEMOURS AND COMPANY  
1007 Market Street  
Wilmington  
Delaware 198798 (US)

**Representative:**

Woodcraft, David Charles  
Brookes Batchellor  
102-108 Clerkenwell Road  
London EC1M 5SA (GB)

**Decision under appeal:**

Decision of the Examining Division of the  
European Patent Office posted 25 March 1998  
refusing European application No. 91905195.3  
pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** A. J. Nuss  
**Members:** P. P. Bracke  
S. U. Hoffmann

## Summary of Facts and Submissions

I. The appeal lies from the Examining Division's decision, despatched on 25 March 1998, refusing European patent application No. 91 905 195.3, published as WO 91/13968, due to lack of novelty, since the exclusion of the binary mixtures specifically disclosed in document

(1) EP-A-0 443 912

by disclaimers was not suitable for distinguishing the claimed subject-matter from the disclosure of document (1) and since the novel subject-matter was not based on a single general inventive concept.

The decision was based on a set of 9 claims comprising the following three independent product claims:

"2. An azeotropic or constant-boiling composition which comprises 45 to 55 weight percent HFC-134a and 55 to 45 weight percent of dimethyl ether but excluding binary mixtures of 50 weight percent of HFC-134a and 50 weight percent of dimethyl ether."

"3. A non-flammable binary mixture which comprises from 91 to 99.5 weight percent of HFC-134a and 0.5 to 9 weight percent of dimethyl ether."

"5. A binary mixture comprising from 40 to 99.5 weight percent of HFC-134a and 0.5 to 60 weight percent of dimethyl ether but excluding binary mixtures consisting of 40 weight percent of HFC-134a and 60 weight percent of dimethyl ether, 50 weight percent of HFC-134a and 50 weight percent of dimethyl ether, 60 weight percent

of HFC-134a and 40 weight percent of dimethyl ether, 62.3 weight percent of HFC-134a and 37.3 weight percent of dimethyl ether, 70 weight percent of HFC-134a and 30 weight percent of dimethyl ether, 80 weight percent of HFC-134a and 20 weight percent of dimethyl ether and 90 weight percent of HFC-134a and 10 weight percent of dimethyl ether."

II. At the oral proceedings, which took place on 8 July 2004, the Appellant filed, as a sole request, a set of three claims, reading:

"1. A non-flammable binary mixture which consists essentially of 91 to 99.5 weight percent of HFC-134a and 0.5 to 9 weight percent of dimethyl ether."

"2. A mixture as claimed in claim 1 which consists essentially of 91 to 95 weight percent of HFC-134a and 5 to 9 weight percent of dimethyl ether."

"3. A process for producing refrigeration which comprises evaporating a mixture as claimed in claim 1 or 2 in the vicinity of a body to be cooled."

III. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution.

## Reasons for the Decision

1. The appeal is admissible.
2. *Article 123(2) EPC*

The binary mixtures of Claims 1 and 2 correspond with the ones of Claims 3 and 4 as originally filed and the process of Claim 3 corresponds with the process described in Claims 7 and 8 as originally filed.

Consequently, the requirement of Article 123(2) EPC is met.

3. *Novelty*

Document (1) has a filing date and a priority date before the filing date and respective priority date of the present application and was published after the filing date of the present application. Moreover, its content is identical with the content of French application number 90 02012, from which it claims the priority date. Document (1) represents, thus, state of the art according to Article 54(3) EPC.

This document discloses, in general, on page 2, lines 27 to 30, compositions containing 5 to 85% of HFC-134a and 15 to 95% of dimethyl ether and it specifically cites in Table 1 compositions containing 0, 10, 20, 30, 40, 50, 60, 62.3, 70, 80, 90 and 100% of HFC-134a, the remaining part of the compositions consisting of dimethyl ether. Moreover, graph 1 represents a curve obtained by plotting the pressure of compositions

consisting of 100% and less than 80% of HFC-134a, the remaining component being dimethyl ether.

As, thus, compositions consisting of 91 to 99.5 weight percent of HFC-134a and 0.5 to 9 weight percent of dimethyl ether are not disclosed therein, document (1) is not novelty destroying for Claims 1 to 3.

4. *Unity of invention*

Since all claims are related to binary mixtures consisting of 91 to 99.5 weight percent of HFC-134a and 0.5 to 9 weight percent of dimethyl ether, which are non-flammable and which are useful for being evaporated in the vicinity of a body to be cooled, the claimed subject-matter is incontestably linked so as to form a single general inventive concept.

**Order**

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

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution.

The Registrar:

The Chairman

N. Maslin

A. Nuss