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Aktenzeichen / Case Number / N^o du recours : T 469/88 - 3.4.1

Anmeldenummer / Filing No / N^o de la demande : 81 301 385.1

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Bezeichnung der Erfindung: Improvements in or relating to dielectric fluid

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : H01F 27/10

ENTSCHEIDUNG / DECISION

vom / of / du 30 November 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Westinghouse Electric Corporation

Einsprechender / Opponent / Opposant :

Hüls Aktiengesellschaft

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56

Schlagwort / Keyword / Mot clé : "Inventive step, no."

Leitsatz / Headnote / Sommaire

Europäisches
Patentamt

Beschwerdekammern

European Patent
Office

Boards of Appeal

Office européen
des brevets

Chambres de recours



Case Number : T 469/88 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal
of 30 November 1989

Appellant : Westinghouse Electric Corporation
(Proprietor of the patent) Westinghouse Building
Gateway Center
Pittsburgh
Pennsylvania 15222 (US)

Representative : J.I. Marchant
Elkington and Fife
52/54 High Holborn
London WC1V 6SH

Respondent : Hüls Aktiengesellschaft
(Opponent) Paul-Baumann-Straße 1
D-4370 Marl 1

Representative :

Decision under appeal : Decision of the Opposition Division of the European
Patent Office dated 10 June 1988 posted on
14 July 1988 revoking European patent
No. 0 037 280 pursuant to Article 102(1) EPC

Composition of the Board :

Chairman : K. Lederer

Members : C. Black

C. Payraudeau

Summary of Facts and Submissions

- I. European patent No. 0 037 280 was granted on the basis of European patent application No. 81 301 385.1.
- II. Opposition to the granted patent was filed by the Respondent Hüls Alstiengesellschaft on the ground that its subject-matter did not involve an inventive step having regard inter alia to the disclosure in

US-A-2 019 338 (D1)
Ullmanns Encyklopädie der technischen Chemie 1975,
volume 9, pages 459 and 463 (D2)
Wacker Firmenbroschüre "Leitfaden für chlorierte
Lösemittel" Dezember 1977, page 42 (D3).
- III. The Opposition Division revoked the patent for the same reason, relying on D1 and D2.
- IV. An appeal was lodged against this decision. The Appellant (Patentee) in the communication accompanying the statement of grounds for the appeal, included a subsidiary request for oral proceedings, but subsequently (communication dated 10 October 1989) withdrew his request, indicating that he was content for the appeal to be decided on the basis of the written submissions.
- V. The Appellant requests that the decision of the Opposition Division be cancelled in its entirety, that is, the opposition be rejected; the Respondent requests that the decision should be upheld, that is, that the appeal be dismissed.

VI. The claims under consideration read as follows:

"1. A dielectric fluid comprising from 20 to 99% by volume tetrachloroethylene and 1 to 80% by volume of a diluent, characterised in that the dielectric fluid contains less than 100 ppm of chlorohydrocarbons."

"7. Use of tetrachloroethylene, optionally containing 1 to 80% by volume of a diluent, and containing less than 100 ppm chlorohydrocarbons as a dielectric fluid for an electrical apparatus."

Claims 2 to 6 and Claims 8 to 13 are dependent claims relating to particular embodiments of the subject-matter of Claims 1 and 7 respectively.

VII. The Appellant argues in substance as follows:

It is agreed that D1 constitutes the nearest prior art to the subject-matter of Claims 1 and 7. It mentions tetrachloroethylene (TCE) as an example of a suitable dielectric fluid, but gives no experimental results illustrating long term behaviour when used in electrical apparatus and contains no indication of the necessity for ultra purity. The Opposition Division has followed the Opponent in formulating the problem to be solved with knowledge of the invention, and in effect seen the problem as, starting from the disclosure in D1, improving the performance of TCE so as to make it suitable for electrical applications. While the average skilled person, seeking a replacement for PCBs, can be assumed to be aware of all pertinent prior art, such as D1, he cannot be assumed to be aware of its significance, and this is what the Opposition Division has done.

To arrive at the subject-matter of the patent in suit, the average skilled person has to select TCE from the numerous other compounds embraced by the disclosure in D1. There were further many other possible approaches, such as modifying PCBs, or investigating materials such as mineral oils, silicone oils and esters, which, in contrast to TCE, have been used commercially. He has also to recognise the need for ultra-purity. All this can be seen as indicating an inventive step.

The patent in suit includes the statement that TCE "has even been suggested for use as a dielectric fluid (as US Patent 2 019 338) but has not been used commercially because it attacks the metals and insulation in the electrical apparatus (e.g. transformers and capacitors)." The Opposition Division was wrong to object that this statement found no corroboration in the available literature. The Opponent had not questioned it and the Opposition Division should have accepted it as uncontested. Had a commercial use of TCE for electrical applications been known to the Opponent, he would have challenged the statement.

VIII. The Respondent argues that D1 discloses (column 2, lines 45 et seq.) that TCE is an example of a halogenated liquid olefin suitable for dielectric use and that it is inert and without corrosive action to metals present in electrical devices. It must therefore have been very pure. In any case, the skilled person investigating a new use of a known substance normally uses high purity material to avoid side effects due to impurities. Very pure TCE was, moreover, commercially available before the priority date of the patent in suit as evidenced by the results of an analysis from 6 March 1980 which accompanied his communication of 11 February 1988 in the opposition proceedings. The reason why TCE was not used commercially

was because better and cheaper materials had been available. The advantages claimed by the Appellant for ultra pure TCE, namely good dielectric properties, chemical stability and non-flammability, are not surprising but can be derived from standard reference works.

Reasons for the Decision

1. The appeal is admissible.
2. No formal objections to the claims have been raised and it is not necessary to go into this question here.
3. D1, which also in the Board's view is the nearest prior art, discloses that TCE is suitable for dielectric use (page 1, column 2, lines 45 to 47), that is for use as the dielectric material in capacitors, transformers, switches and the like (page 1, column 1, lines 4 to 6). It may be compounded with a hydrocarbon oil or a glyceride oil, that is a diluent as required by Claim 1 or optional in Claim 7 (page 2, column 2, lines 54 to 64). However, D1 does not disclose that the TCE or the dielectric fluid comprising it should contain less than 100 ppm chlorohydrocarbons and to this extent the subject-matter of Claims 1 and 7 can be considered as novel. Since this is not in dispute between the parties it need not be considered further. It is observed, however, that since D1 discloses that TCE is without corrosive action to metals present in electric devices (page 1, column 2, lines 47 to 49) it could be argued, as suggested by the Respondent, that it was necessarily of the required purity.

4. For the assessment of inventive step in the present case it appears proper to start with the basic problem, that is, finding a replacement for PCBs as dielectric liquids in view of their ecological unacceptability. The Respondent has argued that for the average skilled person there were several approaches to the problem, but one obvious approach was the reappraisal of known dielectric liquids which, for one reason or another, had not been employed commercially. One of the desirable properties of PCBs is their low flammability and the skilled person would have this in mind when seeking a replacement. From D1 he learns that TCE is inert and without corrosive action to metals present in electrical devices, (page 1, column 2, lines 45 to 47) has good electrical properties (page 1, column 2, line 52 to page 2, column 1, line 8) and is non-flammable or imparts non-flammability to other insulating oils when mixed with them (page 2, column 2, lines 54 to 64). There was, therefore, a clear indication to investigate TCE as a dielectric liquid.

As demonstrated by the Respondent (see paragraph VIII) and agreed by the Appellant (paragraph 1.3 of Statement of Grounds of Appeal), TCE, having the purity required by Claims 1 and 7, was commercially available before the priority date of the patent in suit. This is corroborated by D3, page 42, which states that metals are not attacked and, as pointed out by the Respondent, this applies also in the long term to the metal apparatus, containers, pipes and the like for the solvents. D2 also discloses that metals are not attacked up to 150°C (page 459) and that many commercially available TCEs are extremely pure, i.e. more than 99.9% (page 463). Therefore, the Board is satisfied that the skilled person investigating TCE at the priority date of the patent would have been supplied with

such high purity material and would therefore have arrived automatically at the subject-matter of Claims 1 and 7.

If, however, in investigating the use of TCE, the skilled person discovered that, contrary to the statement in D1, metals and insulation of electrical apparatus were chemically attacked, he would necessarily refer to other documents in the state of the art. From the information in D2 and D3 he would be expected, before abandoning TCE, to try TCE from other sources and to choose to this end the purest commercially available TCE. Again he would arrive automatically at the subject-matter of Claims 1 and 7.

5. To the Appellant's contention that D1 embraces a large number of compounds, from which TCE had to be selected, it is pointed out that only a limited number of named compounds are disclosed and that the statement about lack of corrosive action on metals is made solely in connection with trichloroethylene and TCE. Of these, TCE has the more useful working temperature range (page 2, column 1, lines 31 to 43). Therefore, TCE is the obvious choice from the disclosure in D1.
6. The Appellant has possibly misinterpreted the view of the Opposition Division as regards the statement on page 2, lines 26 to 28 of the patent in suit, quoted in paragraph VII above. In the Board's opinion, what the Opposition Division was in effect saying was that D1 contains a positive indication to use TCE as a dielectric liquid and that the literature at its disposal contained no contrary indication which might have dissuaded the average skilled person from doing so. Therefore, the

Opposition Division considered it irrelevant for the assessment of inventive step if it was indeed commercially used or not.

7. As regards the alleged surprising advantages of using ultra pure TCE as a dielectric liquid (paragraph 7 of the Statement of Grounds of Appeal), the Board agrees with the Respondent's counter-argument.
8. The age of D1 (published 1935) is of no significance, since it was only in the 1970s that the need for a replacement for PCBs became apparent.
9. Accordingly, the subject-matter of Claims 1 and 7 is judged not to involve an inventive step. Claims 2 to 6 and 8 to 13 fall also because they are appendant to non-allowable independent claims. Moreover, the Board can agree in substance with the Respondent's arguments concerning these claims raised in the communication of 11 February 1988 during the opposition procedure.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

M. Beer

K. Lederer