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File No.: T 0503/90 - 3.3.3
Application No.: 83 306 819.0
Publication No.: 0 111 393
Classification: H01B 3/44
Title of invention: Cross linked polyethylene-insulated cable

D E C I S I O N
of 13 October 1993

Applicant: -
Proprietor of the patent: Sumitomo Electric Industries Limited
Opponent: Siemens AG

Headword: -

EPC: Art. 56, 104(1), 114(2), 117(1)
R. 63

Keyword: "Inventive step (confirmed); hindsight analysis" - "Late-filed documents; abuse of procedure; apportionment of costs"

Headnote
Catchwords



Case Number: T 0503/90 - 3.3.3

D E C I S I O N
of the Technical Board of Appeal 3.3.3
of 13 October 1993

Appellant: Siemens AG
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Representative: -

Respondent: Sumitomo Electric Industries Limited
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office dated 13 March 1990, issued
on 25 April 1990 rejecting the opposition filed
against European patent No. 0 111 393 pursuant to
Article 102(2) EPC.

Composition of the Board:

Chairman: F. Antony
Members: C. Gérardin
J. Saisset

Summary of Facts and Submissions

I. The mention of the grant of the patent No. 111 393 in respect of European patent application No. 83 306 819.0 filed on 9 November 1983 and claiming the priority of 9 November 1982 from an earlier application in Japan, was published on 2 March 1988 on the basis of 6 claims, Claim 1 reading as follows:

"A cross-linked polyethylene-insulated cable comprising a conductor core, an inner semiconductive layer, an outer semiconductive layer and an insulating layer, wherein the insulating layer has a thickness of at least 6 mm and is made of a cross-linked polyethylene prepared by a dry cross-linking method with 2,5-dimethyl-2,5-di(tert-butylperoxy)hexane as a cross-linking agent."

Claims 2 to 6 are dependent claims directed to preferred cross-linked polyethylene-insulated cables according to the main claim.

II. On 29 November 1988 the Opponent filed a Notice of Opposition against the grant of the patent and requested revocation thereof in its entirety for non-compliance with the requirements of Article 100(a) EPC in that the claimed subject-matter did not involve an inventive step. That objection was based on the teaching of mainly the following documents:

- (1) DE-A-2 601 249,
- (5) Kunststoffe, 1972, Vol. 62, pages 699-703.

In the course of the opposition procedure, the Opposition Division introduced

- (7) GB-A-2 076 419,

which had been considered in the examination procedure.

In a statement filed shortly prior to the oral proceedings before the Opposition Division the Opponent referred additionally to the following new documents:

(8) DE-A-2 837 311,

(9) US-A-4 204 024.

III. By a decision delivered orally on 13 March 1990, with written reasons posted on 25 April 1990, the Opposition Division rejected the opposition on the ground that the objection raised under Article 100(a) EPC was not prejudicial to the maintenance of the patent in unamended form. More specifically, it was stated in this decision that the late filed documents (8) and (9) had been duly examined, but disregarded pursuant to Article 114(2) EPC in view of their lack of relevance. As far as the issue of inventive step was concerned, there was no incentive derivable from documents (1) and (5) to substitute dimethyl-2,5-di(tert-butylperoxy)hexane (hereinafter called DMDBP-hexane) for the corresponding DMDBP-hexene and DMDBP-hexyne in the polyethylene compositions known from document (7) in order to enhance the high-temperature long-term durability of cables insulated therewith.

IV. The Appellant (Opponent) thereafter lodged a Notice of Appeal on 25 June 1990 and paid the prescribed fee at the same time. In the Statement of Grounds of Appeal filed on 1 August 1990 the Appellant referred again to document (9), which had been disregarded by the Opposition Division, as well as to no less than 8 new documents (G1) to (G8) alleged to illustrate common general knowledge. Although the appeal in its point 1 was said to be based on documents (7) and (9), the actual argumentation of lack of inventive step in

point 6 relied exclusively on documents (9), (G4) and (G6). Further the Appellant sought to introduce a new ground of opposition under Article 100(c) EPC in that it contended that the subject-matter of Claim 1 extended beyond the content of the application as originally filed.

- V. In its written submissions the Respondent strongly objected to the filing of such an amount of new documentation in the appeal stage; it was regarded as an abuse of procedure to present documents which in view of their date of publication were known to the Appellant when lodging the opposition. Detailed consideration of these new citations by the Patentee required costly translations, since (G1) to (G7) had first to be translated from German into English, then from English into Japanese. An award of costs was thus regarded as appropriate.

In substance, the discussion of each of the late-filed documents (9) and (G1) to (G8) showed that they were not relevant in that they could not lead the skilled man to the claimed subject-matter.

- VI. At the beginning of oral proceedings held on 13 October 1990, the Chairman announced that the new ground of opposition under Article 100(c) EPC could not be allowed in view of the recent decision of the Enlarged Board G 9/91, OJ EPO 1993, 408. Following a discussion about the admissibility of the late-filed documents (9) and (G1) to (G8), the Board after intermediate deliberation announced the conclusion that only document (G8) = Kunststoff-Handbuch, Volume IV, Polyolefine, Carl Hanser Verlag, Munich 1969, pages 165/167 could be regarded as representing common general knowledge and was, therefore, admitted into the procedure. The Appellant, thereafter, relied solely on documents (5) and (7) to

present in substance the same arguments as before the Opposition Division.

The Respondent underlined again that there was no pointer in these citations towards the use of DMDBP-hexane, let alone the technical advantages resulting therefrom.

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

The Respondent requested that the appeal be dismissed and that the costs incurred for the translation of documents (G1) to (G7) be awarded.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is admissible.
2. As it appears from point IV above, the Appellant substantiated the Statement of Grounds of Appeal by referring to (i) document (5) cited in the Notice of Opposition and document (7) introduced by the Opposition Division, (ii) document (9) cited shortly prior to the oral proceedings before the Opposition Division, but disregarded by the first instance in view of its lack of relevance, and (iii) documents (G1) to (G8) cited for the first time in the appeal procedure. The Board has duly examined the late-filed citations (ii) and (iii), which were obviously produced well after the nine-month time limit for filing a Notice of Opposition, in order to determine their relevance, namely their evidential weight compared with that of the documents submitted in due time.

This examination revealed that document (9) was not sufficiently relevant to be taken into consideration, which confirms the finding of the Opposition Division. The same conclusion arises as far as documents (G1) to (G8) are concerned; however, since (G8) as an excerpt from a handbook of general interest qualifies to illustrate common general knowledge, the Board had no objection to the Appellant relying on the content of that citation for its subsequent argumentation.

3. The patent in suit concerns a cross-linked polyethylene-insulated cable. Such power cable is disclosed in document (7), which the Board, like the Opposition Division, regards as the closest state of the art. Following the broad interpretation given by the Appellant to this citation, the latter describes a cross-linked polyethylene insulated power cable having a high-temperature impulse breakdown strength at the initial stage (page 1, lines 7 to 40). The cross-linking agent used is an organic peroxide, such as dicumyl peroxide, t-butyl cumyl peroxide, DMDBP-hexyne and DMDBP-hexene (page 2, lines 106 to 110). Although the general properties of these cables are said to be satisfactory (page 3, lines 52 to 60), the rise in temperature resulting from the application of AC voltage will, in the long term, lead to thermal breakdown of this layer.

On the basis of that shortcoming the technical problem underlying the patent in suit may thus be seen in the provision of a power cable having improved high-temperature long-term durability upon application of an AC voltage.

According to Claim 1 of the patent in suit this problem is to be solved by using DMDBP-hexane as peroxide cross-linking agent.

In view of the comparative data submitted by the Respondent on 10 January 1990, which show that DMDBP-hexane cross-linked polyethylene exhibits a considerably lower dielectric tangent value than DMDBP-hexyne cross-linked polyethylene and, thereby, a superior long-term durability, the Board is satisfied that the above-defined problem is effectively solved.

4. After examination of the documents relied upon by the Appellant, the Board has come to the conclusion that this technical teaching is not disclosed in any of them and that the subject-matter of the patent in suit as defined in Claim 1 is, therefore, novel. Since the issue of novelty is not in dispute, it is not necessary to consider this matter in detail.

5. It still remains to be decided whether the claimed subject-matter involves an inventive step having regard to the teaching of the documents relied upon by the Appellant.
 - 5.1 The composition according to document (7) can be prepared (a) by adding a chemical cross-linking agent to a raw material polyethylene having a density of 0.925 g/cm³ or more and a crystal thickness of 90 Å or more, or (b) by adding a chemical cross-linking agent as well as at least 0.3 part by weight of dibenzylidene-D-sorbitol to 100 parts by weight of a raw material polyethylene having a density of 0.920 to 0.925 g/cm³ and a crystal thickness of 80 Å or more (page 1, lines 103 to 119). These combinations of parameters and ingredients are said to be essential to ensure a gel fraction of the cross-linked polyethylene of at least 60%, which is necessary for the good mechanical and physical characteristics of the insulation at high temperatures as well as for the prevention of the reduction of the impulse breakdown strength of the

cross-linked polyethylene at high temperatures (page 1, lines 74 to 81; page 1, line 119 to page 2, line 20).

It is thus evident that the improved electric breakdown strength aimed at according to the teaching of document (7) results from a combination of features - density, crystal thickness and gel fraction, aspects ignored in the Appellant's discussion of the citation - which leaves open the choice of the cross-linking agent. There would thus be no incentive for the skilled man to consider any particular peroxide outside the group of four compounds mentioned above, all the more so as there is apparently no correlation between the initial impulse breakdown voltage and the long-term durability (Respondent's statement filed on 10 January 1990, point 2).

- 5.2 The sole fact that DMDBP-hexane is known from document (5) to be suitable for cross-linking of polyethylene cannot lead the skilled man to the solution of the above-defined technical problem.

This citation enumerates several organic peroxides described as commercially important, among which are DMDBP-hexane and -hexyne (page 702, paragraph "Initiatoren als Vernetzer"). The only somewhat detailed information which the skilled man could derive from that enumeration concerns dicumyl peroxide, which is said to confer very good electric properties to the polymers cross-linked therewith; even if, for the sake of argument, this reference in general terms to electric properties were equated with one to the long-term durability, this information would not provide an incentive to select the specific peroxide according to the patent in suit. In fact, the teaching of document (5) does not go beyond that of document (7) in that both regard various peroxides as more or less

equivalent for the purpose of cross-linking polyethylene. A pointer in favour of DMDBP-hexane based on the extrusion temperature and the cross-linking temperature of polyethylene, as contended by the Appellant during oral proceedings, can thus only be found by hindsight.

- 5.3 For these reasons, the choice of DMDBP-hexane must be regarded as non-obvious and, therefore, as involving an inventive step.
6. Claim 1 being allowable, the same applies to dependent Claims 2 to 6, which are directed to preferred embodiments of the subject-matter of Claim 1 and whose inventiveness is supported by that of the main claim.
7. As stated above, apart from an introductory sentence that the appeal was based on the documents considered in the opposition procedure, there is no direct challenge in the Statement of Grounds of Appeal of the reasoning set out in the decision under appeal. In fact, the actual argumentation of lack of inventive step in point 6 relies exclusively on the late-filed documents (9), (G4) and (G6), i.e. on a line which bears little resemblance to the one adopted in the Notice of Opposition. This shows that, in contradistinction to the Appellant's contention, documents (G1) to (G7) in particular have not been cited to illustrate common general knowledge, but to provide the basis of a new opposition, which by definition cannot be the purpose of an appeal. It follows that the circumstances of the present case are essentially the same as in decision T 117/86 "Costs/FILMTEC" (OJ EPO 1989, 401), where the Board was faced with a request of apportionment of costs by the Patentee/Respondent following the late submission by the Opponent/Appellant of new documents in the appeal procedure.

In the decision T 117/86 the Board took the view that taking of evidence within the meaning of Article 117(1) EPC "covers the giving or obtaining of evidence generally in proceedings before departments of the EPO, whatever the form of such evidence", and includes in particular the production of documents, such as "the filing by the Respondent of a statement in writing in reply" (Reasons for the Decision, point 3).

Consequently, the Board regarded it as appropriate to depart from the principle that "each party to the proceedings shall meet the costs he has incurred" (Article 104(1) EPC) and decided an apportionment of costs corresponding to the preparation of the reply to the Appellant's new arguments.

In the present case, the costs incurred for the preparation of the statement in reply of 2 April 1991, wherein the Respondent dealt in detail with all the late-filed documents, go beyond the expenses normally incurred by a Patentee defending its patent in that this reply required the translation of 7 documents drafted in German submitted as the basis of a new opposition. Although reasons of equity justify an apportionment of the costs corresponding to the translation into Japanese of these citations, the Board cannot see any reason why they had first to be translated into English, since (1) there can be no obstacle to a direct translation from German into Japanese, and (2) a European Patent Attorney can be expected to have at least a passive knowledge of the three working languages of the EPO, thus also of German. For this reason, the Board decides that the Appellant shall pay to the Respondent only half of the total costs incurred for the translation of documents (G1) to (G7).

Order

For these reasons, it is decided that:

1. The appeal is dismissed.
2. The Appellant shall pay to the Respondent 50% of the costs incurred for the translation of documents (G1) to (G7).

The Registrar:

The Chairman:

E. Görgmaier

F. Antony