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D E C I S I O N
of 15 November 1995

Case Number: T 0555/92 - 3.3.2

Application Number: 86201966.8

Publication Number: 0222457

IPC: C04B 28/10

Language of the proceedings: EN

Title of invention:

Method for producing a building element from fly ash comprising material and building element formed

Patentee:

Hoogovens Technical Services Energy & Environment BV

Opponent:

Bergwerksverband GmbH

Headword:

-

Relevant legal provisions:

EPC Art. 54

Keyword:

"Novelty of a "product-by-process" claim (no) "

Decisions cited:

T 0150/82, T 0248/85

Catchword:

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Case Number: T 0555/92 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 15 November 1995

Appellant:
(Proprietor of the patent) Hoogovens Technical Services Energy &
Environment BV
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Representative: Hansen, Willem Joseph Maria
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Respondent:
(Opponent) Bergwerksverband GmbH
Patentabteilung
Franz-Fischer-Weg 61
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Representative: -

Decision under appeal: Decision of the Opposition Division of the
European Patent Office of 31 March 1992, posted
24 April 1992 revoking European patent
No. 0 222 457 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: F. Antony
Members: M. M. Eberhard
 R. E. Teschemacher

Summary of Facts and Submissions

- I. European patent No. 0 222 457 based on application No. 86 201 966.8, filed on 10 November 1986, was granted on the basis of 12 claims on 16 May 1990.
- II. The Respondent (Opponent), on 15 February 1991, filed a notice of opposition requesting the revocation of the patent on the grounds of lack of novelty and lack of inventive step. In support of these grounds, the Respondent relied essentially upon the following documents:
- D1 EP-A-0 059 444
 - D2 EP-A-0 022 318
 - D3 EP-A-0 152 637
 - D5 DE-A-3 321 899.
- III. With its decision of 31 March 1992, posted on 24 April 1992, the Opposition Division revoked the patent on the grounds that both, the process of the amended Claim 1 of the main and the auxiliary requests filed on 20 September 1991, and the subject-matter of the independent Claim 12 lacked novelty over the disclosure of D2. The Opposition Division took the view that the components used in D2 were the same as those defined in the independent Claims (Claims 1 and 12) and that the sequence of mixing of the components was also disclosed in D2.
- IV. On 3 June 1992, the Appellant (Proprietor of the patent) lodged an appeal against this decision, and on 21 August 1992 submitted as single request an amended Claim 1 together with the Statement of Grounds of Appeal as well as results of an additional test series. The amended Claim 1 reads as follows:

"Method for producing a building element by forming a mixture comprising fly ash, slaked lime, water and a coarse particles comprising material into an unhardened building element and by hardening said unhardened building element at a temperature of maximum 100°C and in a water vapour containing atmosphere of atmospheric pressure characterised in that firstly a hardenable mixture at least comprising fly ash, $\text{Ca}(\text{OH})_2$, or a substance which may be converted into $\text{Ca}(\text{OH})_2$, and water is formed which mixture optionally is granulated partially and that subsequently said hardenable mixture is mixed with a suitable coarse particles comprising material, whereafter an unhardened building element is formed from the mixture so obtained and hardening is carried out at a temperature above 70°C."

By implication, dependent process Claims 2 to 11 and the independent product Claim 12 were maintained in their granted version, the latter having the following wording:

"Building element characterised in that the building element has been obtained with use of the method according to one or more of the preceding claims 1-11."

- V. In the Statement of Grounds of Appeal, the Appellant essentially argued that the formation of ettringite was substantially avoided in the invention by selection of a curing temperature which promoted the formation of calcium silicate instead of ettringite. At the temperatures used in D2 ettringite was predominantly formed in the presence of CaSO_4 , whereas at temperatures above 70°C predominantly calcium silicate was formed and ettringite became unstable, releasing "calcium and silicium" to form the desired calcium silicate hydrate.

The Appellant further contended that D2 did not teach or suggest that any possible addition of aggregate material should be followed by a separate mixing step. According to the invention a specific area had been selected in the broad technical field covered by D2 and this selection (i.e. the two-step mixing operation) led to advantageous results. The additional test series showed that the surprising strength enhancing effect resulting from said two-step mixing also occurred with a fly ash comprising CaSO_4 . The Appellant denied that it was customary to carry out a two-step mixing procedure in this technical field, making reference to an additional document.

- VI. In reply to the Appellant's arguments, the Respondent merely stated that the situation remained as already pointed out in the decision under appeal.
- VII. In a communication of the Board, the parties were informed that it was questionable whether the product as defined in the independent Claim 12 was novel over the building elements disclosed in any one of the documents D1, D2, D3 and D5, taking into account that a product was not necessarily rendered novel by the fact that it was produced by a new process.

Oral proceedings were held on 15 November 1995. The Appellant and the Respondent did not attend these proceedings although duly summoned thereto. They had informed the Board on 12 October 1995 and 12 September 1995, respectively, of their intention not to attend.

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

maintained with amended Claim 1 filed on 21 August 1992 and, by implication, with Claims 2 to 12 as granted. The Respondent requested that "the patent be rejected", i.e. that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. The amended Claim 1 meets the requirements of Article 123(2) and (3).
3. *Novelty*
 - 3.1 Claim 12 is directed to a product defined in terms of a process for its manufacture. According to the established case law of the Boards of Appeal, claims for products defined as having been obtained by a particular process (product-by-process claims) are allowable only if the product as such satisfies the requirements for patentability. In other words, the product itself must meet the requirements of novelty and inventive step. A product is not rendered novel merely by the fact that it is produced by a new process (cf. T 150/82, OJ EPO 1984, 309; T 248/85, OJ EPO 1986, 261).
 - 3.2 D5 (briefly analysed in the description of the patent in suit) discloses a building element produced by mixing fly ash, slaked lime, crushed bottomslag granulates of a coal fired power station (i.e. a "coarse particles comprising material") and water; forming the mixture into brick-form elements and hardening the bricks under a steam pressure at elevated temperature. The hardening may be performed at a temperature of 180 to 200°C and a pressure of 14 to 16 bar, preferably at a temperature of

180 or 200°C and a pressure of 16 bar (cf. Claims 1, 3 and 4; page 4, lines 14 to 34; page 6, example).

Thus, the building elements according to Claim 12 of the patent in suit are produced using the same starting components as in D5. The mixing step and the hardening conditions used for the preparation of the claimed building elements differ from those disclosed in D5, since mixing of the components is carried out in a two-step mixing operation (instead of a single step in D5) and the hardening temperature and pressure are lower than in D5. However, taking into account that the same product may be obtained by different methods of manufacture, there remains doubt as to whether the building element of Claim 12 differs from those of D5, in the absence of any evidence showing that the differences in the mixing operation and in the hardening conditions lead to different final products.

It is well known that the temperature and pressure used in the steam-curing step have an influence on the kind of hydrated phases present in the final product, some phases being formed or remaining stable only within specific ranges of temperatures. However, the kind of phases present in the hardened product and their relative amounts also depend upon the composition of the starting components and of the starting mixture and upon the time period of the steam treatment. In view of the fact that neither the precise composition of the starting mixture and components, nor the duration of the steam treatment are stated in Claim 12 of the patent in suit and in the amended Claim 1, the Board has strong doubts as to whether the claimed products obtained by

hardening in a steam atmosphere at a temperature of 100°C under atmospheric pressure differ from those obtained according to D5 by hardening at a temperature of 180°C and a pressure of 14 or 16 bar.

Although the Appellant was informed of those doubts as regards the novelty of Claim 12 (cf. communication of the Board), the Appellant neither submitted any written comment, nor attended the oral proceedings. In these circumstances, the Board has come to the conclusion that, in the absence of any evidence to the contrary, the product as defined in the "product-by-process" Claim 12 cannot be regarded as novel over the products disclosed in D5.

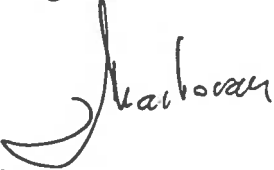
- 3.3 The preceding considerations apply likewise to the novelty of Claim 12 with respect to the disclosure of at least D1, in particular with respect to the building elements described in Examples 3a and 3b thereof.
4. It follows from the above that the subject-matter of Claim 12 does not meet the requirements of novelty set out in Articles 52(1) and 54 EPC. As the Appellant's sole request must be refused on this ground alone, it is not necessary to examine whether or not the process of Claim 1 would satisfy the requirements of patentability.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:



P. Martorana

The Chairman:



F. Antony

Te
H. Kb

