Case Number: T 0785/92 - 3.3.2

D E C I S I O N
of the Technical Board of Appeal 3.3.2
of 14 December 1995

Appellant: MANVILLE CORPORATION
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 24 March 1992 refusing European patent application No. 87 901 882.8 pursuant to Article 97(1) EPC.**

Composition of the Board:

Chairman: P. A. M. Lançon
Members: M. M. Eberhard
J. Van Moer

Summary of Facts and Submissions

I. European patent application No. 87 901 882.8 was refused by a decision of the Examining Division. The decision was based upon the amended claims filed on 10 January 1992.

II. The ground for the refusal was that the amended claims 1 to 4 did not meet the requirement of clarity set out in Article 84 EPC.

The Examining Division held that the feature "the fiber having superior solubility in saline solution" recited in said claims was not clear. Neither a threshold value for the solubility nor the circumstances under which the solubility was to be determined were defined. The composition of the saline solution was stated in the description, however no mention was made therein of the exposed fibre surface. Moreover, the term "saline solution" used in the claims encompassed media which could be quite different from the physiological saline solution used in the solubility tests. Neither the description nor the claims provided an unambiguous explanation of the term "superior solubility". According to the decision the fibre solubility constituted the only discernable difference imparting "formal" novelty at least to claims 1 and 3, and therefore the only distinguishing feature was not defined in a precise and unambiguous way.

III. The Appellant lodged an appeal against this decision and filed an amended set of claims together with the Statement of Grounds of Appeal. On 24 May 1993, a further set of claims was submitted in replacement of the previous one, as

well as the results of additional shrinkage and solubility tests. In reply to an Annex enclosed with the summons to oral proceedings, the Appellant submitted amended sets of claims, as main and auxiliary requests.

Oral proceedings were held on 14 December 1995. During these proceedings the Appellant filed a set of 12 amended claims as single request in replacement of all the previous sets of claims. Claim 1 of said request reads as follows:

"1. Thermally insulating mat or blanket having a service temperature in excess of 1200°F (650°C), formed from inorganic refractory fiber having the composition:
0.1 - 30 wt% MgO;
0 to 9.3 wt% Al_2O_3;
the balance to 100% consisting of:
CaO;
SiO_2
and no more than 2% by weight of incidental impurities such as any other oxides if present."

The independent use claim 7 is directed to the "use as thermal insulation having a service temperature in excess of 1200°F (650°C) of bulk, mat, or blanket form assemblies of inorganic refractory fibres, the fibres having the composition" as indicated in claim 1. The dependent claims 2 and 8 contain the additional feature that the fibre is soluble in a saline solution whose composition is defined in said claims. According to the dependent claims 6 and 12 the fibre has a solubility in said saline solution of 1.2 ppm SiO_2 or more after 5 hours.

In the course of the appeal procedure the Appellant made reference to seven post-published documents and two additional brochures as well as to six new documents, which were cited by Opponents in connection with oppositions to the corresponding Finnish patent.

IV. The Appellant's arguments, insofar as they concerned the amended claims filed at the oral proceedings, can be summarised as follows:

As regards the allowability of the amendments, it was argued that the value 1200°F was referred to at page 4 of the specification in connection with a defect of mineral wool fibres that the present invention was intended to overcome. The statement at page 4, lines 10 to 12 and Table III clearly showed fibres with a continuous service temperature in excess of 1200°F. On the question of the upper limit (9.3 wt%) for alumina the Appellant suggested that rounding errors might account for the total not being 100% and pointed out that it was common practice for values to be given to the same number of significant figures.

It was contended in connection with the clarity issue that the amended claims 2 and 8 recited the saline solution concerned and that relative terms such as "soluble" were allowable in that they indicated the utility of the term rather than its absolute value (cf. T 860/93 OJ EPO 1995,47). The Appellant made reference to the following documents mentioned in the decision under appeal:

D8: H. Förster, Proceedings of 1982 WHO IARC Conference, Copenhagen, vol. 2, pp. 27-59, (1984)

D9: B. Bellman & al., Aerosol Scientist, vol. 17, No. 3, pp. 341-345 (1986)

D10: R. Kingholz and B. Steinkopf, Proc. Occupational Health Conference, Copenhagen, April 1982, pp. 60-85, (1984)

D11: H. Scholze and R. Conradt, Proceedings of 1986 WHO IRAC Conference, Copenhagen

D12: J.P. Leineweber, Proc. Occupational Health Conf., Copenhagen, April 1982, pp. 88-101, (1984).

He argued that these documents discussed the problem of solubility of mineral fibres in physiological solutions and themselves referred to other prior art documents and studies also discussing the same problem. These documents showed that the term "soluble" had a well-known meaning in the technical field concerned. The skilled person would have understood that the physiological saline solution would have dissolved the fibres within a certain time period. Solubility values in the saline solution were also given in the application as filed.

The Appellant requested correction of the solubility expressed in terms of "wt%" in Table III of the description. It was argued that the drawing showed solubility measured as ppm and that it was clear that the use of wt% in Table III was an error in view of the physical impossibility for the small amount of fibre used in the solubility test to result in a 67 wt% solution. Both the error and its correction were obvious.

V. The Appellant requested that the decision under appeal be set aside, that the description be corrected as submitted

at the oral proceedings and that a patent be granted according to the set of claims 1 to 12 submitted at the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. As regards the request for correction of the solubility expressed in wt% at the heading of Table III, it is observed that for a correction to be allowable, it must be established that an error is present and that the correction is obvious in the sense set out in Rule 88 EPC. Both conditions are met in the present case.

According to page 9, last paragraph, the concentration of SiO_2 in the saline solution was taken to be a measure of the amount of fibre which is solubilized during the 5 hour test period. The corresponding concentrations are reported in Table III for the fibres A to L under the heading "SiO_2 concentration in saline solution after 5 hours, **wt%**". However, according to Figure 1/1 the same values represent the silica concentration expressed in **ppm**-SiO_2 instead of wt%. In view of this discrepancy, it is immediatly clear to the reader that either the "wt%" at the heading of Table III or the "ppm" in the Figure is erroneous. Furthermore, as the solubility test was carried out using one gram of fibre for 300 ml of the saline solution (cf. Example 3), it is physically impossible that the silica concentration in the saline solution be 67.0 wt% (cf. fibre L of Table III) as argued by the Appellant. Therefore, it

is obvious to the skilled person that the use of wt% in Table III is an error, and in view of the drawing showing the solubility measured as ppm-SiO_2 the correction that would immediatly come to mind would be the substitution of "ppm" for "wt%" in Table III. Thus the request for correction is allowable.

3. The amended claims are considered to meet the requirements of Article 123(2) EPC. The product claim 1 represents a combination of claims 1 and 7 as originally filed with features disclosed in the original description. In particular, the limitation as regards the amount of incidental impurities is supported by the statement at page 4, second paragraph, of the application as filed, and it is disclosed at page 5, lines 14 to 16, that the fibers may be in the form of mats or blankets. Furthermore, it is directly and unambiguously derivable from page 4 of the original description and from the examples that the fibres in bulk or in the form of mats or blankets are thermally insulating. The service temperature "in excess of 1200°F" for fibres containing no more than 2 wt% impurities is also directly derivable from page 4, in particular the second and third paragraphs thereof read in connection with the service temperature reported in Table III for the fibres G to L. As regards the upper limit for the alumina content of the fibres, the value 9.3 wt% is disclosed in Table III for fibre K. The given proportions of the components of the fibre add up to 100.3 wt% instead of 100%; however, taking into consideration that, on the one hand, rounding errors and/or measurement errors may account for the total not being 100% and that, on the other hand, the difference of 0.3% is relatively small and the distribution of this error

on the content of each component of the composition would still lead to the rounded value of 9.3 wt%, said value is considered to form a valid basis for the upper limit of the alumina content in claim 1.

The preceding considerations apply likewise to the independent use claim 7 which is directed to the use of bulk, mat or blanket form assemblies of fibres having the same composition as that recited in claim 1. It is disclosed at page 5, lines 14 to 16 that the fibres may be used in bulk or in the form of mats or blankets and it is directly and unambiguously derivable from the whole context of the application that these products are used as high temperature insulation, more precisely at a temperature in excess of 1200°F (cf. in particular page 4, page 5, lines 1 to 6 and 21 to 26, page 10, Table III).

The features of the dependent claims 2 and 8, 4 and 10, 5 and 11, 6 and 12 are based on the following passages of the original application: page 9, lines 14 to 27 for the composition of the saline solution; page 9, lines 32 to 37, Table III, fibre G and drawing for the solubility stated in claims 6 and 12; original claim 3 for the fibre composition and Tables I and III for the service temperature. The lower limit for the calcium oxide content recited in the dependent claims 3 and 9 is derivable from Table III, fibre G. Although the total amount of the components of fibre G is not 100%, the preceding considerations concerning fibre K apply analogously to the composition of fibre G.

4. Turning to the clarity issue, it is observed that the feature regarded by the Examining Division as lacking in

clarity, namely the "superior solubility in saline solution", is not indicated any more in the amended claims 1 to 12. In the dependent claims including solubility properties, the latter are not defined as being "superior" and the saline solution is identified by its composition.

The dependent claims 2 and 8, which recite the additional feature that the fibre is soluble in a saline solution having the composition as defined in said claims, are considered to meet the requirement of clarity despite the use of the relative term "soluble". It appears that the person skilled in the art of man-made mineral fibres for thermal insulation would have been able to understand what was meant by this relative term when used in the context of the solubility of said fibres in the known Gamble's solution, since the biological effects of man-made mineral fibres, in particular their solubility or chemical durability in physiological model fluids or in vivo as compared to that of asbestos fibres, had already been discussed in details in books published in 1984, i.e. before the priority dates, and at the corresponding WHO/IRAC Conference in Copenhagen on 20 to 22 April 1982 (cf. D8, D10 and D12 from said books).

Furthermore, as a numerical range for the solubility in the saline solution has not been specified in these claims, there is no need for the identification of the method for measuring said solubility (cf. decision T 860/93).

As regards the dependent claims 6 and 12, it is self-evident for the person skilled in the art that the

solubility value in ppm SiO_2 given in these claims depends on the method of measurement. In particular, the solubility value obviously does not only depend upon the period of exposure and the chemical composition of the saline solution, both mentioned in the claims, but also upon the other conditions used for the solubility measurement such as, for example, the temperature of the saline solution, the initial amount of fibres in the solution, the kind of exposure (stationary system or continuous flow system). Therefore, the skilled person would automatically associate the lower limit of solubility given in these claims with the method of measurement indicated in the application as filed. In these circonstances and in view of the fact that the method of measurement of the solubility and the said additional conditions are described in details in the description, the Board considers that the dependent claims 6 and 12 are in conformity with the provisions of Article 84 concerning clarity and conciseness of the claims.

5. The question whether or not the product and use according to the independent claims 1 and 7 meet the requirements of novelty and inventive step has not been examined by the Examining Division. Furthermore, at the appeal stage, comparative examples have been submitted and reference was also made to six additional documents cited by Opponents in connection with oppositions to the corresponding Finnish patent. In these circumstances, the Board finds it appropriate, in accordance with Article 111(1) EPC, to remit the case to the Examining Division for further prosecution. For this, it should be taken into consideration in connection with the dependent claims 6 and

12 that according to the application as filed the solubility value is expressed in terms of ppm of silica whereas according to the Appellant's letters dated 19 April 1990 and 12 December 1992 it is the solubility in terms of ppm of silicon.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The requested correction is allowed.

3. The case is remitted to the first instance for further prosecution.

The Registrar:The Chairman:

P. Martorana P. A. M. Lançon