BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Internal distribution code:
(A) [ ] Publication in OJ
(B) [ ] To Chairmen and Members
(C) [ ] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 1 August 2013

Case Number: T 1816/12 - 3.2.03

Application Number: 99919309.7

Publication Number: 1075626

IPC: F23C 10/18

Language of the proceedings: EN

Title of invention:
Fluidized bed material, method for its production, and method in a fluidized bed process

Patent Proprietor:
Metso Power Oy

Opponent:
Foster Wheeler Energia Oy

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1816/12 - 3.2.03

D E C I S I O N
of the Technical Board of Appeal 3.2.03
of 1 August 2013

Appellant: (Patent Proprietor)
Metso Power Oy
P.O. Box 109
FI-33101 Tampere (FI)

Representative:
Hakola, Unto Tapani
Tampereen Patenttitoimisto Oy
Hermiankatu 1 B
FI-33720 Tampere (FI)

Respondent: (Opponent)
Foster Wheeler Energia Oy
Patent Department
P.O. Box 66
FI-48601 Karhula (FI)

Representative:
Salonen, Kauko Tuomas
Genip Oy
P.O. Box 201
FI-78201 Varkaus (FI)

Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 6 June 2012 revoking European patent No. 1075626 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman: U. Krause
Members: G. Ashley
I. Beckedorf

Summary of Facts and Submissions

I. European patent EP-B1-1 075 626 relates *inter alia* to a fluidised bed material of mineral particles. Grant of the patent was opposed on the grounds set out in Articles 100(a), 100(b) and 100(c) EPC. The opposition division concluded that the claimed subject-matter of the main and auxiliary requests lacked novelty, hence decided to revoke the patent. The decision was posted on 6 June 2012.

II. The patent proprietor (here the appellant) filed notice of appeal on 15 August 2012, the appeal fee having been paid on 2 August 2012. A statement setting out the grounds of appeal was filed on 16 October 2012.

III. In accordance with Article 15 of the Rules of Procedure of the Boards of Appeal, the board issued a preliminary opinion of the case, together with a summons to oral proceedings. Oral proceedings were held on 1 August 2012.

IV. Requests

The appellant requested that the decision under appeal be set aside and the patent be maintained in amended form according to the main request filed with the letter of 12 March 2012.

The respondent (the opponent) requested that the appeal be dismissed.

V. Claims

(a) The independent claims filed on 12 March 2012 read as follows:

"1. A fluidized bed material of mineral particles, characterized in that the particles are of a rock type of the gabbro class or darker than that, being composed of several minerals, said rock type being diabase, where the quartz content is not more than 5 wt-% and which contains placioglase (*sic*) and pyroxene and olivine."

"2. A method for producing a fluidized bed material, in which method mineral particles are obtained, characterized in that the particles are produced by comminuting a rock type of the gabbro class or darker than that, being composed of several minerals, said rock type being diabase, whose quartz content is not more than 5 wt-%, advantageously not more than 1 wt-%, preferably not more than 0,1 wt-%, and which contains plagioclase and pyroxene and olivine."

"4. A method in a fluidized bed process, in which a reaction or a processing of a material is performed in a fluidized bed reaction in connection with the fluidization of a fluidized bed material, wherein the fluidized bed material is mineral particles, characterized in that the fluidized bed material used is a rock type of the gabbro class or darker than that, being composed of several minerals, said rock type being diabase, whose quartz content is not more than 5 wt-%, advantageously not more than 1 wt-%, preferably

not more than 0,1 wt-%, and which contains plagioclase and pyroxene and olivine."

(b) Dependent claims:

Dependent claim 3 concerns a preferred embodiment of the method of claim 2. Dependent claims 5 and 6 concern preferred embodiments of the method of claim 4.

VI. Prior Art

The following documents are cited in the contested decision and are of relevance for this decision.

D1: US-A-4 075 953

D2: A. Blanco and S. Osorio, "Biomass Operating Experiences of Vetejar FBC Olive Waste Plant", Power-Gen Europe '97, Volume IV, pages 627 to 639, 17 June 1997.

D8: Statement made by Professor Martti Lehtinen, University of Helsinki, dated 2 July 2004.

D9: D. Morata et al., "Geochemistry and Tectonic Setting of the "Ophites" from the External Zones of the Betic Cordilleras (S. Spain)", Estudios Geol., Volume 53, pages 107 to 120, 1997.

VII. Submissions of the Parties

(a) Novelty

The opposition division and the respondent considered that the subject-matter of the above independent claims lacks novelty in light of D2, interpreted with the help of D9.

Document D2 is a report of a waste plant located in Cordoba, Spain, which incorporates a fluidized bed. Several materials were tested for used in the bed and ofita was found to be the most suitable. It was argued that ofita is a diabase rock, and according to D2 is very abundant in Andalusia, hence it is this ofita from this region that was used in the fluidised bed of D2.

Document D9 provides a comprehensive analysis of ofitas ("ophites" in English) found in Andalusia. These ophites always contain plagioclase and pyroxene, and can be divided into two groups. Group 1 ophites contain quartz, but do not contain olivine. Group 2 ophites do not contain quartz, but do have olivine, and consequently Group 2 ophite meets the requirements of claim 1.

The silica contents of the ophites of Group 1 of D9 range from 51.17 to 54.58% (Table 1a), whereas those of Group 2 is in the range 45.37 to 51.49% (Table 1b). Since the silica content of the ophite of D2 is given as 48.4% (see Table on page 639), the ophite used in the fluidised bed of D2 must correspond to the Group 2 ophites, hence the subject-matter of claim 1 lacks novelty in light of the disclosure of D2.

The appellant's case:

The appellant submits that in assessing novelty a document must be considered in isolation. Although there may be an exception where there is a specific reference to a second document, there is no such reference to D9 in D2. Document D2 must thus be considered alone.

A further argument for not taking D9 into consideration is that there is, for the following reasons, no clear link between the ophite mentioned in D2 and those of Group 2 of D9.

- The statement in D2, that ofita is abundant in Andalusia, is made in isolation. It is not certain that the ophite actually used in the plant of D2 came from Andalusia.

- The ophite used in the fluidized bed of D2 is said to be from the family of "Doleritas Triasica" ie Triassic ophites. Since Group 1 of D9 concerns Triassic ophites and Group 2 post-Triassic ophites, the indication is that the ophite of D2 belongs to Group 1 rather than Group 2, and hence contains quartz but no olivine.

- Claim 1 requires the rock type to be a diabase, but there is no mention of diabase in either D2 or D9. A comparison of the minerals of D2 and D9 is made on the basis of the analysis, mainly of the silica content, presented in D2. However, the method used for analysing is not given, hence it is doubtful that the mineral

compositions can be compared merely on the basis of the silica contents. For example, sample 69 in D9, with a silica content of 48.22% belongs to Group 2, yet contains no olivine.

Given the above uncertainties, the subject-matter of claim 1 is not directly and unambiguously derivable from D2.

(b) Inventive Step

The appellant's case:

The appellant submitted that on the basis of the cited prior art it is not obvious to select a fluidised bed material having the claimed composition.

Starting from D2, the skilled person has little idea of the mineral to be used in the fluidised bed, and would not turn to D9 in the hope of finding a solution. Firstly, D2 and D9 relate to completely different technical fields. Whereas D2 concerns treatment of waste, D9 is a scientific article reporting the results of a geological survey. Secondly, there is no hint in D9 of any practical use for ophites, and in particular that they could be used as a fluidised bed material. Consequently, the skilled person would not consult D9.

Even if the skilled person were to take D9 into consideration, there is no indication that an ophite containing olivine should be used for the following reasons:

- It is not certain what type and origin of the rock was used in the experiments of D2. The only lead is the name "Doleritas Triasica", but this would point to using a Group 1 ophite which has no olivine, as argued above in respect of novelty.

- Although D2 (page 639) provides a specification for the ophite, the method of analysis is not given; hence it is doubtful whether the compositions of D2 and D9 can be compared merely on the basis of the silica contents. For example, sample 69, with a silica content of 48.22% belongs to Group 2, yet it contains no olivine.

- Tests carried out by the appellant have shown that pure olivine does not produce good results when used in a fluidised bed, hence, irrespective of the disclosure of D1, the skilled person would tend not to consider an ophite containing olivine.

It is therefore not possible for the skilled person to determine the nature of the ophite used, and even if an ophite containing olivine were chosen, it would merely be a coincidence. Starting from D2, the claimed fluidised bed material cannot be derived in an obvious manner, hence the claimed subject-matter has an inventive step.

The respondent's case:

The respondent submitted that the fluidised bed material of claim 1 lacks an inventive step with respect to D2 and D1.

The problem set out in the disputed patent is to reduce the fusion and caking of the bed material. This problem is also dealt with in D1, and is solved by using a bed material containing olivine. A skilled person choosing an ophite rock material from the family of "Doleritas Triasica" for the bed material of D2 would therefore select one containing olivine in expectation of improving the properties, as described in D1.

Such ophites are designated Group 2 in D9 and results for 24 samples are given. Sample 69 is an exception to the overall conclusion given on page 9 that ophites of Group 2 contain olivine. This is because the MgO and CaO contents given in the Table on page 639 of D2 and those of sample 69 are so different that the ophite used in D2 could not correspond to sample 69, but would resemble the other samples of Group 2.

Reasons for the Decision

1. The appeal is admissible.

Inventive Step (Article 56 EPC)

2. The contested patent concerns a fluidised bed material that resists sintering and can be used with a variety of fuels without the need for having additives (see paragraph [0010] of the patent). Document D2 is a report of a waste plant in Spain, which incorporates a fluidized bed and is used for processing waste material from the production of olive oil. According to page 633 of D2, under the heading "Boiler", several materials

were tested for the bed, and the most suitable one was found to be a mineral called "ofita".

Like the material defined in claim 1, ofita (referred to in English as "ophite") is a diabase material, as evidenced by the statement of Professor Lehtinen, University of Helsinki (see D8, page 2, last paragraph). Since both D2 and claim 1 concern the use of diabase rock as fluidised bed material, D2 is an appropriate starting point for assessing inventive step.

3. D2 does not provide a detailed description of the ofita mineral used in the fluidised bed, merely stating that it is from the family of "Doleritas Triasica" and is abundant in Andalusia.

The appellant argues that the statement that ofita is abundant in Andalusia is to be seen in isolation, and that it is not certain that the ofita actually used in the plant of D2 came from Andalusia. However, the abundance of ofita in Andalusia is one of the reasons expressly given in D2 as to why this mineral is suitable. Since the olive waste plant of D2 is also located in Andalusia, it is clearly convenient to have such a mineral nearby. In addition, there does not seem to be any reason for mentioning the abundance of ofita in the region if it does not relate to the material used in D2. The board is therefore convinced that the ofita used in the fluidized bed of D2 came from Andalusia.

4. The skilled person is therefore faced with the problem of selecting an Andalusian ophite for use as a fluidised bed material in the plant of D2.

5. Document D9 is a detailed survey of ophites (or ofitas) from the Betic Cordillera mountain range in the south of Spain, ie from Andalusia. The appellant argues that the skilled person would not consult D9, as it is a scientific article with no hint of practical uses for ophites. However, the purpose of D9 is not to provide the solution to the problem, but to provide general information about nature of ophites found in Andalusia; its role is comparable to that of a text book, which the skilled person would consult in order to identify which ophites are to be found in Andalusia.

6. Two groups of ophites are defined in D9 (see the paragraph under "Petrography and age of the ophites", bridging pages 109 and 110). The Triassic ophites of Group 1 (Table 1a) contain quartz, and several of the samples in Table 1a show the quartz content to be above 5 wt%; the majority of the samples do not contain olivine. The ophites of Group 2 (Table 1b) are classed as post-Triassic and contain olivine; quartz is said to be absent.

7. The board agrees with the respondent's argument that the distinction between Triassic and post-Triassic is fine, and may not be appreciated by the authors of D2, who are specialists in waste treatment. Indeed, no distinction is made in the abstract D9, which was written by experts in the field of Andalusian ophites; the abstract simply refers to "ophites in Triassic formations" (see the first paragraph).

Consequently, the terminology alone cannot provide reliable guidance and it is not possible to determine

with certainty whether the term "Doleritas Triasica" in D2 corresponds in D9 to Triassic or post-Triassic ophite, or to both. Therefore, irrespective of terminology, the skilled person reading considering D2 is faced with the problem of choosing the most suitable Andalusian ophite for use as a fluidised bed material.

8. A pointer is to be found in D1. This document, like the contested patent and D2, relates to fluidised bed combustion of waste. D1 states that a bed material comprising olivine sand results in superior performance both in reducing the tendency to fuse and cake and in the rate of particle breakdown and elutriation of the bed material (column 4, lines 58 to 63).

In light of this teaching, the skilled person is directed in D9 to Group 2 ophite as the bed material, as it contains olivine.

9. The appellant alleged that a bed material based on pure olivine does not produce good results, hence the skilled person is dissuaded from using a mineral containing olivine. However, the board is not convinced by this argument, as neither claim 1 nor D1 concern pure olivine. The clear teaching of D1 is that use of a material that comprises olivine leads to an improved performance.

10. The appellant, citing sample 69, argued that, even if the skilled person were to consider an ophite from Group 2, there is no indication that it must contain olivine. Sample 69 is said to belong to Group 2, yet contains no olivine. However, the board agrees with the respondent and the opposition division that sample 69,

being one of 24 samples, is an exception to the overall conclusion, set out clearly on page 109 of D9, that ophites of Group 2 contain olivine.

11. According to the sentence bridging pages 109 and 110 of D9, the ophites of Group 2 are also associated with calcic plagioclase and a titanium-rich augite; that augite is a pyroxene has not been contested. Quartz is said to be absent from the Group 2 ophite, as confirmed by the values given for the samples in Table 1b. Group 2 ophite thus meets the requirements of claim 1, and is an obvious choice for the skilled person seeking to determine which of the Andalusian ophites to use as a fluidised bed material in the plant of D2.

12. The board has not found it necessary to address the novelty question of whether the Group 2 ophites are implicitly disclosed in D2, since, even if they were not implicitly disclosed, they would be an obvious choice for the skilled person for the reasons given above. The appellant's request is not allowable, as claim 1 lacks an inventive step starting from D2 combined with the teaching of D1 and general knowledge described in D9.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Hampe U. Krause