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**Datasheet for the decision
of 16 May 2023**

Case Number: T 0928/20 - 3.2.03

Application Number: 11177696.9

Publication Number: 2394957

IPC: F23C10/28, F23J7/00, F23C10/18,
C01B33/40

Language of the proceedings: EN

Title of invention:
Method for operating a furnace

Patent Proprietor:
Kentucky-Tennessee Clay Co.

Opponent:
Sumitomo SHI FW Energia Oy

Headword:

Relevant legal provisions:
RPBA 2020 Art. 12(2), 12(4), 12(6)
EPC Art. 54, 56

Keyword:

Late-filed evidence - should have been submitted in first-
instance proceedings (no)

Novelty - (yes)

Inventive step - (yes)

Decisions cited:

G 0007/93, G 0009/91, G 0010/91, T 0617/16, T 2603/18,

T 0099/16

Catchword:



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Case Number: T 0928/20 - 3.2.03

D E C I S I O N
of Technical Board of Appeal 3.2.03
of 16 May 2023

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Decision under appeal: **Interlocutory decision of the opposition
division of the European Patent Office posted on
20 February 2020 concerning maintenance of the
European Patent No. 2394957 in amended form.**

Composition of the Board:

Chairman C. Herberhold
Members: G. Patton
D. Prietzel-Funk

Summary of Facts and Submissions

- I. European patent No. 2 394 957 B1 ("the patent") relates to a method for combusting fuel in the presence of an alkali-containing material, the method comprising introducing fuel and hydrous clay into a furnace.
- II. The opposition was directed against the patent as a whole and was based on Article 100(a) EPC (lack of novelty and inventive step).

The opposition division came to the following conclusions:

- the late-raised ground for opposition based on Article 100(c) EPC (unallowable amendments) could not be admitted into the proceedings
- the late-filed facts (novelty) using documents D9 and D10 and the late-filed document D9b could be admitted into the proceedings
- the late-filed documents D14 and D16 could not be admitted into the proceedings for the discussion of novelty
- the subject-matter of claim 1 of the then main request was novel over documents D9, D9b, D10, D3, D4 and D5
- the late-filed documents D14, D15 and D17 could be admitted into the proceedings for the discussion of inventive step
- the subject-matter of claim 1 of the then main request involved an inventive step in view of:
 - D9b taken as the closest prior art in combination with the teaching of D8
 - D14 taken as the closest prior art in combination with the skilled person's common general knowledge or the teaching of D6, D12, D15 or D17

- any of D7, D9, D10, D1 or D2 taken as the closest prior art in combination with the teaching of D8
- D3 taken as the closest prior art in combination with the teaching of D6
- D4 taken as the closest prior art in combination with the teaching of D8 or the skilled person's common general knowledge

The opposition division decided to maintain the patent in amended form according to the proprietor's then main request (see the claims filed by letter of 31 January 2019 and the description as amended during the oral proceedings before the opposition division).

The opponent lodged an appeal against the opposition division's decision.

III. The board provided its preliminary, non-binding opinion in a communication pursuant to Article 15(1) RPBA 2020 dated 25 October 2022, which was annexed to the summons to oral proceedings.

IV. At the end of the oral proceedings held on 16 May 2023, the opponent ("appellant") requested

that the decision under appeal be set aside and that European patent No. 2 394 957 B1 be revoked.

The patent proprietor ("respondent") requested

that the appeal be dismissed and

that the patent be maintained in amended form as held allowable by the opposition division (main request), or

that the patent be maintained in amended form on the basis of one of auxiliary requests 1 to 5 as filed with the reply to the statement setting out the grounds of appeal, and

that the late-filed documents D9b, D14, D15, D16, D17 and D18 not be admitted into the proceedings, and

that the ground for opposition under Article 100(c) EPC not be admitted into the proceedings, and

that the case be remitted to the opposition division for further prosecution in the event of the admission into the proceedings of any of documents D14 to D17 on grounds other than those allowed by the opposition division.

V. Claim 1 of the **main request** reads as follows:

"A method for combusting fuel in the presence of an alkali-containing material,

wherein the method comprises:

introducing fuel and hydrous clay into a furnace,

combusting at least a portion of the fuel, wherein the hydrous clay is at least partially calcined and the at least partially calcined clay adsorbs at least a portion of alkali present in the furnace,

characterised in that

the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight."

The wording of the auxiliary requests is not relevant to the present decision.

VI. The following documents considered in the decision under appeal are relevant to the present decision (see also point II above):

D1: US 2006/0210463 A1

D2: WO 99/11976 A1

D3: K.O. Davidsson et al., "Kaolin Addition during Biomass Combustion in a 35 MW Circulating Fluidized-Bed Boiler", Energy & Fuels 21, 2007, pages 1959-1966

D4: EP 0 338 103 B1

D5: US 5,298,473

D6: Ville Henttonen, "The effects of calcium for retention chemicals", engineering thesis, November 2006, pages 1-6 and Appendix 5

D7: US 3,907,674

D8: WO 2008/116117 A1

D9: US 4,771,712

D9b: WO 88/10291 A1

D10: US 4,387,653

D12: Imerys product specification data sheet: "Kaolin product specification - Intrafill™ C Powder", April 2000

D14: M. P. Glazer, "Alkali metals in combustion of biomass with coal", Master of Science dissertation, 23 January 2007

D15: "11.25 Clay Processing", Mineral Products Industry, January 1995, available at <https://www3.epa.gov/ttn/chief/ap42/ch11/final/>

c11s25.pdf

- D16: Tran et al., "Capture of Alkali Metals by Kaolin"
Proceedings of FBC2003, 17th International
Fluidized Bed Combustion Conference,
18-21 May 2003, Jacksonville, Florida, USA
- D17: O. Veatch, "Second Report on the Clay Deposits of
Georgia", Geological Survey of Georgia, Bulletin
No. 18, 1909

During the opposition proceedings, the respondent filed
the following document by letter dated 17 October 2019:

Appendix A: Tests without hydrous clay and
with 1% hydrous clay comprising 6% by
weight moisture content

With its statement setting out the grounds of appeal,
the appellant filed the following document for the
first time in the proceedings:

- D18: Brochure of BASF, "Attagel[®] - Rheology modifiers",
2007

VII. As far as they are relevant to the present decision,
the appellant's arguments were essentially as follows
(where appropriate, the arguments are discussed in
further detail in the reasons for the decision below):

Documents - admittance

Documents D9b, D14, D15 and D17 should be admitted and
used in the appeal proceedings for the grounds for
which they were admitted and used in the decision under
appeal. D16 should also be admitted.

D18 was filed for the first time in the appeal proceedings to support the objection of a lack of novelty of the subject-matter of claim 1 in view of D10, which objection was admitted into the proceedings by the opposition division. D18 had the date of 2007 on the last page and, hence, had been made available to the public before the earliest priority date of the patent of 27 October 2008. Thus, D18 should be admitted into the proceedings.

Late-raised ground for opposition based on Article 100(c) EPC - admittance

The opposition division inappropriately exercised double standards: it applied stricter criteria when assessing the disclosures of prior-art documents than when assessing the disclosure of the patent.

In particular, the opposition division failed to take into consideration the respondent's own explicit written declarations on how the disclosure of the application as originally filed should be assessed.

Thus, the opposition division exercised its discretionary power in an unreasonable manner when it decided not to admit the late-raised ground for opposition based on Article 100(c) EPC into the proceedings. The opposition division's decision should therefore be overruled.

Main request

D10 explicitly disclosed all of the features of claim 1 apart from the moisture content of the clay. As can be seen from D18, page 3, the Attagel[®] clay used in D10, column 5, line 24, implicitly comprised a moisture

content of 12%, which falls within the claimed range. D10 did not disclose that the processing step of the clay changed the disclosed moisture content.

When also taking into account the description of the patent, paragraph [0025], the disclosure of document D10 anticipated the subject-matter of claim 1.

In case of drying the clay as indicated in column 6, lines 5 to 8, of D10, document D17, page 49, showed that the final moisture content lay between 7 and 8%, i.e. within the claimed range. The claimed moisture content was therefore implicitly disclosed in D10 for this reason as well.

Thus, the subject-matter of claim 1 was not novel over the disclosure of D10.

The subject-matter of claim 1 of the main request lacked an inventive step in view of:

- a) any one of documents D3, D14 or D16 alone, taking into consideration their implicit disclosure of the moisture range (kaolin or fuller's earth) as evidenced by D12 or D6 (arbitrary selection of the claimed range; no surprising effect)
- b) D3 taken as the closest prior art in combination with the skilled person's common general knowledge as illustrated by D6, D17 or D15, taking into consideration the disclosures of D2, D7 and D14
- c) D14 taken as the closest prior art in combination with the skilled person's common general knowledge or the teaching of D6, D12, D15 or D17
- d) D9b taken as the closest prior art in combination with the teaching of D8
- e) D4 alone or taken as the closest prior art in

combination with the skilled person's common general knowledge or the teaching of D8 or D15

- f) D7 taken as the closest prior art in combination the skilled person's common general knowledge or the teaching of D6, D8, D12, D15 or D17

With respect to D3, which was selected as the starting point for arguing inventive step at the oral proceedings before the board, there was no evidence of an "unexpected degree" of any technical effect occurring between 5% and 15% by weight moisture as compared with a moisture content from 1% as originally disclosed. The criteria for a selection invention were therefore not fulfilled for the claimed range.

Furthermore, D3 disclosed the introduction into the furnace of hydrous clay of the type "Intrafill™ C", which had a moisture content either of 10% by weight as according to D6 or 1.5% by weight as according to D12. D3 disclosed that the advantageous effect was obtained with "Intrafill™ C" clay and thus with either 1.5% or 10% by weight moisture. As a result, the subject-matter of claim 1 was obvious in view of D3.

There was no evidence in the contested patent of improved alkali adsorption during the combustion of clay having the claimed moisture. The mere assessment that alkali adsorption could be improved by increasing the lower limit of the moisture content of the clay to 5%, as per that of the opposition division, could not be considered a surprising effect.

Similarly, the reduced decrease in steam temperature after a few weeks of service was not a surprising effect as it was already derivable from D3. Therefore, the problem of increasing boiler efficiency as argued

by the respondent was already solved in D3 by the mere addition of kaolin, irrespective of its moisture content. Consequently, the problem to be solved vis-à-vis the disclosure of D3 could not be formulated as increasing boiler efficiency but rather as providing an alternative clay in the method of D3. In view of reducing the high costs incurred by drying the clay, the skilled person would consider, in particular, cheaper clays with higher moisture contents such as those disclosed in D6 (10% by weight), thereby arriving at the claimed subject-matter in an obvious manner.

VIII. As far as they are relevant to the present decision, the respondent's arguments were essentially as follows (where appropriate, the arguments are discussed in further detail in the reasons for the decision below):

Documents - admittance

The late-filed documents D14, D15, D16 and D17 were not *prima facie* relevant, and therefore they should not be admitted into the proceedings. The late-filed document D9b should not be considered either.

The appellant filed D18 for the first time in the proceedings with the statement setting out the grounds of appeal. It was *prima facie* irrelevant and there was no evidence that it had been made available to the public prior to the priority date of the patent. Thus, D18 should not be admitted into the proceedings.

Late-raised ground for opposition based on Article 100(c) EPC - admittance

The opposition division applied the criterion of *prima facie* relevance correctly and in a reasonable way when assessing whether the late-raised ground for opposition based on Article 100(c) EPC should be introduced into the proceedings. In particular, the respondent's declarations were not in contradiction with the opposition division's substantive assessment of the objection raised. The opposition division's decision should thus be upheld.

Main request

There was no direct and unambiguous disclosure that the Attagel[®] clay mentioned in D10 was to be used and introduced into the furnace with the moisture content shown in D18. Process steps were performed in D10 before the introduction of the clay into the furnace, and said steps changed its moisture content.

The combinations shown in paragraph [0025] of the patent did not comprise the addition of volatile liquid according to the disclosure of D10. Thus, they differed from the disclosure of D10 and could not be used to argue that claim 1 encompassed the disclosure of D10.

There was no indication in D17 that any drying step would lead to fuller's earth having a moisture content of 7 to 8%. Thus, it could not be concluded in view of D17 that the optional drying step performed in D10 inevitably led to the claimed moisture content.

Hence, D10 did not disclose, either explicitly or implicitly, the claimed moisture content. Thus, the

subject-matter of claim 1 was novel over the disclosure of D10.

D3 did not explicitly disclose the moisture content of the clay ("Intrafill™ C" or kaolin) introduced into the furnace. In view of D6 (10% by weight) and D12 (1.5% by weight), the moisture content of "Intrafill™ C" was not well established, and therefore it could not be seen as implicitly disclosed in D3. The claimed moisture content of the clay from at least 5% by weight to about 15% by weight was a distinguishing feature over D3.

The criteria for a selection invention could not be applied to assess the inventive step of a claimed subject-matter of a patent in view of its own disclosure.

The technical effect obtained by the distinguishing feature of a reduced decrease in the steam temperature after a few weeks in service was disclosed in the patent in paragraphs [0050] and [0051].

The problem to be solved could therefore be formulated as being to modify the method of D3 in order to improve boiler efficiency.

The skilled person faced with this problem would not consider or find the claimed solutions in any of the available prior-art documents, including in D3.

Similarly, the other objections of a lack of inventive step did not lead to the claimed subject-matter in an obvious manner either.

Reasons for the Decision

1. *Documents - admittance*

1.1 Documents D9b, D14, D15, D16 and D17

- 1.1.1 The respondent requested that documents D9b, D14, D15, D16 and D17, which had been late-filed in the opposition proceedings, not be admitted into the proceedings. Its arguments were essentially as follows:

The opposition division did not admit D16 into the proceedings for the discussion of novelty or use it for inventive step. D16 did not disclose that the fuller's earth used therein had a moisture content falling within the claimed range.

Even though D15 disclosed a particular process resulting in fuller's earth having a moisture content of between 0 and 10%, there was no reason to believe that fuller's earth was dried to 0-10 wt% moisture levels in every possible instance and that the moisture content of fuller's earth used in every process necessarily lay within the range of 0-10%. Moreover, D15 did not support a disclosure of a process in accordance with claim 1 of the main request in which a hydrous clay having a moisture content ranging from at least 5% by weight to about 15% by weight is introduced into a furnace.

D14 did not disclose kaolin comprising the claimed moisture content, also in view of D15.

D17 did not disclose clay comprising the claimed moisture content either.

For the reasons set out above, none of documents D14, D15, D16 and D17 was *prima facie* relevant.

The respondent did not provide any reasoning for its request that D9b not be admitted.

1.1.2 The board does not share the respondent's view for the following reasons:

For the discussion of novelty, the opposition division did admit D9b into the proceedings, but it did not admit D14 or D16, see the decision under appeal, point II.2.3.1.

For the discussion of inventive step, the opposition division admitted D14, D15 and D17 into the proceedings, see the decision under appeal, point II.2.4.1. D9b was also used for the discussion of inventive step in the decision under appeal, see point II.2.4.2.1, and, hence, was also *de facto* admitted with respect to this ground. Since D16 was not used by the appellant for the discussion of inventive step, no decision was taken on the admittance thereof.

It is established case law that in case of an appeal against a decision taken by a department of first instance, it is not the responsibility of the board to review all of the facts and circumstances of the case as if it were in that department's place and decide whether or not it would have exercised its discretion in the same way. The board should only overrule the way in which the department of first instance exercised its discretion in reaching a decision in a particular case

if it concludes that the first-instance department did so in accordance with the wrong principles, without taking the right principles into account or in an arbitrary or unreasonable way, thereby exceeding the proper limits of its discretion (see Case Law of the Boards of Appeal, 10th edition, 2022, Chapter, V.A. 3.4.1.b, and G 7/93, OJ EPO 1994, 775).

In the present case, the board is of the opinion that the opposition division applied the correct criterion of *prima facie* relevance in a reasonable manner when it admitted documents D9b, D14, D15 and D17 into the proceedings. The respondent did not provide any arguments at all to the contrary, let alone any convincing ones. Hence, the board does not see any reason why it should overrule the way in which the opposition division exercised its discretion.

Furthermore, since the opposition division exercised its discretion correctly in admitting said documents, these documents form part of the decision under appeal and the board is of the opinion that they cannot be excluded from the appeal proceedings pursuant to Articles 12(1)(a) and 12(2) RPBA 2020 (see T 617/16, point 1.1.1 of the reasons, T 2603/18, point 1 of the reasons, T 99/16, point 1.1 of the reasons, and also Case Law of the Boards of Appeal, 10th edition, 2022, chapter V.A.3.4.4).

Hence, documents D9b, D14, D15 and D17 are admitted into the appeal proceedings, at least with respect to the grounds for which they were admitted and used in the decision under appeal.

- 1.1.3 As far as D16 is concerned, the appellant did not use this document in the opposition proceedings in its

arguments with respect to inventive step, see the decision under appeal, points II.2.4.1 and II.2.4.2.

The appellant did, however, use D16 in its statement setting out the grounds of appeal for raising completely new arguments, and new objections, relating to a lack of inventive step.

This represents an amendment according to Article 12(2) and (4) RPBA 2020, for which no justification was provided. As a consequence, the use of D16 for inventive step in the appeal proceedings is not admitted (Article 12(6), second sentence, RPBA 2020).

- 1.1.4 In the appeal proceedings, the appellant used D14, D15 and D17 for inventive step only, as was the case in the decision under appeal (see point 1.1.2 above). Furthermore, the appellant did not use D16 for novelty in the appeal proceedings and its use for inventive step is not admitted (see point 1.1.3 above), which results in a situation similar to that in the decision under appeal, in which D16 was not admitted for novelty and was not used for inventive step.

Consequently, the respondent's request that the case be remitted to the opposition division for further prosecution in the event of the admission into the proceedings of one of the documents (D14 to D17) for grounds other than those allowed by the opposition division is moot.

1.2 Document D18

- 1.2.1 Document D18 was filed by the appellant for the first time with its statement setting out the grounds of appeal. Thus, D18 does not constitute evidence on which

the decision under appeal was based (Article 12(2) RPBA 2020). It represents an amendment to be considered under Article 12(4) and (6) RPBA 2020 as to its admission.

- 1.2.2 The respondent contested the admission of D18 into the appeal proceedings, arguing that it was not more relevant than any of the documents submitted with the notice of opposition and that it was *prima facie* irrelevant.

The respondent further argued for the first time at the oral proceedings before the board that there was no evidence that D18 had been made available to the public before the priority date of the patent. According to the respondent, the date "2007" shown on the last page related to the copyright date, not the publication date. The copyright date "2007" was close to the earliest priority date of 27 October 2008 and, hence, there was serious doubt that the brochure had actually been produced and distributed before the priority date.

- 1.2.3 The board does not share the respondent's view.

An objection of a lack of novelty of the subject-matter of claim 1 with respect to D10 was admitted by the opposition division during the oral proceedings in view of its *prima facie* relevance, see the decision under appeal, point II.2.3.1. The appellant was then confronted for the first time in the oral proceedings with the opposition division's view regarding the product Attagel® as disclosed in column 5, line 24, of D10, when the issue of novelty was discussed in detail, see the decision under appeal, point II.2.3.2. Consequently, there is no reason why the appellant should have filed D18, which relates to Attagel®,

before the oral proceedings, i.e. before the novelty objection with respect to D10 was admitted and discussed.

The filing of D18 clearly addresses the issue of missing evidence with regard to the moisture content of Attagel[®] as mentioned in the decision under appeal, point II.2.3.2 (see, in particular, page 7, last four lines, to page 8, first five lines, and also page 8, lines 12 to 15). The filing of D18 merely serves to support arguments already presented during the opposition proceedings with regard to the discussion of the novelty of the subject-matter of claim 1 over D10, without raising any new issues or objections.

With respect to the availability to the public of D18 prior to the earliest priority date of the patent, the board holds the view, in accordance with established case law, that it is reasonable to assume that the distribution of the brochure D18 occurred within the period of at least around ten months from the end of 2007 until the earliest priority date of 27 October 2008 (see Case Law of the Boards of Appeal, 10th edition, 2022, chapter I.C.3.2.1.c). Thus, D18 is considered to be a prior-art document according to Article 54(2) EPC.

As a result, D18 is admitted into the proceedings (Article 12(4) and (6) RPBA).

1.3 Appendix A

The respondent admissibly filed Appendix A during the opposition proceedings by letter dated 17 October 2019, i.e. within the time limit according to Rule 116 EPC as set in the notification of 28 May 2019.

This document is not, however, mentioned in the decision under appeal, nor was it discussed during the oral proceedings before the opposition division. Thus, it can be considered to be an amendment pursuant to Article 12(2) and (4) RPBA 2020.

Both the appellant and the respondent mentioned and used Appendix A in their written submissions in the appeal proceedings. The document aims merely at supporting arguments already presented during the opposition proceedings, without raising any new issues or objections.

Therefore, the board sees no reason not to admit Appendix A into the proceedings pursuant to Article 12(2) and (4) RPBA 2020.

2. *Late-raised ground for opposition based on Article 100(c) EPC - admittance*

2.1 The appellant was of the opinion that the opposition division inappropriately showed double standards when assessing the disclosures of the documents, namely that it applied stricter criteria when assessing the disclosures of prior-art documents than when assessing the disclosure of the contested patent.

2.1.1 According to the appellant, the opposition division took the view that the contents of paragraphs [0021], [0022] and [0023] of the application as originally filed (reference is made to the A-publication, i.e. EP 2 394 957 A2) could be combined on account of the expressions "*according to some embodiments*" and "*in a number of exemplary embodiments*" that were used in said paragraphs.

In doing so, the opposition division failed to take into account the fact that the respondent itself had explicitly admitted in its submissions dated 27 August 2013 and 11 August 2016 during the examination proceedings that such formulations related to different embodiments. This concept of "separate embodiments" as presented by the proprietor for the disclosure of paragraph [0016] of the application as originally filed also had to be applied to the rest of the application.

Therefore, each of paragraphs [0016], [0017], [0018], [0021], [0022], [0023], [0036] and [0053] of the application as originally filed had to be treated as separate lists of different features and were not to be used as a 'reservoir' for amendments.

Thus, contrary to the opposition division's conclusion, paragraphs [0021], [0027] and [0053] **did not disclose the introduction of hydrous clay having at least 5% moisture into a furnace without alkali-containing material** due to the fact that the sentences in paragraph [0016] disclosed different single embodiments, as admitted by the respondent itself.

The requirements of Article 123(2) EPC were not met, contrary to the conclusion in the decision under appeal under point II.2.2.

- 2.1.2 According to the appellant, the opposition division on the other hand did not allow the combination of features of paragraphs [0021] and [0022] of D8, see the decision under appeal, point II.2.4.2.1, second paragraph.

Such an application of double standards should be avoided when assessing similar situations. In view of the word "may", as used in the application as originally filed and in D8, it would be logical:

i) to either not allow the combinations of the features in paragraphs [0021], [0022] and [0023] of the application as originally filed, resulting in the fact that the change in the lower limit for the required moisture content of the hydrous clay introduced into the furnace, without the alkali-containing material, would contravene Article 123(2) EPC, and to apply the same conclusion to the disclosure of D8,

or, alternatively,

ii) to accept the different combinations of the features of paragraphs [0021] and [0022] of D8 as being disclosed in combination and usable for the inventive-step objections.

2.1.3 Still according to the appellant, as discussed in points 2.1.1 and 2.1.2 above, the opposition division interpreted the disclosure of the application as originally filed as disclosing all combinations where the word "may" was used.

At the same time, the opposition division found that the embodiments disclosed in D8 with the word "may" were not disclosed in combination with the other features.

This inconsistent practice should not be allowed.

In particular,

a. with respect to the opposed patent the opposition division concluded that the claims did not need to be limited to including calcium carbonate; this was considered a non-essential feature

b. with respect to D8, the moisture was regarded by the opposition division as being non-essential for transportation, although the moisture content was between 12% and 23% by weight in claim 1, i.e. essential to the invention of D8.

The opposition division's assessment of what was disclosed in the documents was therefore arbitrary.

Since the opposition division exercised its discretionary power in an unreasonable manner when not admitting the late-raised ground for opposition based on Article 100(c) EPC into the proceedings, the opposition division's decision should be overruled.

2.2 The board does not share the appellant's view, however.

The board notes that the appellant's arguments relate only to the fulfilment of the requirements of Article 123(2) EPC, while the decision under appeal, point II.2.2, also relates to the requirements of Article 76(1) EPC (parent application: WO 2010/051018 A).

As a matter of fact, the omission of the introduction into the furnace of the alkali-containing material (calcium carbonate) is discussed in the decision under appeal only with respect to the parent application, i.e. Article 76(1) EPC, see page 4, lines 30 to 34. A basis for "*the change of the lower level for the required moisture content of the hydrous clay*

introduced into the furnace, without the alkali-containing material", as formulated by the appellant, can be found in claims 1, 2 and/or 3 of the application as originally filed (EP 2 394 957 A2). The fulfilment of the requirements of Article 123(2) EPC are therefore not at issue.

Notwithstanding this preliminary remark, the board is minded not to overrule the opposition division's decision not to admit the late-raised ground for opposition based on Article 100(c) EPC into the proceedings for the following reasons:

- 2.2.1 Claim 1 of the main request is the result of combining the features of claims 1 and 2 of the patent as granted. The subject-matter of claim 1 of the main request therefore corresponds to that of claim 2 of the patent as granted, which had not been subject to objections pursuant to Article 100(c) EPC within the time limit set in Article 99(1) EPC. Thus, the corresponding objections in this respect were filed late, i.e. for the first time with the letter dated 17 October 2019.

Therefore, the opposition division was able to use its discretion when assessing whether the new ground for opposition was to be admitted into the proceedings despite the filing of an amended set of claims. This was not contested by the appellant.

- 2.2.2 According to G 10/91, OJ 1993, 420 (see also G 9/91, OJ 1993, 408), an opposition division is not obliged to go beyond the grounds covered by the statement under Rule 76(2)(c) EPC. The opposition division may, in application of Article 114(1) EPC, consider a ground raised by the opponent after the expiry of the time

limit pursuant to Article 99(1) EPC in cases where there are, *prima facie*, clear reasons to believe that it is relevant and would in whole or in part prejudice the maintenance of the European patent.

The board's review of the discretionary decision of the opposition division not to admit the late-raised ground for opposition is essentially limited to ensuring that the opposition division did not use its power unreasonably (see Case Law of the Boards of Appeal, 10th edition, 2022, chapters IV.C.3.3 and V.A.3.4.5).

- 2.2.3 The board is of the opinion that the opposition division applied the correct criterion of *prima facie* relevance in a reasonable way when assessing whether the late-raised ground for opposition should be introduced into the proceedings. It appears that its relevance was even fully assessed in the decision under appeal.

The fact that the opposition division allegedly applied a different standard when assessing disclosures in the prior art is only relevant in terms of whether or not said assessment of disclosures of the prior art was performed properly in view of other objections, namely those relating to novelty and inventive step. This, however, is irrelevant in terms of whether or not the discretion exercised when admitting a late-raised ground for opposition was performed in an arbitrary or unreasonable way.

In this respect, the board does not see that any arbitrary or unreasonable approach was adopted when dealing with the appellant's arguments and in the reasoning provided, see the decision under appeal, point II.2.2.

As a matter of fact, contrary to the appellant's view, the respondent did not say that the embodiments in paragraph [0016] of the application as originally filed (or of the parent application) could not be combined. As also cited by the appellant, the respondent wrote in its letter dated 27 August 2013, page 2, second paragraph, last sentence, that:

*The skilled reader would consider the second and third sentences of paragraph [016] to describe two separate embodiments, **which may or may not be combined** (emphasis by the board).*

Hence, the opposition division did not fail to take into account the respondent's statements regarding paragraph [0016] of the application as originally filed or of the parent application.

Consequently, the appellant's argument that the embodiments in paragraphs [0016], [0017], [0018], [0021], [0022], [0023], [0036] and [0053] of the application as originally filed (or of the parent application, the paragraphs being identical) should not be combined because of an alleged statement of the respondent regarding paragraph [0016] is not convincing.

Therefore, the board sees no reason to overrule the opposition division's decision not to admit the late-raised ground for opposition based on Article 100(c) EPC into the proceedings.

- 2.3 A ground for opposition which is not part of the opposition proceedings can be introduced in the appeal proceedings only with the approval of the patent

proprietor (see G 10/91, *supra*). In the absence of such explicit approval from the respondent in this respect, the board is of the opinion that the late-raised ground for opposition pursuant to Article 100(c) EPC is not part of the appeal proceedings.

3. *Main request*

3.1 Novelty

- 3.1.1 The appellant argued that the subject-matter of claim 1 of the main request lacked novelty over the disclosure of D10.

The only point of dispute between the parties was whether or not D10 disclosed the following feature of claim 1:

the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

- 3.1.2 The appellant held the view that the Attagel[®] clay used in D10, column 5, line 24, implicitly comprised a moisture content of 12%, falling within the claimed range. The moisture content of Attagel[®] was proven by D18, page 3, sixth row of the table.

In the subsequent processing steps of D10, column 5, line 44, to column 6, line 5, the use of a volatile liquid was disclosed with the remark that water was preferred. However, since the use of any volatile liquid was disclosed, adding a volatile liquid did not necessarily add moisture content to the hydrous clay. This was the situation only when water was used as the volatile liquid.

Further, it was explicitly indicated in D10, column 6, lines 5 to 8, that air drying or oven drying was merely an optional processing step.

Thus, according to the appellant, the opposition division's conclusions regarding the moisture content of the Attagel[®] clay due to the addition of a volatile liquid and the further optional drying step were based on an incorrect understanding and reading of D10. D10 disclosed, at least implicitly, the method of using hydrous clay having a moisture content of 12% as an alkali sorbent in a fluidised bed combustor.

The appellant further argued that the opposition division should have interpreted claim 1 of the main request in the light of the description pursuant to Article 69 EPC. In view of paragraph [0025] of the contested patent, combinations - including limestone and mixing/blending resulting in a paste-like consistency as in D10 - belonged to the scope of claim 1. Since these combinations were not excluded by claim 1, claim 1 lacked novelty over D10 in view of the moisture content of Attagel[®]. For the appellant, only part of the clay had to comply with the claimed moisture content for a known process to fall within claim 1.

In addition, the appellant put forward for the first time at the oral proceedings before the board that in case of drying as indicated in D10, column 6, lines 5 to 8, especially air drying, document D17, page 49, showed that the final moisture content of fuller's earths as used in D10, column 5, lines 18 to 24, under the trademark Attagel[®], lay between 7 and 8%, i.e. within the claimed range. The drying step corresponded

to the process for preparing the hydrous clay as disclosed in the patent, paragraph [0025], stating that the "*hydrous clay may be partially dried to a moisture content ranging from about 1% by weight to about 15% by weight*". This passage of the patent also had to be taken into account for the interpretation of claim 1 in view of Article 69 EPC. The claimed moisture content was therefore implicit in the disclosure of D10 for this reason as well.

In view of the above, the subject-matter of claim 1 of the main request lacked novelty over D10.

3.1.3 The board does not share the appellant's view.

There is no direct und unambiguous disclosure in D10 that the Attagel[®] clay is to be used **and introduced into the furnace** as such, i.e. in accordance with the moisture content shown in D18, page 3.

In D10, claim 1, agglomerates are to be formed first. The method of forming agglomerates comprises adding a volatile liquid to limestone and cementitious binder, i.e. attapulgitic clay such as Attagel[®], see, for instance, column 5, lines 16 to 24, lines 44 to 46, and lines 63 to 67. The preferred volatile liquid is water, as also exemplified in the example, column 7, lines 4 to 42, which uses an attapulgitic clay having a higher moisture content than that of Attagel[®] clay. No volatile liquid other than water is disclosed in D10. Contrary to the appellant's view, there is no teaching in D10 relating to the use of a volatile liquid that would **not** add moisture content to the clay. The fact that it refers to a "volatile liquid" in a generic manner does not mean that a specific volatile liquid is disclosed that would not add moisture. In fact,

contrary to the appellant's view, the explicit teaching of D10 is that the moisture content of the clay is modified before the introduction into the furnace in view of the preferred addition of water. Hence, D10 does not directly and unambiguously disclose that the hydrous clay **introduced into** the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

Contrary to the appellant's view, the claims are to be interpreted alone in the first instance in accordance with the specific wording used for the features, i.e. without consulting the description. This allows, on the one hand, the broadest technically sensible meaning to be given to the features and, on the other hand, examples of the description falling outside the claimed scope to be excluded. At any rate, the board accepts the appellant's view that the different combinations disclosed in paragraph [0025] of the contested patent fall within the scope of claim 1. However, these combinations do not comprise the addition of volatile liquid and, hence, differ from the disclosure of D10. Thus, they cannot be used as proof that claim 1 encompasses the disclosure of D10.

In this respect the board notes that it is explicitly stated in the characterising portion of claim 1 that "*the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight*". Hence, as also argued by the respondent, the hydrous clay introduced into the furnace, i.e. not only a part of it, has to fulfil the claimed moisture content.

As put forward by the respondent, there is no indication in document D17 that any drying parameters

would lead to fuller's earth having a moisture content of 7 to 8%. In particular, D17, page 49, lines 6 to 10, refers to "ordinary conditions", i.e. the temperature and time of the drying step are not specified. Thus, it cannot be concluded in view of D17 that the optional drying step performed in D10 (column 6, lines 4 to 5) would inevitably lead to the claimed moisture content.

Hence, in view of the above, D10 does not disclose, either explicitly or implicitly, the claimed moisture content.

3.1.4 Therefore, the subject-matter of claim 1 of the main request is novel over D10 (Article 54(1) EPC).

4. Inventive step

The appellant held the view that the subject-matter of claim 1 of the main request lacked an inventive step in view of:

- a) any one of documents D3, D14 or D16 taken alone, taking into consideration their implicit disclosure of the moisture range (kaolin or fuller's earth) as evidenced by D12 or D6 (arbitrary selection of the claimed range; no surprising effect)
- b) D3 taken as the closest prior art in combination with the skilled person's common general knowledge as illustrated by D6, D17 or D15, taking into consideration the disclosures of D2, D7 and D14
- c) D14 taken as the closest prior art in combination with the skilled person's common general knowledge or the teaching of D6, D12, D15 or D17
- d) D9b taken as the closest prior art in combination with the teaching of D8
- e) D4 taken alone or as the closest prior art in

combination with the skilled person's common general knowledge or the teaching of D8 or D15

- f) D7 taken as the closest prior art in combination with the skilled person's common general knowledge or the teaching of D6, D8, D12, D15 or D17

Given that the use of D16 for the discussion of inventive step is not admitted into the proceedings (see point 1.1.3 above), the arguments and objections based on the disclosure thereof will not be discussed in the following.

4.1 In view of objection a)

- 4.1.1 The appellant argued that D3 disclosed the introduction into the furnace of hydrous clay of the type "Intrafill™ C", which either had a moisture content of 10% by weight according to D6 or 1.5% by weight according to D12. D3 disclosed that the advantageous effect (improved alkali adsorption, reduced formation of deposits on superheater tubes) was obtained with "Intrafill™ C" clay and thus either with 1.5% or 10% by weight of moisture. There was no evidence available of an "unexpected degree" of any technical effect occurring with between 5% and 15% by weight of moisture as compared with a moisture content of from 1%, as also allegedly admitted by the respondent, see, in particular, the respondent's letter dated 11 August 2016, page 3, sixth paragraph, as filed during the examination proceedings. The criteria for a selection invention were therefore not fulfilled for the claimed range.

As a result, the subject-matter of claim 1 was obvious in view of D3.

The same applied in view of D14, which disclosed the introduction into the furnace of kaolin which either had a moisture content of 10% by weight according to D6 or 1.5% by weight according to D12.

Starting from D14 it would have been obvious for the skilled person to use fuller's earth, which had a moisture content of 0% to 10% by weight.

There was no evidence in the contested patent of improved alkali adsorption during the combustion of clay having the claimed moisture, which was known in any case from D14 or D3. The mere assessment that the alkali adsorption could be improved by increasing the lower limit of the moisture content of the clay to 5%, as per that of the opposition division, could not be considered a surprising effect. Inventive step therefore had to be denied.

Similarly, the reduced decrease in steam temperature after a few weeks of service was not a surprising effect as it was already derivable from D3. As a matter of fact, D3 disclosed that the introduction of kaolin prevented the formation of deposits on superheater tubes. This was related to the aforementioned effect on steam temperature. At the oral proceedings before the board, the appellant further referred to the abstract of D3 and the right-hand column on page 1959, left-hand column on page 1960, right-hand column and Figure 5 on page 1962, and the "Conclusions" on page 1966 of D3 to argue that potassium was captured by kaolin in the bed, thereby decreasing the risk of deposits on superheater tubes. Fewer deposits on superheater tubes was linked to a heat transfer efficiency increase and, hence, to an increase in boiler efficiency. Therefore, the problem of increasing boiler efficiency as argued by

the respondent was already solved in D3 by the mere addition of kaolin, irrespective of its moisture content. In this respect, Appendix A did not prove the alleged effect of the claimed moisture content of the clay since Appendix A contained a single experiment with hydrous clay. The effect of this single experiment in Appendix A was compared with an experiment without clay, and therefore the alleged effect could simply be the result of the mere presence of the clay, irrespective of its moisture content. Experiments with different moisture contents were not provided in Appendix A. Consequently, the problem to be solved vis-à-vis the disclosure of D3 could not be formulated as being to increase boiler efficiency, but rather as being to provide an alternative clay in the method of D3. In view of reducing the high costs incurred by drying the clay - a problem also addressed in paragraph 13 of the contested patent, the skilled person, when considering clays with moisture contents such as those disclosed in D6 (10% by weight) or D12 (1.5% by weight), would favour the cheaper clays with higher moisture contents as in D6 (10% by weight), thereby falling within the claimed subject-matter in an obvious manner.

4.1.2 The board does not share the appellant's view.

As put forward by the respondent, D3 does not explicitly disclose the moisture content of the clay ("Intrafill™ C" or kaolin) introduced into the furnace, see page 1960, right-hand column, second paragraph. In view of D6 (10% by weight) and D12 (1.5% by weight), it appears that the moisture content of "Intrafill™ C" is a parameter which is not well established and can in fact vary, and therefore it

cannot be seen as being implicitly disclosed in D3 either.

In fact, there is no evidence that the moisture content of "Intrafill™ C" would be limited to 1.5% or 10% by weight.

As a consequence, the board shares the parties' view that the following feature of claim 1 is not disclosed in D3:

the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

Nothing in D3 alone hinted at the claimed solution.

The appellant contested that there is a technical effect of the claimed moisture range over the range originally disclosed, i.e. as from 1% by weight, see, for instance, paragraph [0036] (paragraph [0033] of the patent), citing also the respondent's letter dated 11 August 2016, page 3, sixth paragraph. The board is of the view, however, that the criteria for a selection invention as mentioned by the appellant in this respect cannot be applied to the assessment of the inventive step of a claimed subject-matter of a patent in view of its own disclosure.

Furthermore, the board holds the view that the example provided in the patent, paragraphs [0050] and [0051], shows a technical effect obtained for a moisture content of the clay of between 8 and 12% by weight, i.e. within the claimed range. The technical effect is a reduced decrease in steam temperature after a few weeks in service.

Even though a similar technical effect on the steam temperature could possibly be derived from D3, as alleged by the appellant, since D3 teaches that, due to the removal of alkali by the kaolin, the forming of deposits ("alkali species") on the superheater tubes is prevented to some extent by the introduction of kaolin (see the abstract and page 1959, right-hand column, second paragraph), there is no evidence allowing the result shown in paragraph [0051] of the contested patent, i.e. that "*the steam temperature improved further to about 970°C*", to be compared with that of D3. The appellant merely criticised the experiments provided by the respondent without, however, providing any experiment or evidence. According to established case law, a party bears the burden of proof for their allegation. As a consequence, in the absence of any evidence to the contrary, the board sees no reason not to consider the technical effect associated with the distinguishing feature of removing alkalis from the furnace so as to obtain improved boiler efficiency, as derived from the patent, paragraph [0051], and also Appendix A (see the test performed with a clay moisture content of 6% by weight).

The problem to be solved can then be seen as being to modify the method of D3 so as to improve boiler efficiency.

The skilled person would not find the solution in D12, which discloses a lower moisture content of 1.5%.

The skilled person faced with the problem identified above would have no reason to look for the specific "Intrafill™ C" of D6 and use it in the method of D3. This is true even though the particle size distributions seem to be similar in D3 and D6: 36% of

the particles are $< 1 \mu\text{m}$ and 55% of the particles are $< 2 \mu\text{m}$, see D3, page 1960, right-hand column, second paragraph, and D6, "Particle Size" in "Typical Product Properties").

Hence, the appellant's arguments starting from D3 are not convincing.

The same reasoning and conclusion apply starting from D14, which discloses the introduction into the furnace of kaolin, in view of the moisture of D6 or D12, or the introduction of fuller's earth.

4.2 In view of objection b)

4.2.1 The appellant argued that the effect of the moisture content of the clay was insignificant in view of the moisture content of the fuel and the relatively much higher quantity of the latter, as apparent from the example of the contested patent (see also Appendix A).

For the appellant, the criteria for selecting the clay to be used to improve alkali adsorption in a furnace was part of the skilled person's common general knowledge and were set out in any case in D14, from page 20 onwards (see point 2.3 of D14):

- high temperature stability
- rapid rate of adsorption
- high loading capacity
- transformation of alkali compounds into a less corrosive form
- irreversible adsorption to prevent the release of adsorbed alkali during process fluctuations
- low cost

The reasons cited in the decision under appeal for acknowledging inventive step were not included in this list.

D2 and D7 disclosed admixtures being mixed with water prior to their introduction into the furnace. D14 disclosed, on page 4, that the advantage of grate firing and co-firing was that they could handle untreated fuel often with high moisture contents.

In practice, the cost of the clay was the main criterion for the skilled person (cf. also D14, page 9 or 21), and therefore they would use clay resulting from mining (cf. D17) or processed clay (cf. D15, see page 11.25-8, "Fuller's earth") when transport considerations were relevant. The same reasoning was found also in D2, page 4, first paragraph, which mentions that kaolin was relatively inexpensive.

Therefore, the subject-matter of claim 1 lacked an inventive step in view of D3 in combination with the skilled person's common general knowledge of moisture content in kaolin, as illustrated by D6, D17 or D15.

4.2.2 The board does not share the appellant's view.

Starting from D3 as the closest prior art, the distinguishing feature and the problem to be solved derived from its technical effect are set out in point 4.1.2 above. As a matter of fact, the different criteria listed by the appellant in view of the disclosure of D14 do not relate to the case at issue, i.e. the technical effect of the claimed solution in comparison with that of the disclosure of the closest prior art.

The combination of D3 with the disclosure of D6 has already been discussed in point 4.1.2 above.

The board accepts the respondent's view that none of the documents cited by the appellant, in particular D15 and D17, discloses a standard and inevitable moisture content range of the clay for use in combustion applications.

As far as D17 is concerned, the board shares the respondent's view that the appellant failed to demonstrate that the skilled person would consider the moisture contents of the kaolin referred to therein for the clay to be introduced into the furnace of D3 in view of the formulated problem.

The same applies to the disclosure of D15 (see page 11.25-8, "Fuller's earth").

Since none of documents D6, D17 or D15 provides any motivation to the skilled person to apply the claimed solution in view of the formulated problem, also taking into consideration any of D2, D7 or D14, the appellant's arguments regarding the lack of inventive step are not convincing.

4.3 In view of objection c)

4.3.1 According to the appellant, D14, page 24, disclosed that water was expelled from the hydrous clay at temperatures between 100 and 200°C and then during calcination. D14 further disclosed that the water in the carrier gas had the effect of re-hydroxylating the silica lattice, improving therewith the alkali adsorption. Hence, the skilled person starting either from D3 or from D14 knew that water was introduced into

the carrier gas from the fuel and the additive (kaolin).

In view of the disclosure of D14, it appeared obvious that using hydrous clay with a higher free moisture content would provide more water into the carrier gas, i.e. the "reactivity of the clay being increased", than using hydrous clay with a smaller free moisture content.

D14 and D16 disclosed such clays with a moisture content for improving alkali adsorption (e.g. fuller's earth, kaolinite). In particular, fuller's earth available in industry comprised between 0% and 10% of moisture (see D15, page 11.25-8, "Fuller's earth").

According to the chemical reactions shown in D14, chapter 2.3.1, water was released during the removal of water from hydrous kaolin at a temperature of between 100 and 200°C and during calcination of kaolin. The water thereby released was added to the water in the carrier gas.

D14 taught that water in the carrier gas improved kaolin adsorption. The skilled person would therefore have experimented, with a reasonable expectation of success, with the different kinds of clay as suggested in D14, including clays having a moisture content of between 5% and 15% by weight, and would have arrived at the claimed subject-matter without having to employ any inventive skill.

4.3.2 The board does not share the appellant's view.

As far as the allusion to D3 as the closest prior art is concerned, reference is made to the discussions in points 4.1.2 and 4.2.2 above.

With respect to D14 taken as the closest prior art, the board shares the parties' view that the distinguishing feature is that the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

The appellant has failed to provide a problem to be solved on this basis. For this reason alone, its arguments are not convincing.

Should the problem to be solved be seen as being to improve the combustion of alkaline-containing fuels, as argued by the appellant during the opposition proceedings (see the decision under appeal, point II.2.4.2.2), the board takes the view that the skilled person would first try adapting the water content in the carrier gas itself. As a matter of fact, D14 does not provide any pointer towards the claimed moisture content of the clay. The skilled person could use a clay as in D14 with the claimed moisture content but there is no reason why they would do so.

The same reasoning and conclusion apply when considering the problem to be solved as being to improve boiler efficiency as formulated in point 4.1.2 above.

4.4 In view of objection d)

4.4.1 The appellant argued that D9b disclosed silo storage of clay to be introduced into the furnace and that D8 disclosed a very large number of different kinds of

clay granulates that were particularly suitable for silo storage, some of them having the claimed moisture content of at least 5% by weight.

A moisture content of 5% by weight could not, however, constitute the differentiating feature for the assessment of the patentability of the invention of the contested patent since the same technical effect was obtained with a moisture content of 1% by weight as disclosed in the application as originally filed. Thus, the claimed limit seemed to be randomly selected, with no link to any particular technical effect.

If the clay was also to be selected randomly from the various options disclosed in D8, some of the clays would be hydrous clays with a moisture content of between 12% and 23% by weight.

In the absence of any unexpected technical effect, it appeared that the skilled person would select the clay randomly. On some occasions, they would thus happen to use hydrous clay having a moisture content of between 12% and 23% by weight, overlapping the claimed range.

Thus, the subject-matter of claim 1 lacked an inventive step.

4.4.2 The board does not share the appellant's view.

In view of D9b taken as the closest prior art, the board shares the parties' view that the distinguishing feature is that the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

The appellant has failed to provide a problem to be solved on this basis. For this reason alone, its arguments are not convincing.

However, as discussed in point 4.1.2 above, the board is of the opinion that the problem to be solved in view of this distinguishing feature can be seen as being to modify the method of D9b so as to improve boiler efficiency.

As put forward by the appellant, D8 discloses "*a very large number of different kinds of clay granulates*". Therefore, the skilled person could select a clay with the moisture content according to claim 1 but would have no reason to do so, especially when a random selection is concerned.

4.5 In view of objection e)

4.5.1 For the appellant, the overall moisture in D4 for the mixture comprising clay and other components to be introduced into the furnace had a target range of between 10% and 25% by weight. It was therefore obvious that, after mixing and bunkering the mixture as disclosed in D4, at least some of the clay would have absorbed water, such that the moisture in at least some of the clay would be in the given range of 10% to 25% by weight, overlapping the claimed range.

Further, fuller's earth (see D15) and various other cited clays, such as some of the clays in D8 that were suitable for bunkering, had moisture contents of between 12% and 23%, overlapping the claimed moisture range. The bunkering could be skipped if the clay was fed directly to the mixer. In this situation, the

affinity to water of the individual components appeared to play no role.

Thus, the subject-matter of claim 1 lacked an inventive step in view of D4 alone, or, alternatively, in view of D4 in combination with the skilled person's common general knowledge or either of documents D8 and D15.

4.5.2 The board does not share the appellant's view.

In view of D4 taken as the closest prior art, the board shares the parties' view that the distinguishing feature is that the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

The appellant speculates on the moisture content of (some of) the clay in the mixture of D4 and no evidence was provided to support this speculation. Furthermore, the skilled person could again by chance arrive at (some of) the clay with the moisture content according to claim 1, but would have no reason to do so, especially when there is no indication as to how the different components of the mixture are to absorb water.

This applies in view of D4 alone or in view of D4 in combination with the skilled person's common general knowledge or either of documents D8 and D15.

The fact that the bunkering may be skipped does not change the fact that the skilled person could select a clay with the moisture content according to claim 1 but would in reality have no reason to do so.

4.6 In view of objection f)

4.6.1 According to the appellant, D7, column 2, lines 51 to 57, disclosed that silica (SiO_2) and at least one metal oxide (CaO , MgO , Al_2O_3 or Fe_2O_3) were added directly to the fuel stream prior to introduction into the fluidising bed, or, alternatively, that the silica and metal oxide were separately injected into the bed. In column 3, lines 7 to 24, the special case of aluminosilicates (clay) was further disclosed.

Clay comprised both silica and the metal oxide and the teaching of cited document D7 was thus that clay could be introduced into the furnace separately from the fuel.

Suitable hydrous clays were known, such as Attagel[®] (D18) or those disclosed in D6, D8, D12, D15 or D17. They contained moisture contents generally between 1.5% and 12% by weight. The subject-matter of claim 1 was therefore obvious in view of D7 in combination with the skilled person's common general knowledge, or, alternatively, in combination with any one of documents D6, D8, D12, D15 or D17.

4.6.2 The board does not share the appellant's view.

In view of D7 taken as the closest prior art, the board shares the parties' view that the distinguishing feature is that the hydrous clay introduced into the furnace has a moisture content ranging from at least 5% by weight to about 15% by weight.

D7 does not disclose or suggest the use of a hydrous clay in accordance with claim 1.

As put forward by the respondent, the appellant has not provided any arguments, let alone any convincing arguments, as to why the skilled person would (i.e. not only could) be motivated to modify D7 based on their alleged common general knowledge or any of documents D6, D8, D12, D15 or D17, or even D18.

4.7 As a consequence of the above, the subject-matter of claim 1 of the main request involves an inventive step (Article 56 EPC).

5. *Auxiliary requests 1 to 5*

In view of the conclusion on the main request, a discussion of auxiliary requests 1 to 5 is unnecessary.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



C. Spira

C. Herberhold

Decision electronically authenticated