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GW, KM, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

— with international search report (Art. 21(3))

(54) Title: SETTING ACCELERATOR FOR A TILE ADHESIVE BLEND

(57) Abstract: The application relates to the use of a powder comprising calcium nitrate as a setting accelerator for a tile adhesive blend, wherein nitrate powder comprising calcium nitrate, and optionally also comprising a nitrate salt different than the calcium nitrate, specifically potassium or ammonium nitrate, and having a particle size of between 0.01 mm and 1 mm is used as the setting accelerator. The application furthermore relates to a process for producing such a setting accelerator comprising, in one possible embodiment, the step of cutting or grinding prills and/or granules comprising the calcium nitrate and optionally the different nitrate salt, and in another embodiment, a spray drying process, resulting into the setting accelerator. The application also relates to a tile adhesive blend comprising at least a cement, sand and a such setting accelerator.



PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

To:

PAPPAERT, Kris
De Clercq & Partners
E. Gevaertdreef 10a
9830 Sint-Martens-Latem
BELGIQUE

03 AUG. 2017

Date of mailing
(day/month/year)

02.08.2017

Applicant's or agent's file reference
YARA-016-PCT

IMPORTANT NOTIFICATION

International application No.
PCT/EP2016/059585

International filing date (day/month/year)
29.04.2016

Priority date (day/month/year)
30.04.2015

Applicant
Yara International ASA

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. **REMINDER**

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international
preliminary examining authority:



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference YARA-016-PCT	FOR FURTHER ACTION See Form PCT/PEA/416	
International application No. PCT/EP2016/059585	International filing date (day/month/year) 29.04.2016	Priority date (day/month/year) 30.04.2015
International Patent Classification (IPC) or national classification and IPC INV. C04B22/08		
Applicant Yara International ASA		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>9</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (sent to the applicant and to the International Bureau) a total of <u>8</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).		
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☒ Box No. II Priority ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability ☐ Box No. IV Lack of unity of invention ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement ☒ Box No. VI Certain documents cited ☐ Box No. VII Certain defects in the international application ☐ Box No. VIII Certain observations on the international application		
Date of submission of the demand 28.02.2017	Date of completion of this report 02.08.2017	
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Authorized officer Gattinger, Irene Telephone No. +49 89 2399-6097 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2016/059585

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-14 as originally filed

Claims, Numbers

1-17 filed in electronic form on

29-05-2017

Drawings, Sheets

1/1 as originally filed

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-bis)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ This report has been established:
- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2016/059585

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 20.03.2017 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
 - ☐ Additional relevant documents have been discovered during the top-up search.
 - ☐ No top-up search was carried out by this Authority because it would serve no useful purpose.
7. ☐ Supplementary international search report(s) from Authority(ies) has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded".

Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
 - ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☒ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:
- see separate sheet

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	<u>1-5</u>
	No: Claims	<u>6-17</u>
Inventive step (IS)	Yes: Claims	<u>1-5</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-17</u>
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/EP2016/059585

Box No. VI Certain documents cited

1. Certain published documents (Rule 70.10)

and / or

2. Non-written disclosures (Rule 70.9)

see separate sheet

Re Item I

Basis of the report

The modified set of claims submitted with letter dated 29.05.2017 is considered to meet the requirements of Art. 34(2)(b) PCT and form therefore basis for the present report.

Re Item II

Priority

The International Searching Authority considered the priority at least partially invalid vis-à-vis document D1 (WO 2015/067588; for the content of D1 see Item VI below).

The applicant (with letters dated 28.02.2017 and 29.05.2017) essentially argued, that the term tile adhesive blend would (implicitly) incorporate different technical features, such as a certain particle size distribution of the components of the blend, particularly the sand aggregate of up to about 1 mm (because a tile adhesive mix is typically applied as a thin layer) or the presence of admixtures and fibre chemicals (see page 1; lines 10-18 of the present description)

While this may be relevant for the use claim 1, this argument is per se not relevant for the subject-matter of independent process claims 6 and 10 (processes for the preparation of calcium nitrate) and can not be considered convincing with respect to the subject-matter of independent claim 14 for the following reasons: The argument concerning the maximum particle size of the blend finds no basis in the application as filed and attention of the applicant is drawn to page 13; lines 3-5 of the description, where "standard sand" is used, which establishes that the example 1 of the present application is identical to the example 1 of D1. Furthermore, claim 14 is directed to a product which is titled "tile adhesive blend", which is consequently to be read as product suitable for the use as tile adhesive blend. The opinion of the applicant, that a dry blend such as disclosed in D1 would not be suitable for adhering tiles to a surface and vice versa (a tile adhesive blend would not be suitable for adhering e.g. bricks)

would rather put into doubt whether all the features essential to the definition of the product are present in claims 14 (lack of clarity, art. 6 PCT) as the "different technical features" indicated by the applicant are not present in claim 14.

As to the argument concerning the thin layer, the applicant present merely one aspect (thin bed mortar), whereas the skilled person is well aware, that tile adhesive dry mortars are available also for various applications (fixing tile on floors vs. on walls) and may therefore also be applied in thicker layers (thick bed mortar).

For the discussion of first filing the principle applies what is directly and unambiguously derivable from the application, that is, what is defined by means of technical features, which is in case of the present feature combination of claim 14 already disclosed in D1.

It is therefore maintained that the priority of claims 6 to 15 as well as added claims 16 and 17 is considered not to be valid in light of D1.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Claims 6-17:

In light of item II above, the objection under novelty (art. 33(2) PCT) with respect to the claims 6 to 15 raised with the Written Opinion of the International Searching Authority is maintained.

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 6 to 17 is not novel in the sense of Article 33(2) PCT.

Document D1, which is considered regular state of the art (see point II above) under Rule 33.1(a) for the subject-matter of claims 6 to 17, discloses the preparation of a setting accelerator based on technical calcium nitrate with a particle size between 0.1 mm and 1 mm (see page 6; lines 23/24 and particularly the experimental section), the preparation either involving grinding of coarser prills/granules or spray drying a solution at 150-250°C (page 7; lines 4-27). The setting accelerator is added to dry mortar compositions based on at least a cementitious binder and aggregate (standard sand in the examples). The subject-matter of independent claims 6, 10 and 14 therefore lacks novelty. As far as the process steps are concerned also claim 17 lacks novelty as no distinction to the preparation of a dry mortar blend is defined.

The two process claims 6 and 10 do, as far as the technical method step are concerned, define merely the preparation of a calcium nitrate powder, wherein said preparation methods per se are known from D1. There are no method steps disclosed which would define either a preparation of a tile adhesive blend per se (which appears to be rather covered by process claim 17) nor any method step which would indicate any feature which would make the powder specially (and only) usable for tile adhesive blends.

The features of dependent claims 7 to 9, 11 to 13, 15 and 16 are also disclosed in D1 and therefore also lack novelty.

Taking into account the arguments provided by the applicant with letter dated 28.02.2017, the objection with respect to claims 1 to 5 is not maintained.

Claims 1 to 5:

Taking into account the arguments provided by the applicant with letter dated 28.02.2017, the objection with respect to claims 1 to 5 is not maintained.

Document D2 may be considered as closest prior art to the subject-matter of independent claim 1 and discloses a tile adhesive blend ([0011]) comprising *inter alia* a setting accelerator such as calcium nitrate ([0021]).

D2 does not disclose the feature of > 70 wt.-% of the calcium nitrate being selected from a particle size range of 0.01 to 1 mm. Claim 1 is therefore to be considered as novel (art. 33(2) PCT).

The application as filed identifies as problem-to-be-solved for tile adhesive blends (see page 3; last paragraph) to provide a odor-free powder which does not clog or cake and in which the calcium nitrate does not precipitate when being mixed with water.

The application as filed discusses in example 2; lines 13-22, the context of particle size selection and follows that particle sizes too large or too small provide an inferior setting effect due to the dissolution rate and agglomeration. Said inferior setting effect is substantiated in fig. 2 from which it follows that the posed problem is to be considered as successfully solved.

As neither D2 nor other cited documents of the prior art recognize any relevance in the selection of the particle size of the setting accelerator, the feature combination of present independent use claim 1 can not be considered as being derivable in an obvious manner. An inventive step should therefore to be acknowledged.

Re Item VI

Certain documents cited

Application No Patent No	Publication date (day/month/year)	Filing date (day/month/year)	Priority date (<i>valid claim</i>) (day/month/year)
WO 2015/067588	14.05.2015	04.11.2014	05.11.2013

Document D1 (WO 2015/067588) discloses the preparation of a setting accelerator based on technical calcium nitrate with a particle size between 0.1mm and 1 mm (see page 6; lines 23/24 and particularly the experimental section), the preparation either involving grinding of coarser prills/granules or spray drying a solution at 150-250°C (page 7; lines4-27). The setting accelerator is added to dry mortar compositions based on at least a cementitious binder and aggregate (see also point 3 above).

European Patent Office
NL-2280 HV Rijswijk
THE NETHERLANDS

Online filing

Sint-Martens-Latem, May 29, 2017

Our ref. : YARA-016-PCT

Re. : International patent application No. PCT/EP2016/059585 (published as WO2016174190)

"Setting accelerator for a tile adhesive blend"

In name of YARA International

Dear Madam, Dear Sir,

Further to the Written Opinion issued by the International Preliminary Examination authority, dated March 27, 2017, in connection with the above-mentioned patent application, the Applicant hereby submits a set of amended claims and comments to the objections raised therein.

In the following we refer to the following background documents, submitted herewith, which can be considered as representing the common general knowledge in the art:

- A1 "The mortar guide" as found on <https://www.thespruce.com/tile-mortar-guide-thinset-mastic-and-epoxy-1821651>
- A2 "why do we need to use tile adhesive to lay tiles" as found on <https://www.weberthai.com/en/weber/knowledge/tileadhesive-tip/why-do-we-need-to-use-tile-adhesive-to-lay-tiles-what-are-the-benefits.html>

1. Claim amendments

We respectfully submit an amended set of claims 1 to 17 to replace previous claims 1 to 17 as presently on file. Both a version showing amendments as an unmarked version are provided herewith.

The following amendments have been made:

In claims 6 and 10, the wording "in a tile adhesive blend" have been changed to "for a tile adhesive blend", as in the application as filed.

We respectfully submit that these amendments do not extend beyond the contents of the application as filed.

All amendments have been made without prejudice to the possibility of future reinstatement of any excluded matter and/or subsequent filing of divisional applications based on any matter contained in the application as filed.

2. Priority

The Examiner considers the priority date of 30.04.2015 partially invalid for currently pending claims 6 to 17 in view of D1, which validly claims priority of 05.11.2013 and discloses the use of ground technical calcium nitrate as setting accelerator in dry mortar compositions. Although in the letter dated 28.02.2017 the applicant argued that the term "tile adhesive blend" would implicitly refer to a fine grained blend, the Examiner did not find the arguments convincing *inter alia* referring to thin bed mortar vs thick bed mortars. The Examiner concludes that for the discussion of first filing the principle applies what is directly and unambiguously derivable from the application, i.e. what is defined by means of technical features.

The applicant respectfully disagrees with this **opinion**. The applicant submits that not only explicitly disclosed technical features, but also any features implicit to a person skilled in the art should be taken into account, when considering what is expressly mentioned in the document.

In this context, the present application is directed towards "tile adhesive compositions", whereas D1 is directed towards "dry mortar compositions". Despite the similar terminology in both D1 and the present application, the skilled person understands that a tile adhesive composition and a dry mortar blend implicitly, inherently and unambiguously refer to different compositions with different technical features, as evidenced by the distinct uses of both types of compositions.

This difference between "a tile adhesive composition" and a "dry mortar blend" is further supported by the following elements.

A/ the background of the present application and D1 already demonstrate the differences between both compositions (emphasis by the applicant).

* D1, p.1 lines 14-18 states that: "A dry mortar blend is mixed with water to make a workable mortar paste which is useful as a common construction material to bind construction blocks together and fill the gaps between them. (...) Mortar can also be used to fix, or point, masonry when the original mortar has washed away. Present-day dry mortar blends are typically made from a mixture of an aggregate such as sand, a binder such as cement or lime, and water.

* the present application states that: "A tile adhesive blend is mixed with water to make a workable paste which is useful as a tile adhesive to glue tiles to a surface. (...) Present-day, cement based tile adhesives are typically made from a mixture of an aggregate such as sand, a binder such as Portland cement, aluminat cement or lime, and water. (...) The rest are admixtures and fibre chemicals. (p. 1, lines 10-18). Also: "As tile adhesives are commonly used indoors, there is no strong dependency towards climate" (p.2, lines, 24-25).

B/ a dry mortar blend is not suitable for use as a tile adhesive blend and vice versa. In this context, tile adhesives typically allow more movement than mortar does (particularly by including suitable additives as known by the skilled person). If tiles are adhered with mortar, they are very likely to no longer be fixed to the wall/floor after a while because tiles expand and contract with heat and cold. The skilled person understands that tile adhesive necessarily flexes with this expanding and contracting. Tile adhesives for sticking tiles to wood are even more flexible as the wood expands and contracts much more than the tiles do.

These statements are supported by e.g document A2. A2 teaches that tile adhesive is a ready-mixed composition specially formulated from OPC, selected fine sand, and additives to improve its essential properties for laying tiles. Sand-cement mixtures are described as having poor bonded strength under certain conditions.

C/ Document A1 clearly indicates that a "Brick mortar mix" is

"a coarse type of mortar that is used for outdoor bricks and stone.

Brick mortar has larger gauge sand and even small pebbles. It is ideal for mortaring brick walls and walkways.

Mortar mix is extremely cheap, running about \$1 per ten pounds. It is never used for indoor flooring, though sometimes it is used decoratively for indoor brick or stone walls."

D/ a tile adhesive mix is typically applied as a thin layer, which can only be obtained with a sufficiently fine material. For instance, a tile adhesive is typically applied in a layer $< 0,5$ cm as it just needs to glue and does not have to even a surface. Although, as indicated by the Examiner, a tile adhesive may be applied in thicker layers (thick bed mortar), this does not mean that a tile adhesive thick bed mortar is suitable as a (brick) mortar. In this context, the applicant again wishes to refer to paragraph [0006] in document D2 which explicitly mentions a maximal particle size of 1 mm for light fillers for use in tile adhesives. In contrast, mortar compositions, which can be used as masonry mortar or for layers up to 3 cm as plaster, typically comprise significant amounts of (sand) particles larger than 1 mm, e.g. up to 2 or 4 mm.

Accordingly, in view of the above argumentation, the skilled person **understands** that the term "tile adhesive" implicitly includes technical features, including but not limited to a fine grained particle size, but also e.g. the presence of additives, and the like, allowing it to set apart from a dry mortar blend, or at the very least to define it as a specific sub set of cement/sand blends.

While many of these (technical) features allowing to distinguish a tile adhesive blend are not explicitly mentioned in the present application or the priority document, we believe this is not really relevant, as the skilled person understands these are clearly and unambiguously implied by the use of the generic term "tile **adhesive blend**". In the present claim set, both the product is clearly identified ("tile adhesive blend") as well as the distinguishing technical features ("the setting accelerator is in the form of a powder comprising at least 70 weight% calcium nitrate, wherein at least 70 weight% of the powder has a particle size of between 0.01 mm and 1 mm").

As D1 is silent on the composition and use of a tile adhesive composition, and taking into account any features implicit to a person skilled in the art when considering a "tile adhesive blend" vs "a dry mortar blend", the applicant submits that the principle of first filing is met for the subject-matter of the present application related to the tile adhesive composition, particularly for the embodiment relating to the a tile adhesive composition comprising an accelerator powder comprising calcium nitrate with a particle size of 0.1 to 1 mm (100 wt%), and the method to obtain such accelerator powder, and that, accordingly, the priority is validly claimed for the subject-matter recited in the amended claims of the present application.

3. Novelty and Inventive Step (Art. 33(2) and Art. 33(3) PCT)

The applicant gratefully acknowledges that the Examiner deems the currently pending claims 1-5 novel and involves an inventive step over the cited prior art documents.

The applicant respectfully submits that the priority is validly claimed for the present application in view of the above argumentation.

In addition, D1 does not disclose a tile adhesive blend, which, as discussed above, the skilled person understands is inherently and implicitly different from the dry mortar composition of D1, and does not provide any information on the particle size or its use as a tile adhesive.

Accordingly, the applicant submits currently amended claims 6 to 17 are novel over the prior art, as at least the feature of the "tile adhesive blend" in the blend (or paste) according to amended claims 14 to 16 or in the processes claimed in amended claims 6 to 13 or 17 is not disclosed in the prior art.

The applicant respectfully requests reconsideration of this objection.

With respect to the inventive step of amended claims 6-17, the applicant refers to the arguments previously presented in our letter of 28.02.2017. With respect to the technical effect of the particle size of the accelerator powder used in the tile adhesive blend, the applicant refers to the passage on p. 14, lines 13-22.

As discussed in our letter of 28.02.2017, this section clearly demonstrates the relationship between particle size of the accelerator and the effect thereof on the (caking/clogging) properties of the tile adhesive blend, and is supported by and based on the data of example 1, and specifically, example 2.

Accordingly, the applicant respectfully submits the objective technical problem of the present application is not merely to provide an alternative tile adhesive blend, but rather how to provide an improved tile adhesive blend (or an improved accelerator composition, when added to a tile adhesive blend), which does not clog, nor cake or which is free from any precipitation phenomena.

The solution to this problem is using a calcium nitrate comprising accelerator in the form of a powder having the specified particle size range, as demonstrated by the above reproduced section of the present application. The applicant submits that none of the cited prior art documents disclose, teach or suggest to the skilled person how to solve the objective technical problem.

Thus, the applicant finds that the subject-matter of the currently amended claims 1-17 involve an inventive step over the cited prior art. Accordingly, the applicant respectfully requests reconsideration of this objection.

4. Request

In light of the arguments presented above, Applicant respectfully submits that the amended claims meet all patentability requirements of the PCT and respectfully request an indication in this respect in the International Preliminary Report on Patentability.

Respectfully submitted,



Kris Pappaert
European Patent Attorney

Encl. Amended set of claims (amendments indicated & clean copy)
Documents A1 and A2.

CLAIMS (clean)

1. Use of a powder comprising calcium nitrate as a setting accelerator in a tile adhesive blend, wherein at least 70 weight%, specifically at least 75 weight%, of the powder has a particle size of between 0.01 mm to 1 mm, specifically between 0.1 mm and 1 mm, and wherein the powder comprises at least 70 weight% calcium nitrate.
2. Use according to claim 1, wherein the powder comprises a further nitrate salt different from calcium nitrate, specifically the further nitrate salt is potassium nitrate or ammonium nitrate.
3. Use according to claim 1 or 2, wherein the powder comprises 75 weight% to 80 weight% of calcium nitrate and 7 weight% to 11 weight% of potassium nitrate or ammonium nitrate.
4. Use according to any one of claims 1 to 3, wherein the powder has a water content between 0.1 weight% and 20 weight%.
5. Use according to any one of the preceding claims, wherein at least 80 weight%, at least 85 weight% or at least 90 weight% of the powder has a particle size of between 0.01 mm to 1 mm, specifically between 0.1 mm to 1.0 mm.
6. Process for producing a setting accelerator in the form of a powder, comprising calcium nitrate, for a tile adhesive blend, CHARACTERISED IN THAT the process comprises the step of cutting or grinding prills and/or granules comprising at least calcium nitrate to obtain the powder, wherein at least 70 weight%, specifically at least 75 weight%, of the powder has a particle size of between 0.01 mm to 1 mm, specifically between 0.1 mm to 1 mm.
7. Process according to claim 6, wherein the prills and/or granules comprise at least a further nitrate salt different from calcium nitrate.
8. Process according to claims 6 or 7, wherein the prills and/or granules are cut or grinded at a temperature between 10°C and 40°C.
9. Process according to any one of claims 6 to 8, wherein the prills and/or granules are cut or grinded at a relative humidity of between 1% and 45%, more specifically between 1% and 40%.
10. Process for producing a setting accelerator in the form of a powder, comprising calcium nitrate, for a tile adhesive blend, wherein at least 70 weight%, specifically at least 75 weight%, of the powder has a particle size of between 0.01 mm and 1mm, specifically between 0.1 mm to 1.0 mm, characterised in that the process comprises the step of spray drying an aqueous solution comprising calcium nitrate, at a temperature between 150°C and 250°C.

11. Process according to claim 10, wherein the aqueous solution comprises 50 weight% of calcium nitrate.
12. Process according to claim 10 or 11, wherein the aqueous solution comprises a nitrate salt different from calcium nitrate, specifically potassium nitrate or ammonium nitrate.
13. Process according to any one of claims 6 to 12, wherein at least 80 weight%, at least 85 weight% or at least 90 weight% of the powder has a particle size of between 0.01 mm to 1 mm, specifically between 0.1 mm to 1.0 mm.
14. Tile adhesive blend comprising at least a cement, an aggregate and a setting accelerator, CHARACTERISED IN THAT the setting accelerator is in the form of a powder comprising at least 70 weight% calcium nitrate, wherein at least 70 weight%, specifically at least 75 weight%, of the powder has a particle size of between 0.01 mm and 1 mm, specifically between 0.1 mm to 1.0 mm, and optionally wherein the tile adhesive blend has a weight ratio of setting accelerator to cement of 0.005 to 0.05, and/or a weight ratio of aggregate to cement of between 2 and 4.
15. Tile adhesive blend according to claim 14, wherein at least 80 weight%, at least 85 weight% or at least 90 weight% of the powder has a particle size of between 0.01 mm to 1 mm, specifically between 0.1 mm to 1.0 mm.
16. Tile adhesive paste comprising a tile adhesive blend according to claim 14 or 15 and water, wherein the weight ratio of water to cement ranges from 0.4 to 0.8.
17. Process for obtaining a tile adhesive blend according to claim 14 or 15 comprising the steps of (a) preparing an accelerator in the form of a powder comprising at least 70 weight% calcium nitrate, wherein at least 70 weight%, specifically at least 75 weight%, of the powder has a particle size of between 0.01 mm and 1 mm, specifically between 0.1 mm to 1.0 mm, according to any of claims 6 to 13; (b) blending the accelerator in the form of a powder with a binder, specifically cement, and an aggregate, specifically sand.

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