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**Datasheet for the decision
of 23 February 2021**

Case Number: T 0403/17 - 3.3.02

Application Number: 04762849.0

Publication Number: 1675464

IPC: A01N59/00, E01C5/00, E01H11/00

Language of the proceedings: EN

Title of invention:

WEED CONTROL IN JOINTS OF CONCRETE BLOCK AND OTHER PAVING
STONE

Patent Proprietor:

Sønderberg, Frederiksen Jens
Beck, Poul Konrad
Hvorslev, Steffen Birk

Opponent:

Gebrüder Dorfner GmbH & Co. Kaolin- und
Kristallquarzsand-Werke KG

Headword:

Relevant legal provisions:

EPC Art. 54, 56, 100(b), 100(a), 104(1)

EPC R. 3(1)

RPBA 2020 Art. 13, 16

Keyword:

Sufficiency of disclosure (yes)

Novelty (yes)

Inventive Step (yes)

Late-filed submissions - admitted (yes)

Apportionment of costs - (no)

Decisions cited:

T 0608/07, T 0888/07, T 2165/08, T 2290/12, T 1848/12

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0403/17 - 3.3.02

D E C I S I O N
of Technical Board of Appeal 3.3.02
of 23 February 2021

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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 14 December
2016 rejecting the opposition filed against
European patent No. 1675464 pursuant to Article
101(2) EPC.**

Composition of the Board:

Chairman M. O. Müller
Members: M. Maremonti
 R. Romandini

Summary of Facts and Submissions

I. The appeal by the opponent (hereinafter "appellant") lies from the opposition division's decision to reject the opposition against European patent No. 1 675 464 (hereinafter "the patent").

II. The patent as granted contains 15 claims, independent claim 1 of which reads as follows:

"1. A joint filling mixture for pavements and the like, consisting of sand; and at least one sodium containing substance, said sodium containing substance being able to provide sustained release of sodium to an aqueous phase in contact with the sodium containing substance and the joint filling mixture is capable of resulting in an initial SAR value in the aqueous phase of 10 or more, such as 12 or more, such as 14 or more such that a herbicidally effective concentration of sodium in the aqueous phase filling the pores of the joint filling sand is present when the joint filling mixture is wetted by rain water."

Claims 2 to 14 define particular embodiments of the joint filling mixture from claim 1. Claim 15 is directed to the use of the joint filling mixture from claim 1 for weed control.

III. The following documents were referred to, *inter alia*, during the opposition proceedings:

D2: WO 03/037817 A1

D10: Scheiding W., "*Wasserglas als Bindemittel für Holzfaserdämmstoffe*", Holz als Roh- und Werkstoff, 59, 2001, pages 327 to 333.

D15: DD 153 052

D18: US 2 391 299

D19: DE 694 450

D20: DE 1 767 520

D21: Beer H. and Jahn M., "*Pflanzenschutz im ökologischen Landbau - Probleme und Lösungsansätze*", Berichte aus der Biologischen Bundesanstalt für Land- und Forstwirtschaft, 50, 1999.

D22: Hofmann U., "*Einsatz von Schwefel im ökologischen Weinbau, Chancen und Notwendigkeiten, gibt es Alternativen?*" Pflanzenschutz im ökologischen Landbau - Probleme und Lösungsansätze, Neuntes Fachgespräch: "*Zur Anwendung von Schwefel als Pflanzenschutzmittel - Praxiseinsatz, Nebenwirkungen und Zulassung*", D-Kleinmachnow, 22 May 2003.

IV. The opposition division came to the following conclusions, *inter alia*:

- The claimed invention was disclosed in a manner sufficiently clear and complete for it to be carried out by the skilled person.
- The claimed subject-matter was novel over the disclosure of document D2 and involved an inventive step in view of D2 taken as the closest prior art.

V. In its statement of grounds of appeal, the appellant contested the opposition division's reasoning and maintained that the claimed invention was not sufficiently disclosed in the patent. Moreover the claimed subject-matter was not novel over document D2 and not inventive in view of D2 taken as the closest prior art.

The appellant corroborated its arguments by relying on the following new document A028:

A028: "*Entwicklung und Erprobung eines Verfahrens zur Aufbereitung von Leim- und Klebemittelabwässern*", Abschlußbericht zu Teilprojekt 3: "*Erprobung und Validierung eines mehrstufigen Verfahrenskonzeptes im (halb-)technischen Maßstab*".

VI. In its reply to the statement of grounds of appeal, the respondent rebutted the arguments of the appellant and further relied on the following new documents:

A025: "*Laboratory Procedures for Analysis of Exploration & Production Waste*", Louisiana Department of Natural Resources, Office of Conservation Injection and Mining Division, August 1988, pages 1 to 37.

A026: Shackel, B., "*Design and Construction of Interlocking Concrete Block Pavements*", 1990, pages 178 to 181.

A027: Environmental Analysis Laboratory, Southern Cross University, Full analytical services price list.

It also contested the publication date of A028 and its admittance.

The parties were summoned to oral proceedings in accordance with their requests.

VII. In preparation for the oral proceedings, the board issued a communication pursuant to Article 15(1) RPBA 2020 in which it expressed, *inter alia*, the preliminary opinion that the claimed subject-matter was sufficiently disclosed in the patent, was novel and involved an inventive step.

VIII. In a subsequent communication, the board informed the parties that oral proceedings would be held by video conference.

IX. By letter dated 25 January 2021, the appellant made additional submissions and further referred to the following websites:

<https://www.lebensmittelverband.de/de/lebensmittel/werbung/health-claims>

<https://www.laborpraxis.vogel.de/icp--66-elemente-unter-1-gl-nachweisgrenze-gal-106102/?p=4>

<https://de.wikipedia.org/wiki/Metam-Natrium>

<https://www.thor.com/usa/biocidesindustrialcaribbean.html>

X. Oral proceedings before the board were held on 23 February 2021 by video conference.

XI. Final requests

The appellant requested that the decision under appeal be set aside and that the patent be revoked.

The respondent requested that the appeal be dismissed, meaning that the patent be maintained as granted.

Alternatively, the respondent requested that the patent be maintained on the basis of the claims according to one of auxiliary requests 1 to 5 as filed before the opposition division by letter dated 10 October 2016.

The respondent further requested that document A028 not be admitted into the proceedings.

The respondent also requested that the letter filed by the appellant on 25 January 2021 and its content not be considered, since they were filed late.

Additionally, the respondent requested that the costs incurred by it for considering this appellant's letter be apportioned to the appellant.

It further requested that Mr von Meltzer, acting on behalf of the appellant, not be allowed to speak during the oral proceedings unless he intended to make only general comments on matters of general chemistry, without presenting arguments going beyond what was already included in the statement setting out the grounds for the appeal.

During the oral proceedings the board informed the parties that it could only decide not to admit into the proceedings specific statements of facts, arguments or references to evidence, but not a letter as such. Therefore, it suggested to the respondent that if it considered any specific argument, statement of facts or references to evidence to be inadmissible in the course of the discussion, it then requests that the board not consider it. The respondent declared that it agreed with this course of action. In the course of the oral proceedings, the respondent then specified its requests of non-admittance to be restricted to:

- the appellant's oral submissions concerning the type of sand (objection 3.1 below),
- the appellant's submissions concerning the aqueous phase (objection 3.4 below) as contained in the appellant's letter dated 25 January 2021 as well as Mr von Meltzer's oral submissions relating to this, and
- the prior-art references and submissions relating to these as contained in the appellant's letter dated 25 January 2021.

XII. The appellant's objections, in so far as relevant to the present decision, are summarised as follows.

- The term "*consisting of*" in claim 1 did not have any limiting character, the reason being that every existing chemical substance was normally used at a technical quality and thus contained sodium, at least as an impurity.
- Several features of claim 1 were so unclear that they did not allow the skilled person to carry out the claimed invention without undue burden.
- Essential features were missing from claim 1, thus leading to an insufficiency of the disclosure when the entire claimed scope was considered.
- The subject-matter of claim 1 lacked novelty over the compositions disclosed in document D2.
- The subject-matter of claim 1 also lacked an inventive step in view of the closest prior art D2 when taken alone or in combination with any one of A028, D10, D15 and D18 to D22.
- It had to be concluded that the grounds for opposition under Article 100(a) and (b) EPC prejudiced the maintenance of the patent as granted.
- The letter dated 25 January 2021 merely contained comments on unclear features of claim 1 requiring interpretation. These comments did not raise new issues, but were meant to streamline the discussion at the oral proceedings.
- The references contained in this letter were not prior-art documents, but merely websites aiming to

demonstrate the common general knowledge in the field.

- Therefore, these submissions did not constitute an amendment to the appellant's case and should be admitted into the proceedings.
- Moreover, the consideration of these submissions was part of the normal preparatory work by the respondent in view of the oral proceedings. Therefore, there was no reason to apportion the costs to the appellant.

XIII. The respondent essentially presented the following counter-arguments.

- In view of the term "*consisting of*", claim 1 limited the joint filling mixture to compositions only including sand and at least one sodium containing substance as further defined in the claim.
- The patent and especially the reported examples represented clear guidance for the skilled person trying to reproduce the claimed mixture.
- In particular, methods for measuring the Sodium Adsorption Ratio (SAR) value mentioned in claim 1 were well known and readily available to the skilled person before the priority date of the patent.
- The claimed subject-matter was novel over D2 at least because the claimed mixture did not include the water-soluble polymer taught in D2 and because D2 did not disclose the claimed SAR value.

- The claimed subject-matter also involved an inventive step in view of D2 taken as the closest prior art. The skilled person had no reason to remove the water-soluble polymer from the compositions of D2 since this component was absolutely essential for the mixture of D2 to work as a joint.
- Even considering D10, D15 and D18 to D22 as cited by the appellant, these documents always disclosed sodium silicate glass in combination with other substances not containing any sodium. Therefore, their combination with D2 would not have led to the subject-matter of claim 1.
- It had to be concluded that none of the objections raised by the appellant prejudiced the maintenance of the patent as granted.
- The appellant's letter dated 25 January 2021 was filed only shortly before the oral proceedings. The submissions and the prior-art references contained in this letter constituted an amendment to the appellant's case. This amendment should not be admitted pursuant to Article 12(4) RPBA 2007 and Article 13 RPBA 2020.
- Moreover, the costs incurred for translating and considering said submissions and prior-art references should be apportioned to the appellant pursuant to Article 16 RPBA 2020.

Reasons for the Decision

Main request - the patent as granted - reading of claim 1

1. The appellant argued that the expression "*consisting of*" in claim 1 (II above) did not have any limiting character, the reason being that every existing chemical substance was normally used at a technical quality and thus contained sodium, at least as an impurity. Additionally, claim 1 needed interpretation since it was unclear whether, when more than one sodium containing substance other than sand was present, only one or all of them had to provide the claimed sustained release of sodium and initial SAR value of 10 or more.
2. The board notes that claim 1 (II above) defines a mixture consisting of sand and "**at least one sodium containing substance, said sodium containing substance being able to provide sustained release of sodium to an aqueous phase [...] the joint filling mixture is capable of resulting in an initial SAR value in the aqueous phase of 10 or more**" (emphasis and square brackets added by the board).
 - 2.1 Therefore, by taking the literal wording of claim 1 into account, the skilled person would have read claim 1 as defining a mixture in which only sand and at least one sodium containing substance are present, wherein the latter must additionally be able to provide sustained release of sodium to an aqueous phase in contact with it. Hence, if more sodium containing substances are present, each of them must be able to provide said sustained release of sodium.
 - 2.2 Additionally, no matter whether one or more sodium containing substances are present, claim 1, by way of its wording "**the joint filling mixture is capable of**

resulting in an initial SAR value in the aqueous phase of 10 or more" (emphasis added by the board), makes it clear that it is the whole mixture that has to provide the required SAR value of 10 or more, such that a herbicidally effective concentration of sodium in the aqueous phase is present.

- 2.3 Therefore, the board concludes that mixtures containing substances that neither are sand nor provide sustained release of sodium to an aqueous phase in contact with them are not within the scope of claim 1 as granted.

Main request - the patent as granted - ground for opposition under Article 100(b) EPC - sufficiency of disclosure

3. The appellant submitted that a number of features of claim 1 did not allow the skilled person to carry out the claimed invention without undue burden, the objections being as follows.
- 3.1 Claim 1 did not specify the type of sand to be used in the claimed joint filling mixture; however, the paragraphs [0020], [0023] and [0024] of the patent taught that only specific types of sand, especially quartz rich sand, were suitable for promoting herbicidal action. According to the patent, sand should have a very low potassium and magnesium content since these were elements essential for weed growth. Additionally, the type of sand might influence the pH of the aqueous phase in contact with it and thus the SAR value as demonstrated by the results reported in table 3 on page 7 of the patent. Therefore, the claimed invention was not sufficiently disclosed for any kind of sand.
- 3.2 Claim 1 did not specify which sodium containing substance had to be used in the mixture and how such a substance should interact with sand. Also, it was

unclear whether only one or all sodium containing substances present in the mixture had to result in the claimed SAR value of 10 or more. The description of the patent could not remedy this deficiency. In fact, paragraphs [0027] to [0029] mentioned several substances that could be used as additives, some containing sodium and others not. In addition, the examples reported in table 5 on page 8 of the patent were carried out with additives like olivine, which did not contain any sodium. Therefore, the skilled person was at a loss as to how to select the sodium containing substance so to arrive at the claimed results in terms of SAR value and herbicidal activity. They might only proceed by trial and error.

By specifying neither the sand nor the sodium containing substance to be used, claim 1 lacked essential features of the invention, thus resulting in the claim being insufficient, as confirmed by T 0888/07.

3.3 Claim 1 mentioned a joint filling *mixture* and a joint filling *sand*. At the same time, it required a herbicidally effective concentration of sodium in the aqueous phase filling the pores of the joint filling *sand*. It was unclear where the mentioned concentration had to be measured. This lack of clarity was exacerbated by the fact that sand grains did not have pores, but rather cracks or crevices. It was thus unclear where the sodium concentration had to be measured. No information was provided in the patent in this respect.

3.4 The same objection applied to the feature of "aqueous phase" of claim 1. This claim referred to an aqueous phase in contact with the sodium containing substance and an aqueous phase filling the pores of the sand. It

was unclear in which of these aqueous phases the SAR required by claim 1 had to be measured.

- 3.5 This lack of clarity was exacerbated by the fact that no SAR measurement method was disclosed in the patent, which only disclosed a pH measurement.
- 3.6 Claim 1 mentioned an "*initial SAR value*". The meaning of the term *initial* was unclear. The skilled person might not determine when the SAR had to be measured and how its value developed over time.
4. The board disagrees with the appellant for the following reasons.
 - 4.1 As mentioned by the appellant itself, paragraphs [0020], [0023] and [0024] of the patent extensively discuss the sand to be used in the claimed mixture. In paragraph [0006], the general requirements of the sand to be used are summarised. Additionally, several examples are reported from paragraph [0034] to paragraph [0046], whereby quartz sand has been used. Therefore, should the skilled person be in doubt as to which sand had to be used in the claimed mixture, extensive information is contained in the description allowing the selection of an appropriate sand. As such, no insufficiency of disclosure results from the feature "*sand*" in claim 1.
 - 4.2 As regards the sodium containing substance mentioned in claim 1, the patent (paragraph [0027]) discloses specific sodium rich minerals to be used in the claimed mixture, sodium silicate glass being preferred (paragraph [0030]). Examples are reported in the patent in which sodalite and sodium silicate glass were used (table 5, page 8). Therefore, clear guidance is given to the skilled person as to the selection of the sodium containing substance. The fact that other substances

like olivine, not containing any sodium, were also tested has no bearing on this conclusion. In fact, the skilled person would have immediately identified such substances as having been used for comparative purposes. This is even more true when considering that the results in terms of seed germination as obtained by using olivine are consistently worse than those obtained when sodium containing substances like sodalite and sodium silicate glass are used.

With respect to the interaction of the sodium containing substance with sand, paragraphs [0036] to [0040] of the patent specify that these are mixed together to obtain the claimed mixture.

Furthermore, as mentioned under point 2.1 above, if more sodium containing substances are present in the mixture, claim 1 requires that each of them must be able to provide a sustained release of sodium.

Therefore, no insufficiency of disclosure results from the feature "*at least one sodium containing substance*" in claim 1 at issue.

As regards T 0888/07 referred to by the appellant during the oral proceedings, the board notes that in this decision the board responsible concluded (reasons, point 2) that claim 1 at issue lacked an essential feature. It was neither clear nor supported by the description, and therefore the requirements of Article 84 EPC were not met. The issue of sufficiency of disclosure was not addressed. Therefore, the cited decision is not relevant to the present case.

- 4.3 Claim 1 is directed to a joint filling mixture. The fact that, when referring to the herbicidally effective concentration, claim 1 mentions the aqueous phase filling the pores of the joint filling sand has to be

seen as a clarity issue at most. In fact, immediately thereafter, claim 1 clarifies that the aqueous phase mentioned above is generated when the joint filling mixture is wetted by rain water. Therefore, the sole aqueous phase referred to in claim 1 is the phase filling the pores of the claimed mixture, this phase being in contact with both the sand and the sodium containing substance. It would thus be clear to the skilled person that it is in this phase that the sodium concentration and the SAR value required by claim 1 have to be measured. Moreover, should the skilled person have doubts about the aqueous phase to be intended, the patent, e.g. in paragraphs [0036] to [0040], clarifies that the aqueous phase in contact with the mixture of sand and the sodium containing substance is meant.

As far as the pores mentioned in claim 1 are concerned, the same paragraphs [0036] to [0040] of the patent clarify that this term refers to the space between the grains of the claimed mixture of sand and the at least one sodium containing substance. No other interpretation of this term is possible.

- 4.4 Claim 1 further requires that the claimed joint filling mixture "*is capable of resulting in an initial SAR value in the aqueous phase of 10 or more*". The board acknowledges that the patent does not disclose any method for measuring the mentioned SAR value. In fact, paragraphs [0039] to [0041], which are referred to, *inter alia*, by the opposition division in the impugned decision (page 8, first full paragraph), report only the definition of the SAR, without mentioning any measurement procedure; however, the patent (paragraphs [0036] to [0046]) contains several examples of mixtures identified as being in accordance with the invention, which represent clear guidance for the skilled person

trying to reproduce the claimed mixture. In fact, it must be assumed that these examples represent mixtures that are able to establish a SAR value of 10 or more as required by claim 1. This teaching is thus regarded as sufficient for reproducing the claimed invention, even in the absence of the disclosure of a SAR measuring method. Furthermore, without any proof to the contrary, ambiguities, if any, must be assumed to be present only at the boundaries of the claim. Therefore, they merely affect the clarity of the claim by giving rise to uncertainties as to whether the skilled person is working within or outside the extent of protection conferred by the patent; however, they are not so serious as to permeate the entire claimed scope (T 608/07, reasons points 2.5.1 and 2.5.2; T 2290/12, reasons point 3.1).

4.5 The same considerations apply to the term "*initial*" referred to in claim 1 as regards the SAR value. Any ambiguity of this term at most affects the clarity of the claim, in the sense that the exact point in time at which the SAR value has to be measured is not mentioned; however, the mixtures used in the examples of the patent represent clear guidance for the skilled person trying to reproduce the claimed mixture. It must be assumed that these mixtures result in a SAR value of 10 or more within the meaning of claim 1.

4.6 For the reasons set out above, the board comes to the conclusion that the claimed invention is sufficiently disclosed in the patent. The ground for opposition under Article 100(b) EPC does not prejudice the maintenance of the patent as granted.

Admittance of the objections mentioned under points 3.1 and 3.4 above and Mr von Meltzer's oral submissions relating to this

5. The respondent requested that the appellant's objections under points 3.1 and 3.4 above not be admitted into the proceedings. The objection under point 3.1 was raised at the oral proceedings for the first time. This was not disputed by the appellant. The objection under point 3.4 had been raised in the letter dated 25 January 2021.

5.1 The objection under point 3.4 has been admitted into the proceedings (see points 11 and 12 below).

5.2 As set out above, the board arrived at the conclusion that the invention as defined in the claims as granted was sufficiently disclosed by considering, *inter alia*, the appellant's objection under point 3.1 above. Hence, the board's decision on sufficiency of disclosure is in the respondent's favour, irrespective of whether or not the appellant's objection under point 3.1 above is admitted. Hence, a decision on the respondent's request to not admit the objection raised under point 3.1 above was not necessary.

Main request - the patent as granted - ground for opposition under Article 100(a) EPC - novelty under Article 54 EPC

6. The appellant argued that the subject-matter of claim 1 lacked novelty over the disclosure of document D2.

6.1 The board notes that D2 (claim 9 in combination with claim 1) discloses a material for filling gaps between paving blocks, this material comprising sand, a water-soluble polymer and powdered or crystalline sodium silicate. As regards the water-soluble polymer, D2 (page 5, lines 1 to 11) especially mentions polymers from the polyvinyl family such as vinyl acetate polymer

and vinyl acetate/versatate copolymer, styrene maleic anhydride, styrene butadiene copolymer with an optional kaolin filler, hydroxymethyl cellulose, hydroxyethyl cellulose, 2-butenedioic acid polymer and methoxyethene polymer.

- 6.2 The appellant argued that these water-soluble polymers disclosed in D2 were used at a technical quality and thus necessarily contained a certain amount of sodium. As such, they were not excluded by the wording of claim 1.

However, no evidence has been provided that the water-soluble polymers disclosed in D2 are able to provide a sustained release of sodium as required by claim 1 at issue (point 2 above).

- 6.3 The appellant also argued that D2 did not specify whether the water-soluble polymer contained in the disclosed material was organic or inorganic. It was known, e.g. from D10 and D15, that sodium silicates might form network structures, thus generating what are known as *geopolymers*. Such *geopolymers* were at least partially water-soluble. Since D2 disclosed the inclusion of sodium silicate, the latter fell under the definition of water-soluble polymers according to D2. D2 thus disclosed a composition consisting of sand and sodium silicate.

However, D2 discloses in claim 9, taken in combination with claim 1, a material comprising sand mixed with a water-soluble polymer and "**further comprising powdered or crystalline sodium silicate**" (emphasis added by the board). It is thus clear that in D2, first, sodium silicate is used as such and second, that it is used in addition to the mentioned water-soluble polymer. The skilled person would therefore not have interpreted

sodium silicate as representing the water-soluble polymer in the material of D2.

- 6.4 The appellant also referred to paragraph [0029] of the patent, which stated that the mixture of the invention might also contain a binder/sealant that was able to seal the joint. Such a binder/sealant was equivalent to the water-soluble polymer of D2, and therefore no difference existed between the claimed mixture and D2.

However, in view of the board's reading of claim 1 (point 2 above), binders/sealants are excluded from the mixture of claim 1 unless they contain sodium and are able to provide a sustained release of sodium. This was not disputed by the respondent at the oral proceedings. The teaching contained in said paragraph [0029] of the patent has no bearing on this conclusion.

- 6.5 It follows that the water-soluble polymers disclosed in D2 are excluded from the mixture defined in claim 1 as granted.

- 6.6 The appellant also referred to the specific formulation for the material of D2 as disclosed in claim 12 and on page 5, lines 18 to 21, as being novelty-destroying for the subject-matter of claim 1. As regards the herbicide/fungicide, D2 mentioned ACTICIDE® EP powder, which was a benzimidazole carbamate that may be available as sodium salt (appellant's letter dated 25 January 2021, paragraph bridging pages 8 and 9).

However, the board notes that this formulation of D2 includes

- 100 kg kiln dried sand;

- 5 kg powdered vinyl acetate/versatate copolymer with kaolin filler and polyvinyl alcohol colloid protector;
- 0.5 kg herbicide/fungicide, and
- 1 kg crystalline sodium silicate.

It has not been shown by means of verifiable evidence that **each of** the mentioned vinyl acetate/versatate copolymer, polyvinyl alcohol colloid protector and herbicide/fungicide present in this formulation of D2 contains sodium, let alone that they are able to provide a sustained release of sodium as required by claim 1. The herbicide/fungicide to be used in this specific formulation is not specified. The ACTICIDE® EP powder referred to by the appellant is disclosed in a different passage of D2 (page 5, lines 13 to 16) as an example of herbicide/fungicide to be used. Moreover, the appellant itself confirmed (appellant's letter dated 25 January 2021, paragraph bridging pages 8 and 9) that such a herbicide **may** be available as sodium salt, thus meaning that it may also not be available as a sodium salt. Indeed, no sodium salt of this compound is disclosed in D2.

In view of the board's interpretation of claim 1 (point 2 above), all the substances included in the above formulation of D2, apart from sand and sodium silicate, are thus excluded from the mixture defined in claim 1 as granted.

6.7 Therefore, the board concludes that the subject-matter of claim 1 as granted is novel over the disclosure of D2, at least in view of the presence of the water-soluble polymer in the compositions of D2 (Article 54 EPC).

Main request - the patent as granted - ground for opposition under Article 100(a) EPC - inventive step under Article 56 EPC

7. The closest prior art

7.1 The appellant indicated D2 as the closest prior art. The respondent argued that a pile of sand would represent a more suitable starting point; however, it also argued inventive step in view of D2 taken as the closest prior art.

7.2 In view of the issues addressed and the material disclosed, the board considers D2 as a suitable starting point for the assessment of inventive step. In fact, D2 (page 1, lines 4 to 9; claim 1), like the patent (paragraphs [0002] and [0003]; claim 1), concerns a sand-based material for filling gaps between paving blocks. Moreover, weed growth in these gaps is regarded as a problem in D2 (page 1, lines 17 to 20) and the desired inclusion of a herbicide in the filling material (D2, page 5, lines 13 to 16; claim 8) shows that D2 also concerns weed control in the same way as the patent in suit (paragraphs [0002] and [0003]; claim 15).

7.3 As set out above in the discussion of novelty, the subject-matter of claim 1 differs from the compositions taught in D2 at least in that the water-soluble polymers disclosed in D2 are excluded from the mixture defined in claim 1 as granted.

8. The technical problem

8.1 In the statement of grounds of appeal (page 8, 2nd paragraph), the appellant argued that D2 on page 1, lines 22 to 24, referred to polymers as being expensive and that, for this reason, the technical problem had to be considered that of replacing the water-soluble

polymer disclosed in D2 with alternative materials; however, during oral proceedings, it put forward that in line with the board's preliminary opinion the technical problem had to be considered that of providing an alternative joint filling mixture being able to retain flexibility so to allow for thermal expansion and contraction of the paving blocks.

- 8.2 In its reply to the statement of grounds of appeal (page 15, penultimate paragraph), the respondent identified the technical problem in view of D2 as that of avoiding the polymer barrier in the upper part of the joint such that the joint will have a "loose sand look" and still avoid weeds germinating; however, during oral proceedings, it formulated the technical problem as that of improving the joint filling mixture of D2 by creating a hostile environment.
- 8.3 The board notes that according to the problem-solution approach, the technical problem has to be formulated on the basis of the technical effect(s) (if any) of the distinguishing feature(s), i.e. of the feature(s) distinguishing the claimed subject-matter from the closest prior art, as resulting from the disclosure of the patent. Elements of the claimed solution should not be included in the formulation of the technical problem.
- 8.4 As mentioned above, the mixture of claim 1 differs from the material of D2 at least in that it does not include any water-soluble polymer within the meaning of D2.

In acknowledging D2, the patent (paragraph [0015]) does not mention any disadvantage of the material disclosed in said document, and no technical effect of the claimed mixture is described in the patent as being associated with the above-mentioned distinguishing feature either.

Therefore, no improvement of the claimed mixture over the compositions of D2 is derivable from the patent.

Having said that, the patent does show (tables 5 and 6) that a mixture as defined in claim 1 is able to control weed growth.

8.5 In view of the above, starting from D2, the objective technical problem is that of providing an alternative material suitable for filling joints especially between paving blocks, by means of which weed growth is controlled.

9. Obviousness of the claimed solution

It is yet to be assessed whether the claimed solution to the posed technical problem would have been obvious to the skilled person with regard to D2, possibly in combination with other documents on file.

9.1 In this respect, the appellant referred to documents A028, D10, D15 and D18 to D22. It argued that A028 disclosed in table 1 on page 1 that polyvinyl acetate, i.e. the polymer used in D2, was contained in waste water that could contaminate ground water. Therefore, the skilled person would have been prompted to remove the water-soluble polymer of D2 for environmental reasons. Moreover, according to D2, the water-soluble polymer hardened when coming into contact with water. Therefore, removing the polymer would have increased the joint flexibility as required by D2; see page 4, lines 5 to 13. The skilled person would not have refrained from removing the polymer since it was known from all of D10, D15 and D18 to D22 that sodium silicate, remaining in the composition, conferred the required herbicidal properties.

9.2 The board disagrees for the following reasons.

- 9.2.1 D2 (page 3, line 23 to page 4, line 16) discloses that the water-soluble polymer contained in the joint filling mixture partially dissolves upon contact with water, thus coating the sand particles and making them adhere to each other. Immediately thereafter the polymer causes the material to solidify, thus creating a seal close to the top of the gaps between paving blocks. This prevents any further water penetration. Below the seal a degree of elastomeric flexibility is retained, allowing for thermal expansion. Therefore, the water-soluble polymer is an absolutely essential component of the joint filling mixture of D2. This is also confirmed by claim 1 of D2, which is directed to a mixture of sand and a water-soluble polymer.
- 9.2.2 Document A028 concerns the waste water resulting from factories producing glue and adhesives, i.e. a technical field totally unrelated to that of the patent. Therefore, the skilled person would not have derived any conclusion from A028 on ground water pollution that they would deem applicable to the joint filling mixture of D2. In fact, D2 does not mention anything regarding environmental problems linked to the water-soluble polymer as used in the compositions described.
- 9.2.3 The passage on page 1 of D2, referred to by the appellant in respect of the costs of polymers, relates to prior-art solutions for joint filling, especially the application of a polymer sealant, with this application being said to be time-consuming and expensive. This statement does not concern the water-soluble polymers used in the joint filling material of D2. Hence, the skilled person would not have derived from D2 that these water-soluble polymers were expensive.

- 9.2.4 D10 concerns the use of waterglass as an adhesive in wood-insulation materials. Point 4.4 on page 331 reports the fungicidal action of waterglass due to its high pH. Herbicidal activity is not reported. The technical field of D10 is thus quite far removed from that of the patent.
- 9.2.5 D15 (page 1, first paragraph; page 2, last paragraph) discloses a process for removing algae and water plants, *inter alia*, from various building structures, especially underwater constructions, by means of a hydrogel based on waterglass. The hydrogel is said to include a herbicide for this purpose (page 2, last paragraph; page 3, lines 14 to 16; page 4, point 2) and, in use, entirely covers the structure to be treated to cut off oxygen supply.
- 9.2.6 D18 (column 1, line 9 to column 2, line 17, claim 1) discloses an aqueous herbicidal solution for soil treatment containing a combination of sodium silicate and arsenicum. The aim is to render the soil sterile to plant growth. It is used in liquid form.
- 9.2.7 D19 (column 1) also discloses an aqueous herbicidal solution of chlorates or perchlorates, also comprising waterglass. It is meant to remove unwanted weeds from squares, streets and especially railways.
- 9.2.8 D20 (page 2, first paragraph, examples) discloses a herbicidal solid material which can be dissolved in water. It comprises a silicoaluminate, especially attapulgite and several sodium containing substances, these being sodium chlorate, sodium silicate, sodium fluoride and sodium carbonate, *inter alia*. The material is in granular form and is distributed on surfaces to then be dissolved by rain. Alternatively it can be first dissolved in water and then applied to surfaces.

9.2.9 D21 and D22 disclose the use of sodium silicate and sodium bicarbonate, *inter alia*, for protecting wine grapes as an alternative to sulphur products against fungi. The technical field of D21 and D22 is thus quite far removed from that of the patent.

9.2.10 From what is set out above, none of the documents cited by the appellant concerns joint filling materials, let alone materials comprising sand. Additionally, as pointed out by the respondent, when used for herbicidal purposes, waterglass is always disclosed in these documents in combination with further components not containing any sodium.

9.2.11 Document D2 itself (page 1, lines 17 to 20) is concerned with the control of weed growth in the gaps between paving blocks and proposes (page 5, lines 13 to 16; claim 8) the inclusion of a herbicide in the disclosed joint filling materials, which already comprise sand and a water-soluble polymer. Therefore, when seeking a solution to the technical problem posed, the skilled person would have been prompted by D2 itself to include a herbicide in the material already comprising sand and a water-soluble polymer; however, in doing this, the skilled person would not have arrived at the subject-matter of claim 1 as granted.

None of the other documents cited by the appellant would have prompted the skilled person to remove the water-soluble polymer from the material of D2, thus leaving a material only comprising sand and sodium silicate. The skilled person would have had no reason to do this, especially in view of the fact that the water-soluble polymer is absolutely essential for the material of D2 to work as desired (point 9.2.1 above). In addition, there is no indication in the cited prior art that would have prompted the skilled person to

replace the water-soluble polymer mentioned in D2 with a water-soluble polymer containing sodium and providing sustained release of sodium while being able to exercise the same function as required in D2.

- 9.3 Consequently, the board comes to the conclusion that the subject-matter of claim 1 is not rendered obvious either by D2 alone or by D2 in combination with any of the other documents cited by the appellant.

Therefore, the subject-matter of claim 1, and of claims 2 to 14, which are dependent on claim 1, involves an inventive step within the meaning of Article 56 EPC. For the same reasons, claim 15, which is directed to the use of the joint filling mixture of claim 1 for weed control, also involves an inventive step (Article 56 EPC).

- 9.4 Since the board arrived at this conclusion even considering the disclosure of document A028, a decision by the board on the respondent's request to not admit A028 is not necessary.

10. For the reasons set out above, none of the grounds for opposition invoked by the appellant prejudices the maintenance of the patent as granted.

Admittance of the appellant's objection mentioned under point 3.4 above as contained in the appellant's letter dated 25 January 2021 as well as Mr von Meltzer's oral submissions relating to this and the website references and novelty submissions relating to this as contained in the appellant's letter dated 25 January 2021

11. The respondent requested that the objection of sufficiency of disclosure mentioned under point 3.4 above as well as Mr von Meltzer's oral submissions relating to this and the prior art references and

submissions relating to this as contained in the appellant's letter dated 25 January 2021 not be admitted into the proceedings pursuant to Article 12 RPBA 2007 and Article 13 RPBA 2020. These submissions could have been made earlier. They raised new issues and thus represented an amendment to the appellant's case. Under Article 13(2) RPBA 2020, an amendment to the appellant's case should not be admitted unless there were exceptional circumstances justified with cogent reasons; however, the amendment to the appellant's case in view of the letter dated 25 January 2021 was not justified since no invitation in this respect was contained in the board's preliminary communication.

12. The board disagrees for the following reasons.

12.1 The appellant's objection of sufficiency of disclosure mentioned under point 3.4 above concerns an alleged lack of clarity as regards the aqueous phase mentioned in claim 1 as granted. This issue had been, at least partially, already raised in the statement of grounds of appeal on page 4. The submissions made by the appellant in this respect in the letter dated 25 January 2021 (page 3, second full paragraph to page 5, line 5) and by Mr von Meltzer at the oral proceedings are merely regarded as a more in-depth elaboration on an objection that had already been raised in the grounds of appeal. Therefore, the scope of discussion was not changed in any way by these submissions, but in fact remained within that defined by the statement of grounds of appeal. Hence, no fresh case or amendment to the appellant's case on sufficiency of disclosure is generated by the above submissions in the letter dated 25 January 2021 and at the oral proceedings.

12.2 The references cited in the letter dated 25 January 2021 (page 7, last paragraph to page 9, line 1) are not *prior-art references* as argued by the respondent. They represent websites (IX above) cited to corroborate the novelty objection (point 6.2 above) already raised in the statement of grounds of appeal (page 5, last paragraph to page 6, first paragraph). The latter was based on the allegation that every existing chemical substance was normally used at a technical quality and thus contained sodium, at least as an impurity. The websites were filed in support of this assertion, they are immediately retrievable and their content can be consulted within a few minutes. Therefore, in the same way as for the submissions discussed in point 12.1 above, the scope of discussion was not changed in any way by the submissions regarding novelty as contained in the letter dated 25 January 2021, but in fact remained within that defined by the statement of grounds of appeal. Hence, no fresh case or amendment to the appellant's case on the issue of novelty is generated by the above-mentioned websites and the submissions based on them as contained in the letter dated 25 January 2021.

12.3 For the reasons set out above, the board decided to admit into the proceedings the appellant's objection mentioned under point 3.4 above as contained in the appellant's letter dated 25 January 2021 as well as Mr von Meltzer's oral submissions relating to this, and the website references and novelty submissions relating to this as contained in the appellant's letter dated 25 January 2021.

Apportionment of costs

13. The respondent requested that the costs incurred by it for translating and considering the appellant's submissions contained in the letter dated 25 January 2021 be apportioned to the appellant. These submissions constituted an amendment to the appellant's case (point 11 above) at an extremely late stage of the proceedings, thus generating extra work for the respondent. Moreover, the submissions were written in German, meaning that they had needed to be translated into English. Therefore, the related costs should be apportioned to the appellant under Article 16 RPBA 2020.
14. The board disagrees for the following reasons.
 - 14.1 Under Article 104(1) EPC, each party to the opposition-appeal proceedings shall bear the costs it has incurred. A different apportionment of costs may only be ordered for reasons of equity.

Article 16(1)(a) RPBA 2020 stipulates that the board may on request order a party to pay some or all of another party's costs, including, *inter alia*, the costs incurred by any amendment to a party's case pursuant to Article 13 RPBA 2020.
 - 14.2 Indeed, e.g. in T 2165/08, submissions (new auxiliary requests and prior-art documents) made shortly before oral proceedings were regarded by the board responsible as an amendment to the appellant's case and an abuse of procedure, justifying an apportionment of costs (reasons, points 49 to 55).
 - 14.3 However, in this case, as mentioned under points 12.1 and 12.2 above, the submissions contained in the letter dated 25 January 2021 did not lead to any amendment to the appellant's case within the meaning of Article 13

RPBA 2020. The consideration of these submissions by the appellant and the preparation for discussing their relevance in respect of the patentability of the claimed subject-matter are regarded as being part of the normal preparatory work for the oral proceedings that can be expected by any party to the appeal proceedings, in this case by the respondent (see also T 1848/12, reasons, point 2.2).

- 14.4 As regards the German language used by the appellant in its letter dated 25 January 2021, Rule 3(1) EPC stipulates that in written proceedings before the EPO, any party may use any official language of the European Patent Office. Therefore, it was the appellant's right to write its submissions in German. Admittedly, the exercise of this right is also subject to general principles (Article 125 EPC), such as the prohibition of abusing procedural rights. Nevertheless, in the present case, the respondent did not invoke any abuse and the board does not see any reason for such an abuse to have occurred by drafting the submissions in German.
- 14.5 In view of the above, the board decided to refuse the respondent's request for apportionment of costs.

Order

For these reasons it is decided that:

1. The appeal is dismissed.
2. The request for apportionment of costs is refused.

The Registrar:

The Chairman:



N. Maslin

M. O. Müller

Decision electronically authenticated