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**Datasheet for the decision of 26 October 2023**

**Case Number:** T 0714/21 - 3.2.03

**Application Number:** 13798711.1

**Publication Number:** 2909361

**IPC:** C23F13/04, C23F13/06, C23F13/10, C04B111/26, H01M12/06

**Language of the proceedings:** EN

**Title of invention:**
PROTECTION OF STEEL REINFORCED CONCRETE ELEMENTS

**Patent Proprietors:**
Glass, Gareth
Davison, Nigel
Roberts, Adrian

**Opponent:**
Vector Corrosion Technologies Ltd.

**Headword:**

**Relevant legal provisions:**
EPC Art. 123(2)

**Keyword:**
Amendments - extension beyond the content of the application as filed (yes)

**Decisions cited:**

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**

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**Case Number: T 0714/21 - 3.2.03**

# D E C I S I O N
# of Technical Board of Appeal 3.2.03
# of 26 October 2023

| | |
|---|---|
| **Respondent:** (Patent Proprietor 1) | Glass, Gareth<br>3 Hillside<br>Lichfield<br>Staffordshire WS14 9DQ (GB) |
| **Respondent:** (Patent Proprietor 2) | Davison, Nigel<br>3 Chapmans Croft<br>Coton-in-the-Elms<br>Swadlincote, Derbyshire DE12 8DG (GB) |
| **Respondent:** (Patent Proprietor 3) | Roberts, Adrian<br>11 Calvert Close<br>Chilwell, Nottinghamshire NG9 5HG (GB) |
| **Representative:** | Gill Jennings & Every LLP<br>The Broadgate Tower<br>20 Primrose Street<br>London EC2A 2ES (GB) |
| **Appellant:** (Opponent) | Vector Corrosion Technologies Ltd.<br>474 Dovercourt Drive<br>Winnipeg Manitoba R3Y 1G4 (CA) |
| **Representative:** | Barker Brettell LLP<br>100 Hagley Road<br>Edgbaston<br>Birmingham B16 8QQ (GB) |
| **Decision under appeal:** | **Interlocutory decision of the Opposition Division of the European Patent Office posted on 2 March 2021 concerning maintenance of the European Patent No. 2909361 in amended form.** |

**Composition of the Board:**

| | |
|---|---|
| **Chair** | D. Prietzel-Funk |
| **Members:** | B. Miller |
| | R. Baltanás y Jorge |

## Summary of Facts and Submissions

I. European patent EP 2 909 361 B1 ("the patent") relates to electrochemical protection of steel in reinforced concrete construction and to the use of anode assemblies in treating steel corrosion in corrosion-damaged steel-reinforced concrete elements.

II. An opposition against the patent was filed on the grounds of Article 100(c) and (b) EPC and Article 100(a) EPC together with Articles 54 and 56 EPC.

In the interlocutory decision the opposition division found that the contested patent met the requirements of the EPC, on the basis of the claims of auxiliary request 8 (corresponding to auxiliary request 9 in the appeal proceedings) filed electronically on 18 November 2020.

III. The patent proprietors and the opponent appealed against the interlocutory decision.

IV. With the summons to oral proceedings, the Board sent a communication pursuant to Article 15(1) RPBA 2020 informing the parties of its preliminary opinion on the case, namely that various amendments to claim 1 of all requests (designated by the Board as amendments B, D and H) did not fulfil the requirements of Article 123(2) EPC.

V. With a letter dated 20 July 2023 the patent proprietors withdrew their appeal (which included a main request and auxiliary requests 1 to 8) and their request for oral proceedings. Moreover, they confirmed that they

would not be attending the oral proceedings before the Board.

VI. With a letter dated 31 August 2023 the opponent, the sole remaining appellant, also withdrew its request for oral proceedings and further requested that the Board render a written decision in light of the documents on file.

VII. Subsequently, the summons to oral proceedings were cancelled.

VIII. Final requests by the parties

The opponent ("the appellant") requested that the decision under appeal be set aside and the patent be revoked in its entirety.

The patent proprietors ("the respondents") requested that the appeal be dismissed, or that the patent be maintained as amended on the basis of the claims of one of auxiliary requests 10 to 20 submitted with the letter of reply to the appeal.

IX. Wording of claim 1 of the requests at issue in this decision

(a) Auxiliary request 9

Auxiliary request 9 corresponds to auxiliary request 8 of the opposition proceedings which the opposition division found to comply with the requirements of the EPC.

Claim 1 reads:

"A method of protecting steel in a reinforced concrete element, the reinforced concrete of the element containing an electrolyte, the method comprising:
providing at least one source of direct current, 'DC', power with a positive and negative terminal, wherein the source of DC power is a cell with a cell anode and a cell cathode and a cell electrolyte and one or more isolating elements that substantially isolate the cell electrolyte from the electrolyte of the reinforced concrete element;
providing a primary anode, wherein the primary anode is a discrete sacrificial anode and the primary anode is distinct from the source of DC power;
providing a secondary anode, wherein the secondary anode is connected to the positive terminal of the at least one source of DC power via an electron conducting connection;
wherein the primary anode, secondary anode and said source of DC power are integrated to form a single unit, wherein the isolating elements isolate the secondary anode, the cell cathode and the cell electrolyte from the primary anode, and wherein said primary anode is separable from the secondary anode and the source of DC power;
separating the primary anode from the secondary anode and source of DC power;
arranging the primary anode and the secondary anode to have an ionic connection with the steel in the reinforced concrete element via the electrolyte of the reinforced concrete element;
connecting the primary anode to the steel in the reinforced concrete element using an electron conductor; along with
connecting the negative terminal of the source of DC power to the steel in the reinforced concrete element using an electron conductor."

(b) Auxiliary requests 10 to 20

Claim 1 of each of auxiliary requests 10 to 20 contains the same amendments as claim 1 of auxiliary request 9. The additional amendments in claim 1 of auxiliary requests 10 to 20, and in particular the detailed wording of claim 1 of these requests, are not relevant for the present decision.

X. The appellant's arguments, as far as they are relevant for this decision, can be summarised as follows.

The application did not provide a basis for the amendments that the cell has one or more isolating elements that substantially isolate the cell electrolyte from the electrolyte of the reinforced concrete element.

The amendments to claim 1 of auxiliary requests 9 to 20 created an impermissible intermediate generalisation of the specific embodiments of Figures 9 and 10 and the corresponding description on page 14, lines 13 to 22 of the application.

XI. The respondents' counter-arguments can be summarised as follows.

The amendments to claim 1 were directly and unambiguously derivable from the embodiments according to Figures 9 and 10 of the application.

In the third paragraph of page 14 the application provided both high-level and general teaching because it listed common elements, which also covered isolating elements, which could also be found in all preceding

embodiments. The shading and numbering of Figures 9 and 10 was consistent with that of the previous figures. Therefore, the statement in the last line of the third paragraph on page 14, that "it is preferable that the cell electrolyte is isolated from the environment", applied to all other embodiments as well.

The skilled person derived from the embodiments of Figures 2 to 6 and 8 to 10 of the application that there was an isolation element. Figures 2 and 4 of the application disclosed that the insulator 15 or 38 sealed the electrolyte within the cell. Figure 8 disclosed isolation elements 77 which isolated elements of the cell.

The isolation elements 77 of the anode assemblies of Figures 8 to 10 were not inextricably linked to the other features of these assemblies because they related only to the structure of the cell. This was further confirmed by the embodiment of Figure 18, in which any source of DC power could be used instead of a cell.

## Reasons for the Decision

1. Auxiliary request 9 - Article 123(2) EPC

1.1 Under Article 123(2) EPC the European patent application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed. An amendment is only allowable under Article 123(2) EPC if it falls within the limits of what a skilled person would derive directly and unambiguously, using common general

knowledge, from the whole of the application documents as filed. After the amendment the skilled person may not be presented with new technical information (see Case Law of the Boards of Appeal, 10th edition, 2022, Chapter II.E.1.3.1, "gold standard").

1.2 Claim 1 of auxiliary request 9 is based on claim 1 of the application as originally filed (references are made in this regard to the application as published WO 2014/060779 A1, "the application"), the following amendments, *inter alia*, having been made:

| Amendment designation | Amendment wording |
|---|---|
| A | **one or more isolating elements that substantially isolate the cell electrolyte from the electrolyte of the reinforced concrete element** |
| B | **wherein the primary anode, secondary anode and said source of DC power are integrated to form a single unit, wherein the isolating elements isolate the secondary anode, the cell cathode and the cell electrolyte from the primary anode** |

1.3 The opposition division concluded that amendments A and B were based on the embodiments of Figures 9 and 10.

The Board does not agree with the opposition division's reasoning.

1.4 According to amendments A and B, claim 1 requires:

- that the cell comprises one or more isolating elements that substantially isolate the cell electrolyte from the electrolyte of the reinforced concrete element (amendment A), and

- that the isolating elements isolate the secondary anode, the cell cathode and the cell electrolyte from the primary anode (amendment B)

Hence the isolating elements have to fulfil two functions; they have to isolate:
- the cell electrolyte from the electrolyte of the reinforced concrete element
- the secondary anode, the cell cathode and the cell electrolyte from the primary anode

1.5 However, in the embodiments of Figures 9 and 10 the isolating elements 77 (additionally referred to in the application as insulation elements) do not necessarily achieve both functions.

The single isolation element 77 of Figure 9 does not achieve isolation of the cell electrolyte 68 from the electrolyte of the reinforced concrete element as defined by amendment B, since the isolation elements 77 are only present on the upper side of the cell and thus provide insulation of the cell from the primary anode. At the bottom, the cell does not comprise isolation elements 77 which isolate the electrolyte of the cell from the electrolyte of the concrete. Hence, contrary to the respondents' argument, Figure 9 does not support the wording of amendment A.

In Figure 10 two isolating elements are used, which in combination achieve both functions. The isolating element 77 at the top of the cell of Figure 10 only contributes to isolating the secondary anode 69 from the cell cathode 65, the tertiary anode 75 and the cell electrolyte 68. The isolating element 77 on the bottom of the cell either isolates the cell cathode 65 and the cell electrolyte 68 from the primary anode 66 when the cell and primary anode form a unit or, alternatively, isolates the cell electrolyte 68 from the electrolyte of the reinforced concrete element after the cell and the primary anode have been separated.

However, isolating elements having both functions are not disclosed in Figure 10. Hence, Figure 10 does not support the wording of claim 1.

1.6 Even if the combination of amendments A and B were interpreted as referring to isolation elements which have to achieve the defined functions in combination rather than individually, Figure 10 does not support the amendments. Figure 10 and the accompanying description disclose a very specific embodiment in which two isolation elements 77 are used in a very specific arrangement. Claim 1 is not limited to this specific arrangement. Hence, amendments A and B constitute an intermediate generalisation of the specific embodiment according to Figure 10 of the application.

1.7 The respondents argue that the expression "common elements" in the third paragraph of page 14 of the application has to be understood as addressing elements common to all embodiments.

However, the expression "isolation elements 77" can only be found in relation to Figures 8 to 10. As stated above, Figures 9 and 10 do not provide teaching for isolating elements having the functionality as defined by amendments A and B. The same applies regarding the related embodiment according to Figure 8 since the cell of Figure 8, similarly to the cell of Figure 9, does not comprise isolation elements 77 at the bottom which isolate the electrolyte of the cell from the electrolyte of the reinforced concrete.

Therefore neither Figures 8 to 10 nor the accompanying description of the application provides direct and unambiguous disclosure that the isolating elements 77 can be used in general for a purpose other than that disclosed in Figures 9 and 10 as defined by amendments A and B.

1.8 Even when considering embodiments which do not fall within the scope of claim 1, no teaching can be derived from the application as a whole that isolation elements have to be used to isolate the electrolyte of the cell from the electrolyte in the concrete.

It is possible that the skilled person may deduce from certain embodiments, e.g. the examples according to Figures 2 to 5, that the isolation elements (15, 29, 38) might provide isolation of the electrolyte of the cell (13, 28, 39) from the electrolyte of the concrete. It might also be preferred in the art for the cell electrolyte to be isolated from the electrolyte of the concrete. However, as stated above, an amendment has to be directly and unambiguously derivable from the application as filed and should not be based on speculation and hypothetical considerations of the skilled person.

The further embodiment disclosed in Figure 18 and on page 17, lines 12 to 23 cannot serve as a basis for amended features A and B either, since it does not even comprise a cell and thus, by extension, no isolating element that substantially isolates the cell electrolyte from the electrolyte of the reinforced concrete element as defined in claim 1.

1.9 The Board therefore concludes that the combination of features created by amendments A and B extends beyond the teaching of the application as originally filed, contrary to the requirements of Article 123(2) EPC. Thus, contrary to the impugned decision, auxiliary request 9 is not allowable.

2. Auxiliary requests 10 to 20 - Article 123(2) EPC

Claim 1 of each of auxiliary requests 10 to 20 comprises the amendments A and B as discussed in relation to claim 1 of auxiliary request 9.

It is undisputed that the further amendments to claim 1 of each of auxiliary requests 10 to 20 do not change the arguments in relation to the allowability of amendments A and B.

Hence the amendments in claim 1 of each of auxiliary requests 10 to 20 do not fulfil the requirements of Article 123(2) EPC for the same reasons as set out above in relation to auxiliary request 9.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar: The Chair:

C. Spira D. Prietzel-Funk

Decision electronically authenticated