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**Datasheet for the decision
of 30 October 2019**

Case Number: T 0901/15 - 3.2.07

Application Number: 07750291.2

Publication Number: 1991369

IPC: B08B3/02, C02F1/461

Language of the proceedings: EN

Title of invention:

METHOD AND APPARATUS FOR GENERATING, APPLYING AND NEUTRALIZING
AN ELECTROCHEMICALLY ACTIVATED LIQUID

Patent Proprietor:

TENNANT COMPANY

Opponent:

Alfred Kärcher SE & Co. KG

Headword:

Relevant legal provisions:

EPC Art. 54(1), 56, 83, 84, 113(1), 114(2), 123(2)
EPC R. 115(2)
RPBA Art. 12(4), 15(1), 15(3)

Keyword:

Late-filed document - admitted (yes)

Decisions cited:

T 1704/06

Catchword:



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Case Number: T 0901/15 - 3.2.07

D E C I S I O N
of Technical Board of Appeal 3.2.07
of 30 October 2019

Appellant II:
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Decision under appeal:

**Interlocutory decision of the Opposition
Division of the European Patent Office posted on
23 February 2015 concerning maintenance of the
European Patent No. 1991369 in amended form.**

Composition of the Board:

Chairman I. Beckedorf
Members: G. Patton
K. Poalas

Summary of Facts and Submissions

- I. The opponent and the patent proprietor lodged appeals in the prescribed form and within the prescribed period against the interlocutory decision of the opposition division maintaining European patent No. 1 991 369 in amended form on the basis of auxiliary request 1.
- II. The opposition was directed against the patent in its entirety and based on Article 100(a) EPC (lack of novelty and/or inventive step) and Article 100(b) EPC (insufficiency of disclosure).

The Opposition Division held that:

- the skilled person would not be able to carry out the invention in accordance with the main request (patent as granted); and
 - that auxiliary request 1 filed during the oral proceedings would fulfill the requirements of the EPC.
- III. In a communication pursuant to Article 15(1) RPBA dated 29 May 2019 the Board provided its preliminary, non-binding opinion that *inter alia*
- document D6 filed for the first time in appeal proceedings could be admitted into the appeal proceedings pursuant to Article 12(4) RPBA;
 - the grounds for opposition on the basis of Article 100(b) EPC seemed to hold against the patent as granted (main request) as held by the Opposition Division in the impugned decision; and
 - auxiliary request 1A seemed to fulfil the requirements of the EPC.

In reaction, the opponent informed the Board with letter dated 30 August 2019 that it would not attend the oral proceedings scheduled for 30 October 2019 and

the patent proprietor filed with letter dated 30 September 2019 a corrected version of auxiliary request 1A together with an adapted description.

IV. Oral proceedings were held on 30 October 2019 in the absence of the opponent as announced in accordance with Article 15(3) RPBA and Rule 115(2) EPC. The patent proprietor made auxiliary request 1A its only request by withdrawing all other previously filed requests and filed an adapted description thereto. For the course of the oral proceedings, the issues discussed and the parties' initial and final requests, reference is made to the minutes of the oral proceedings. The order of the present decision was announced at the end of the oral proceedings.

V. The opponent requested

that the decision under appeal be set aside and that European Patent No. 1 991 369 be revoked.

The patent proprietor requested

that the decision under appeal be set aside and that the patent be maintained in amended form on the basis of auxiliary request 1A, filed with letter dated 30 September 2019, together with an adapted description, filed during the oral proceedings.

VI. The following documents of the opposition proceedings are relevant for the present decision:

D1: US 2002/0023847 A; and

D2: US 5 234 563 A.

The following documents were filed for the first time in appeal proceedings by the opponent:

A2: "Particle content and ORP of electrolyzed tap-water", Testing report B0980KAE5386_0001 prepared by A. Dreusch, MicroMol GmbH, 22 June 2015;

A3: "Time-dependent measurement of the pH value of electrolyzed tap-water", Testing report B0980KAE6198_0002 prepared by C. Lüllmann, MicroMol GmbH, 18 August 2017; and

D6: WO 98/18378.

VII. Claim 1 of **auxiliary request 1A** reads as follows:

"A method comprising:

- a) receiving a liquid having a pH in a range between pH6-pH8 and an oxidation reduction potential (ORP) between $\pm 50\text{mV}$;
- b) converting the liquid into an anolyte liquid and a catholyte liquid, which have respective pHs outside of the range between pH6-pH8 and have respective ORPs outside the range between $\pm 50\text{mV}$;
- c) applying the anolyte and catholyte liquids substantially simultaneously as a single, blended liquid or as separate anolyte and catholyte liquids to a surface for a residence time within 5 seconds of performing the converting in step b);
- d) cleaning the surface with the single, blended liquid or the separate anolyte and catholyte liquids to produce a soiled liquid; and
- e) recovering at least a portion of the soiled liquid from the surface after the residence time and placing the soiled liquid in a common recovery tank, wherein the soiled liquid substantially neutralizes to a pH between pH6-pH8 and an ORP between $\pm 50\text{mV}$ within one

minute of the time at which the anolyte and catholyte liquids are converted in step b)."

Claim 11 of the **auxiliary request 1A** reads as follows:

"An apparatus (100, 300, 270, 350, 400, 500, 600) comprising:

a source, which receives a liquid (14, 106, 502, 602) having a pH in a range between pH6-pH8 and an oxidation reduction potential (ORP) between $\pm 50\text{mV}$;

an electrolyzer, which converts the received liquid to an anolyte liquid and a catholyte liquid (20, 22, 44, 45, 51, 52, 190, 192), which have respective pHs outside of the range between pH6-pH8 and have respective ORPs outside the range between $\pm 50\text{mV}$;

a flow path (160) from the electrolyzer, which is configured to dispense substantially simultaneously the anolyte and catholyte liquids as a single, blended liquid or as separate anolyte and catholyte liquids from the apparatus to a surface within 5 seconds of conversion by the electrolyzer;

a rotatable cleaning tool, which engages the surface and cleans the surface with the dispensed single, blended liquid or separate anolyte and catholyte liquids to produce a soiled liquid;

a common recovery tank (108, 128, 317); and

a recovery device (122), which recovers at least a portion of the soiled liquid from the surface (102, 302) after a residence time on the surface and places the soiled liquid in the common recovery tank, wherein the soiled liquid substantially neutralizes to a pH between pH6-pH8 and an ORP between $\pm 50\text{mV}$ within one minute of that time at which the anolyte and catholyte liquids are converted by the electrolyzer."

VIII. The opponent argued essentially as follows (the arguments are discussed in more detail in the reasons):

Document D6

Document D6 was filed in reaction to auxiliary request 4A filed by the patent proprietor in appeal proceedings. This could not have been done in opposition proceedings in reaction to former auxiliary requests in view of the short time left before the oral proceedings. D6 should therefore be admitted into the appeal proceedings.

Added subject-matter - Article 123(2) EPC

The term "soiled liquid" and the feature relating to the soiled liquid neutralizing to a pH between pH6-pH8 and an ORP between $\pm 50\text{mV}$ once having been recovered and placed in the common recovery tank introduced into claims 1 and 11 of auxiliary request 1A should be seen as adding subject-matter, which violates the requirements of Article 123(2) EPC.

Clarity - Article 84 EPC

Claims 1 and 11 are unclear since they do not specify whether the particles of the soiled liquid or the soiled liquid itself should have the properties in the common recovery tank. The terms "a rotatable cleaning tool" and "soiled liquid" used therein are unclear.

Sufficiency of disclosure - Article 83 EPC

The claims cover a method which cannot be carried out by the skilled person in that the anolyte liquid and the catholyte liquid would be combined prior to

application to the surface to be cleaned and, despite combination, the anolyte liquid **and** the catholyte liquid would still be distinguished from one another such that their respective **pH** would remain outside the range of pH6-pH8 for the entire residence time, i.e. for nearly five seconds after combination. The neutralization of ORP cannot occur within one minute as claimed. The neutralization according to the claims starts only once the soiled liquid(s) has been recovered in the common recovery tank. This cannot be performed in view of the pH, especially in case of a single, blended liquid.

Novelty and inventive step - Articles 54(1) and 56 EPC

The subject-matter of claim 1 lacks novelty over D1. Should the subject-matter of claim 1 be regarded as novel, it lacks inventive step in view of D1 alone or starting from D1 as closest prior art in combination with the teaching of either D2 or D6. The same applies for claim 11.

- IX. The patent proprietor argued essentially as follows (the arguments are discussed in more detail in the reasons):

Document D6

Document D6 could have been filed during the opposition proceedings so that it should not be admitted into the appeal proceedings.

Added subject-matter - Article 123(2)

Independent claims 1 and 11 are based on the corresponding claims of the patent as granted and on

features taken from the description as originally filed so that the requirements of Article 123(2) EPC should be considered as fulfilled.

Clarity - Article 84 EPC

Claims 1 and 11 specify that the soiled liquid as a whole has to fulfill the requirements in the common recovery tank and are therefore clear.

Sufficiency of disclosure - Article 83 EPC

The amendments performed in the set of claims of auxiliary request 1A with respect to that of the patent as granted enable to exclude any method that the skilled person would allegedly not be able to carry out. The soiled liquid is to contain further elements (surface particles with possible electrical charges) which modify the properties of the recovered liquid as far as the ORP is concerned. A starting time for neutralisation is not specified in claims 1 or 11.

Novelty and inventive step - Articles 54(1) and 56 EPC

The subject-matter of claim 1 is novel over D1 in view of at least the steps c) and e) which further confer inventive step. The same applies for the subject-matter of claim 11 in view of the features relating to the flow path, the common recovery tank and the recovery device which are not disclosed in D1.

Reasons for the Decision

1. *Right to be heard*

Although the opponent did not attend the oral proceedings, the principle of the right to be heard pursuant to Article 113(1) EPC is observed since that Article only affords the opportunity to be heard and, by absenting itself from the oral proceedings, a party gives up that opportunity (see the explanatory note to Article 15(3) RPBA cited in T 1704/06, not published in OJ EPO, see also the Case Law of the Boards of Appeal, 9th edition 2019, section III.B.2.7.3.b)

2. *Admittance of document D6 into the proceedings*

2.1 As document D6 was filed by the opponent for the first time in appeal proceedings, its admission is subject to the criteria pursuant to Article 12(4) RPBA.

2.2 The patent proprietor contests its admittance arguing that it could have been filed during the opposition proceedings in view of the former auxiliary request 4 filed with letter dated 23 December 2014 in which the independent claims concern a "mobile cleaner", i.e. allegedly the feature for which D6 was filed (see letter dated 21 March 2018, point 3.1.2).

2.3 As already explained in the Board's communication pursuant to Article 15(1) RPBA (point 3.2 *et seq.* thereof), document D6 was filed with the opponent's reply letter dated 20 January 2016 pursuant to Article 12(2) RPBA against auxiliary request 4A (later on withdrawn during the oral proceedings before the Board) filed by the patent proprietor with its statement

setting out the grounds of appeal in which the independent claims concern a "mobile cleaner". As put forward by the opponent in its letter dated 4 September 2018, point II, the time available in opposition proceedings before the oral proceedings planned for 26 January 2015 for performing an additional search in view of former auxiliary requests, in particular former auxiliary request 4, was short. As a matter of fact, the patent proprietor's letter with the former auxiliary requests was transmitted to the opponent by telefax on 8 January 2015, i.e. around two weeks before the oral proceedings. Hence, the Board considers that the filing of document D6 could only be done in due time in appeal proceedings pursuant to Article 114(2) EPC.

2.4 Hence, document D6 is admitted into the appeal proceedings pursuant to Article 12(4) RPBA

3. *Auxiliary request 1A*

3.1 Added subject-matter - Article 123(2) EPC

3.1.1 The opponent considers that the term "soiled liquid" introduced in claims 1 and 11 is not disclosed in the application as originally filed in combination with the other features of said claims so that the requirements of Article 123(2) EPC are not fulfilled (opponent's letters dated 11 September 2017, point III.1 and 4 September 2018, point III.1).

The Board does not follow this view since the objection merely amounts to an allegation without providing any argumentation as to which feature(s) of claims 1 or 11 should be considered as being either added or deleted

from the originally disclosed combination(s) of features.

- 3.1.2 The opponent considers that a basis is missing in the application as originally filed for the feature of claims 1 and 11 that the soiled liquid neutralizes to a pH between pH6-pH8 and an ORP between $\pm 50\text{mV}$ once having been recovered and placed in the common recovery tank (opponent's letter dated 20 January 2016, point IV).

The Board does not follow this view since such a starting time for neutralisation is not specified in claims 1 or 11. Only an upper limit of within one minute of the time at which the anolyte and catholyte liquids are converted by the electrolyser is claimed. Furthermore, neutralization can start in claims 1 and 11 before recovering the soiled liquid, for instance at the time when the anolyte and catholyte liquids are substantially simultaneously applied as a single blended liquid to the surface to be cleaned.

- 3.2 Clarity - Article 84 EPC

- 3.2.1 The opponent considers that claims 1 and 11 are unclear since it is undefined whether the particles of the soiled liquid should have the properties in the common recovery tank or the soiled liquid itself (see step e) of claim 1 and last six lines of claim 11). Additionally to that the opponent argues that the expression "a rotatable cleaning tool" used in claim 11 is undefined leading to said claim being unclear (opponent's letter dated 11 September 2017, point III. 1).

The Board does not share the opponent's views since claims 1 and 11 specify that the soiled liquid as a

whole, i.e. the one produced in step d) of claim 1 or when the rotatable cleaning tool engages the surface to be cleaned in claim 11, has to fulfill the requirements in the common recovery tank. Furthermore, a skilled person with a mind willing to understand would certainly be able to consider what falls within or outside the expression "a rotatable cleaning tool" in the present technical field.

- 3.2.2 The opponent considers that claims 1 and 11 are unclear and in this respect also not sufficiently disclosed for the skilled person to carry out the invention, since no definition for the expression "soiled liquid" is available (opponent's letter dated 11 September 2017, point II.2).

The Board does not share this view since a skilled person with a mind willing to understand would immediately realise the usual meaning of this expression (see for instance paragraph 65 of the contested patent).

3.3 Sufficiency of disclosure - Article 83 EPC

- 3.3.1 With respect to the patent as granted, claim 5 was deleted and claims 1 and 8 were amended in auxiliary request 1A.

As a result of these amendments, contrary to the opponent's view, claim 1 does no longer cover a method which cannot be carried out by the skilled person, in particular that the anolyte liquid and the catholyte liquid would be combined prior to application to the surface to be cleaned and, despite combination, the anolyte liquid **and** the catholyte liquid would still be distinguished from one another such that their

respective **pH** would remain outside the range of pH6-pH8 for the entire residence time, i.e. for nearly five seconds after combination.

This also applies to the apparatus claims 11-16.

- 3.3.2 As far as the feature of claim 1 "*the soiled liquid substantially neutralizes to ... an ORP between 50mV within one minute of the time at which the anolyte and the catholyte liquids are converted in step b)*" is concerned, the opponent argues on the basis of A2 and A3 that the neutralization of ORP cannot occur within one minute as claimed. Information would then be missing for the skilled person to carry out the invention in view of this parameter.

In this respect the Board follows the patent proprietor's view that the test in A2 and A3 would not be representative of claim 1 in that the soiled liquid is inevitably to contain further elements (surface particles with possible electrical charges) which are to modify the properties of the recovered liquid as far as the ORP is concerned (see patent proprietor's letters dated 20 January 2016, point 3 and 21 March 2018, point 2.4). As a matter of fact, the tests in A2 and A3 are only concerned with the mixing of the anolyte liquid and catholyte liquid directly after the electrolysis, i.e. not applied to a surface.

- 3.3.3 The opponent considers that according to claims 1 and 11 the pH and the ORP of the anolyte liquid and the catholyte liquid, blended or not, have to remain outside of the respective ranges between pH6-pH8 and between $\pm 50\text{mV}$ till they are recovered in the common recovery tank. For the opponent, the neutralization according to the claims starts only once the soiled

liquid(s) has been recovered in the common recovery tank (opponent's letter dated 11 September 2017 point II.2). Hence, for this reasons the invention could not be carried out, in particular in view of the pH especially in case of a single, blended liquid.

The Board cannot share this view since a starting time for neutralisation is not specified in claims 1 or 11. In the Board's view neutralisation starts inevitably as soon as the liquids are blended and is (quasi-) instantaneous for the pH. In this respect the Board does not concur with the finding of the impugned decision, points 2.1.2 and 2.1.3 of the reasons.

3.3.4 In view of the above, the opponent's arguments with respect to Article 83 EPC against auxiliary request 1A are not convincing.

3.4 Novelty - Article 54(1) EPC

3.4.1 The Board considers that the system 100 according to paragraph 19 of D1 is an alternative embodiment of the one depicted in Figure 1 and described in paragraphs 15 to 18 without the storage tanks 128 and 134. On the other hand, it is explicitly mentioned in paragraph 29 that the electrolysis chamber of Figure 4 is used in the system 100 of Figure 1, i.e. also for the embodiment of paragraph 19. Hence, the Board does not concur with the impugned decision that paragraph 19 and the electrolysis chamber depicted in Figure 4 and described in paragraphs 29 to 32 are not linked to each other. Accordingly, D1 teaches directly and unambiguously to the skilled person a system according to Figure 1 with no storage tanks according to paragraph 19 and with an electrolysis cell according to Figure 4.

3.4.2 In view of this disclosure, D1 discloses a method comprising:

a) receiving a liquid having a pH in a range between pH6-pH8 and an oxidation reduction potential (ORP) between $\pm 50\text{mV}$ (saltwater and tap water mixed together and entering via piping 402a or 402b or both piping 402a and 402b, see paragraph 30; impugned decision, point 5.3.3 of the reasons);

b) converting the liquid into an anolyte liquid and a catholyte liquid, which have respective pHs outside of the range between pH6-pH8 and have respective ORPs outside the range between $\pm 50\text{mV}$ (paragraph 17, Figure 1);

d) cleaning the surface with the separate anolyte and catholyte liquids to produce a soiled liquid (paragraph 19, "...onto the object"); and

e) recovering at least a portion of the soiled liquid from the surface after the residence time (implicit as the liquids have at least to be collected and drained, impugned decision, points 5.4.2.d) and 5.4.5 of the reasons).

3.4.3 As a result, D1 does not disclose the following features of **claim 1**:

c) applying the anolyte and catholyte liquids **substantially simultaneously** to a surface (contrary to point 5.2.3 of the reasons of the impugned decision, there is no clear disclosure of applying the liquids substantially simultaneously as in fact it seems that they are sequentially applied as also pointed out in

the impugned decision, point 5.3.4, last paragraph and point 5.4.3 of the reasons; the liquids are pumped out of the electrolysis chamber 126; pumps or valves can be activated sequentially see paragraph 17 and Figure 1 and also paragraphs 5 and 7).

As a consequence, applying the anolyte and catholyte liquids as a single blended liquid or as separate anolyte and catholyte liquids to a surface for a residence time within 5 seconds of performing the converting in step b) is also not disclosed in D1 in view of the fact that liquids are applied sequentially and, hence, at least one of the liquid may not be applied within the claimed time frame depending on the cycle selected for cleaning and disinfection in D1. This applies even though no storage tanks are present after the electrolysis cell, contrary to the impugned decision, point 5.2.4 of the reasons.

e) placing the soiled liquid in a common recovery tank, wherein the soiled liquid substantially neutralize to a pH between pH6-pH8 and an ORP between $\pm 50\text{mV}$ within one minute of the time at which the anolyte and catholyte liquids are converted in step b) (impugned decision, points 5.2.5, 5.3.6 of the reasons).

With respect to feature e), the opponent refers further to the embodiment shown in Figure 5 of D1 and described in paragraphs 33 and 34. The Board concurs with the impugned decision that this embodiment of Figure 5 does not appear to be explicitly linked with the previous one(s). In any case, contrary to the opponent's view D1 does not disclose that said dishwasher comprises a common recovery tank as claimed since, as put forward in the impugned decision, point 5.4.5 of the reasons, in a dishwasher the liquids are drained out, i.e. they

are not recovered. Furthermore, since they are sequentially applied in accordance with the invention of D1 as discussed above, the liquids cannot be neutralized, not even in the bottom part ("Bodenbereich") of said dishwasher.

- 3.4.4 Consequently the subject-matter of claim 1 is novel over the disclosure of D1.

This also applies to apparatus **claim 11** in view of the features relating to the flow path, the common recovery tank and the recovery device.

- 3.5 Inventive step - Article 56 EPC

- 3.5.1 The opponent contests that the subject-matter of **claim 1** of auxiliary request 1A involves inventive step in view of D1 alone or starting from D1 as closest prior art in combination with the teaching of either D2 or D6.

- 3.5.2 Notwithstanding the fact that the Board concurs with the finding of the impugned decision, point 6.3 of the reasons, that the skilled person would not think of implementing a common recovery tank in the apparatus of D1, it is not clear from the whole opponent's arguments where in D1, D2 or D6 the above mentioned distinguishing features are disclosed. Hence, already for this reason, the appellant's objection of lack of inventive step based on these documents is not convincing. Consequently, the Board cannot find fault in the reasoning and conclusion of the impugned decision, point 6 of the reasons (opponent's statement setting out the grounds, page 11, opponent's letters dated 10 November 2015, point III, dated

11 September 2017, point IV.2 and dated
4 September 2018, point III.1).

This also applies similarly to apparatus **claim 11**.

- 3.6 The above was the Board's preliminary opinion on auxiliary request 1A provided to the parties in its communication dated 29 May 2019, point 5. It has not been subsequently commented on or contested by the parties, either in writing or orally at the oral proceedings. After reconsideration of all parties' submissions, the Board sees no reason to change its mind.

Hence, none of the objections raised by the opponent holds against auxiliary request 1A.

- 3.7 Description

At the oral proceedings the patent proprietor filed a description adapted to auxiliary request 1A, against which the Board had no objections.

Order

For these reasons it is decided that:

1. The appeal of the opponent is dismissed.
2. The decision under appeal is set aside.
3. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Description:

pages 2 to 25 filed during the oral
proceedings of 30 October 2019

Claims:

1 to 16 filed as auxiliary request 1A with
letter dated 30 September 2019

Drawings:

Figures 1 to 21 of the patent specification.

The Registrar:

The Chairman:



G. Nachtigall

I. Beckedorf

Decision electronically authenticated