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Datasheet for the decision of 21 June 2023

Case Number: T 1147/21 - 3.3.05

Application Number: 13837547.2

Publication Number: 2895430

IPC: C02F3/00, C02F3/30, C02F3/28

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR NITROGEN REMOVAL IN WASTEWATER TREATMENT

Applicant:
D.C. Water & Sewer Authority
Hampton Roads Sanitation District

Headword:
Nitrogen removal/D.C. Water

Relevant legal provisions:
EPC Art. 83, 84, 111(1), 123(2)
RPBA 2020 Art. 11

Keyword:

Claims - clarity - auxiliary request (yes)
Amendments - extension beyond the content of the application as filed (no)
Sufficiency of disclosure - (yes)
Appeal decision - remittal to the department of first instance (yes)
Remittal - special reasons for remittal - (yes)

Decisions cited:

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

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Case Number: T 1147/21 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 21 June 2023

Appellant: (Applicant 1)	D.C. Water & Sewer Authority 5000 Overlook Avenue SW Washington DC 20032 (US)
Appellant: (Applicant 2)	Hampton Roads Sanitation District 1434 Air Rail Avenue P.O. Box 5911 Virginia Beach, VA 23471-0911 (US)
Representative:	Potter Clarkson Chapel Quarter Mount Street Nottingham NG1 6HQ (GB)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 23 February 2021 refusing European patent application No. 13837547.2 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	E. Bendl
Members:	T. Burkhardt
	P. Guntz

Summary of Facts and Submissions

I. The applicants' (appellants') appeal is against the examining division's decision to refuse European patent application No. 13 837 547.2.

II. The examining division concluded that none of the requests met the requirements of Article 84 EPC.

The examining division held against claim 1 of the main request and the auxiliary request that:

(1) it lacked essential features, namely actually measuring the oxidised nitrogen concentration and continuously monitoring the parameters of claim 1 (point III.1 of the decision under appeal)

(2) it was not clear where in the installation and how often measurements should be taken (point III.2 of the decision under appeal)

(3) it was unclear whether:
(i) the concentration of dissolved oxygen
(ii) the duration of the aerobic period and/or
(iii) the duration of the anoxic period
had to be increased or lowered to maintain:
(a) the ratio of ammonia concentration to the oxidised nitrogen concentration (the ratio) or
(b) the sum of ammonia concentration plus the negative value of the oxidised nitrogen concentration (the sum)

This amounted to a "try-and-see" situation, and the invention could not be carried out over the entire

scope claimed (point III.3 of the decision under appeal).

(4) it was unclear how it could be made sure that the ammonia concentration was higher than 1.5 mg/L as nitrogen for more than 75% of the transiently-aerated reactor volume in space or time. It was also unclear what to do when this criterion contradicted the maintenance of the ratio or the sum (point III.4 of the decision under appeal).

III. In appeal proceedings, the appellants maintained, inter alia, the main request and the auxiliary request (the first auxiliary request) considered in the appealed decision.

IV. In a communication under Article 15(1) RPBA 2020, the board informed the appellants that while the main request then on file did not meet the requirements of Articles 84 and 123(2) EPC, the first auxiliary request appeared to meet the requirements of Articles 123(2), 84 and 83 EPC and that the case would probably be remitted to the department of first instance for further prosecution.

V. The appellants confirmed orally and in writing that they withdrew the main request and their request for oral proceedings under these conditions.

VI. The board cancelled the oral proceedings, scheduled for 21 June 2023.

VII. The sole claim of the first auxiliary request reads as follows:

"1. A wastewater treatment method for treating a low-strength wastestream, comprising:

providing a biological nitrogen removal (BNR) reactor (A, 20) that is transiently aerated;

using an ammonia sensor to generate an ammonia concentration signal;

causing the low-strength waste stream (11) to flow into the BNR reactor, the low-strength waste stream having an ammonia concentration not greater than 200 mg/L as nitrogen;

using a controller to process the ammonia concentration signal and thereby cause out-selection of nitrite oxidizing bacteria (NOB) under controlled transient anoxia conditions, the conditions being controlled either along the flow-path or along the process time-line,

causing a dissolved oxygen (DO) profile to switch between a lower DO setpoint of less than 0.1 mg/L and an upper DO setpoint of greater than 1.0 mg/L;

setting an aeration system activation interval, the upper DO setpoint, or both such that an on-line measured ammonia concentration is higher than 1.5 mg/L ammonia as nitrogen, for more than 75% of the transiently-aerated reactor volume in space or time; and causing the controller (D, 28) to generate instructions for increasing, decreasing or maintaining the DO concentration, the duration of the aerobic period, and/or the duration of the anoxic period, to maintain (a) a ratio of the ammonia concentration to the oxidized nitrogen concentration, on an as nitrogen basis, from about 0.5 to 1.5 or (b) a sum of the ammonia concentration plus the negative value of the oxidized nitrogen concentration, on an as nitrogen basis, from −3.0 to +1.0."

VIII. The appellants' arguments are reflected in the reasons below.

IX. The appellants requested that the decision be set aside and a patent be granted on the basis of one of six auxiliary requests. All these requests were filed with the statement setting out the grounds of appeal.

Reasons for the Decision

First auxiliary request

The first auxiliary request is identical to that considered in the decision under appeal.

1. Amendments

Claim 1 is based on claims 11 and 15 as well as on the last five lines of paragraph [0004] as originally filed.

Therefore, this request meets the requirements of Article 123(2) EPC.

2. Clarity

Claim 1 of the first auxiliary request meets the requirements of Article 84 EPC, as opposed to the examining division's conclusion.

2.1 In the current case, the features of claim 1 are perhaps broad, but they are technically sensible and clear for the skilled person.

Under established case law, complexity is not equivalent to a lack of clarity (Case Law of the Boards of Appeal of the EPO, 10th edn., II.A.3.1).

Moreover, a broad claim is not unclear *per se* (Case Law of the Boards of Appeal of the EPO, 10th edn., II.A.3.3). However, while the scope of the claim is clear, its broadness could have an influence on the assessment of inventive step.

2.2 The measurement of the oxidised nitrogen concentration is not an essential feature. Instead of being measured, it could also be calculated.

The frequency of the measurements is not an essential feature of the invention either. Nor did the examining division provide any evidence.

2.3 The skilled person knows where and with what frequency the measurements are to be carried out. This belongs to the general knowledge of the skilled person in process engineering.

2.4 The fact that claim 1 allows for the adjustment of three possible variables (i.e. dissolved oxygen, duration of the aerobic period and/or duration of the anaerobic period) to control one of two controlled variables (i.e. the ratio or the sum) perhaps renders claim 1 complex but not unclear.

2.5 The board does not see a reason why the skilled person could not establish whether a given method allows to

maintain an "ammonia concentration [...] higher than 1.5 mg/L as nitrogen for more than 75% of the transiently-aerated reactor volume in space or time".

In the current case, the risk of a conflict between the criteria of claim 1 evoked by the examining division is hypothetical and not sufficiently substantiated.

3. Sufficiency of disclosure

Several issues raised by the examining division and mentioned above under point 2. relate instead to the requirements of Article 83 EPC. However, the board sees no reason why the invention according to claim 1 could not be carried out be the skilled person.

The desired effects do not form part of the claim. Thus, Article 83 EPC does not presuppose that such effects are obtained.

It is sufficient that the skilled person change one or more of the three parameters to maintain the ratio or the sum. There is no doubt that they can do this.

Remittal to the examining division

4. Article 111(1) EPC

Article 11 RPBA 2020 stipulates that a case is only to be remitted to the department whose decision was appealed for further prosecution if there are special reasons.

The fact that the decision under appeal does not deal with Articles 54 and 56 EPC qualifies as such special reasons.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution on the basis of the first auxiliary request submitted with the statement setting out the grounds of appeal.

The Registrar: The Chairman:

C. Vodz E. Bendl

Decision electronically authenticated