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Bezeichnung der Erfindung: Electrolytic cell module
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : C25B 9/00, C25B 15/08, C25B 1/46

ENTSCHEIDUNG / DECISION

vom / of / du 2 March 1989

Anmelder / Applicant / Demandeur : Imperial Chemical Industries PLC

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56 EPC

Schlagwort / Keyword / Mot clé : "Inventive step (no)"

Leitsatz / Headnote / Sommaire

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 438/88

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 2 March 1989

Appellant : Imperial Chemical Industries PLC
Imperial Chemical House Millbank
London SW1P 3JF (GB)

Representative : D.A.G. Walmsley
c/o Legal Department Patents
Imperial Chemical Industries PLC
PO Box 6 Bessemer Road
Welwyn Garden City
Hertfordshire AL7 1HD (GB)

Decision under appeal : Decision of Examining Division 019 of the European Patent Office dated 21 April 1988 refusing European patent application No. 84 305 115.2 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : K. Lederer
Members : E. Turrini
L. Mancini

Summary of Facts and Submissions

I. European patent application No. 84 305 115.2 (publication number No. 0 135 314) was refused by decision of the Examining Division.

II. The reason for the decision was that the subject-matter of Claim 1 lacks novelty under Article 54 EPC in view of prior art document EP-A-0 043 945 (A1) and said claim is therefore not allowable under Article 52(1) EPC.

III. The Appellant lodged an appeal against the decision requesting its cancellation and presented a new set of claims. He also requested oral proceedings in case the Board could not decide to grant a patent.

In the official communication issued by the Board of Appeal was expressed the opinion that Claim 1 is not allowable under Article 52(1) EPC.

Attention was drawn inter alia to prior art documents A1 and US-A-3 855 091 (A2) mentioned in document A1.

IV. Oral proceedings were held, during which the Appellant cited document US-A-4 370 208 (A3) as further prior art and asked that the decision under appeal be set aside and that a patent be granted on the basis of Claims 1 to 7 presented at the oral proceedings.

V. Claim 1 reads as follows:

"A process for the electrolysis of aqueous alkali metal chloride solution in a plurality of electrolytic cells of the type to which electrolyte is continuously charged from a source thereof and from which a product or products of

electrolysis is or are continuously removed, and combined into a common stream, wherein each electrolytic cell is associated in close proximity with an item or items of apparatus in which electrolyte may be treated prior to charging to the electrolytic cell and/or in which a product of electrolysis may be treated after removal from the electrolytic cell and prior to being combined into a common stream, and in which gaseous chlorine produced by electrolysis is dried in the item or items of apparatus prior to the gaseous chlorine being combined into a common stream."

Claims 2 to 7 are dependent on Claim 1.

VI. In support of the allowability of his request the Appellant argued substantially as follows:

Document A3 describes a process which is formally similar to that claimed in Claim 1 of the application in suit. However, the treated gas is hydrogen in the process according to document A3 while it is chlorine in the process of Claim 1. Furthermore, the purpose if different. In the process of document A3 the hydrogen is purified and then recovered in a common main pipe in order to reduce the losses of useful products. On the contrary, in the process of Claim 1 chlorine is purified and then recovered in a common stream in order to avoid pipe corrosion caused by chlorine containing water vapour. Thus, document A3 does not give any hint at the idea of purifying and recovering chlorine near the anode compartment of an electrolytic cell prior to combine the gaseous chlorine into a common stream.

Reasons for the Decision

1. The appeal is admissible.

2. The Board is satisfied that the subject-matter of Claim 1 does not extend beyond the content of the application as filed.

3. Novelty.

3.1 Document A1 describes a process for the electrolysis of aqueous alkali metal chloride solution (title; description: page 5, line 26 and page 6, lines 18 to 22).

However, the Board of Appeal agrees with the Appellant that, while the process according to Claim 1 refers to a plurality of electrolytic cells as also clearly supported by Figure 1 (references 1 and 2) of the application in suit, this is not the case for the process of document A1.

Indeed, the unit 60 of Figure 1 of document A1 cannot, in the Board's view, be interpreted as a plurality of cells (cf. description of document A1: page 3, lines 33 to 35; page 4, lines 10 to 36), but represents just one (filter press type) cell.

3.2 Document A2 refers to a process for the electrolysis of aqueous alkali metal chloride solution (column 1, lines 53 to 61; column 3, lines 52 and 53) in a plurality of electrolytic cells (Figures 1 and 2) of the type to which electrolyte is continuously charged from a source thereof and from which a product of electrolysis is continuously removed. In Figure 3, the inlet pipe 153 and the outlet pipe from reservoir 151 without reference number do not include any valve. Therefore, the skilled reader would interpret this figure in a way that the electrolyte and the

product of electrolysis are continuously charged and continuously removed respectively. Furthermore, the expression "a satisfactory froth velocity is maintained" at column 5, line 44 of the description clearly supports this interpretation of Figure 3.

The presence of a source of electrolyte is necessary and therefore implicitly disclosed. Finally, each electrolytic cell is associated in close proximity with an item or items of apparatus in which a product of electrolysis may be treated after removal from the electrolytic cell, and in which gaseous chlorine produced by electrolysis is dried in the item or items of apparatus (Figure 3: references 119, 151, 220, 221, 222; description: column 5, lines 14 to 31, whereby the operations can be considered as drying operations.

The Appellant's submission that in document A2 the gaseous chlorine is not dried because the chlorine disengaging apparatus therein disclosed leaves still some mist, is not convincing.

Firstly, the expression "is dried" does not necessarily mean 100% drying. In this respect, also in the application in suit which refers to a drying step, neither Claim 1 nor the whole description give specific values concerning the degree of drying obtained. Secondly, the process according to document A2 foresees in addition to the chlorine disengaging apparatus, other means as plates, baffles, screens or meshes (description: column 5, lines 26 to 31) which can improve considerably the degree of drying.

Thus, the process claimed in Claim 1 differs merely from the process of document A2 in that after treatment the gaseous chlorine is combined into a common stream.

3.3 Document A3 relates to a process for the electrolysis of aqueous alkali metal chlorine solution (description: column 1, lines 51 to 55) in a plurality of electrolytic cells (this is implicitly indicated in Figure 1 by the cathode gas main pipe 30 as also admitted by the Appellant), whereby the product of electrolysis is removed and combined into a common stream and whereby said product is treated, in particular dried prior to being combined into the common stream (Figure 1, reference 10; description: column 4, lines 22 to 29).

Contrary to document A3, in Claim 1 the product is chlorine instead of hydrogen.

3.4 The remaining cited documents do not come closer to the subject-matter of Claim 1.

3.5 For the above reasons, the subject-matter of Claim 1 is considered to be novel within the meaning of Article 54 EPC.

4. Inventive step.

4.1 The process according to document A2 constitutes in the Board's view the nearest prior art, because this document, contrary to document A1, unambiguously discloses a plurality of cells (16, 17, 18).

4.2 Starting from said known process, the technical problem solved by the invention as set out in Claim 1 is to simplify and reduce the costs of the electrolysis process.

4.3 More specifically, said problem is solved by combining the gaseous streams of chlorine coming from the electrolyte cells, after treatment, i.e. after drying the chlorine, into a common stream, reducing in this way the amount of pipe material and simplifying the pipe layout.

4.4 No contribution to the inventive step can be assessed in the recognition of the problem nor in its solution. Combining a number of separate gas streams into a common stream, whenever adequate, is considered as laying within the skilled person's routine work. This is exemplified by document A3 which proposes to combine, after treatment, the gaseous product (e.g. hydrogen) coming out from the electrolytic cells into a gas main pipe, i.e. into a common stream.

4.5 For the above reasons, the subject-matter of Claim 1 is not considered to involve an inventive step within the meaning of Article 56 EPC and Claim 1 is therefore not allowable under Article 52(1) EPC.

4.6 Claims 2 to 7 are subordinate to Claim 1 and for this reason are also not acceptable.

Order

For these reasons, it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

F. Klein K. Lederer