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**Datasheet for the decision
of 9 January 2019**

Case Number: T 2745/17 - 3.3.05

Application Number: 09176931.5

Publication Number: 2447212

IPC: C01F7/54, B23K35/36, B23K35/362

Language of the proceedings: EN

Title of invention:
A method for production of cesium aluminum fluoride

Patent Proprietor:
Sentes-Bir Anonim Sirketi

Opponent:
Solvay Fluor GmbH

Headword:
Cesium/aluminum fluoride/Sentes

Relevant legal provisions:
EPC Art. 123(2)

Keyword:
Amendments - allowable - main request (no) - first auxiliary
request (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2745/17 - 3.3.05

D E C I S I O N
of Technical Board of Appeal 3.3.05
of 9 January 2019

Appellant:
(Patent Proprietor)

Sentes-Bir Anonim Sirketi
Ankara Karayolu 26.KM
Kemalpasa
Izmir (TR)

Representative:

Viering, Jentschura & Partner mbB
Patent- und Rechtsanwälte
Am Brauhaus 8
01099 Dresden (DE)

Respondent:
(Opponent)

Solvay Fluor GmbH
Hans-Böckler-Allee 20
30173 Hannover (DE)

Representative:

Mross, Stefan P.M.
Solvay SA
Intellectual Assets Management
RIC Lyon
85 avenue des Frères Perret
BP 62
69182 Saint-Fons (FR)

Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 20 October 2017
revoking European patent No. 2447212 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman E. Bendl
Members: S. Besselmann
 R. Winkelhofer

Summary of Facts and Submissions

- I. The present appeal lies from the decision of the opposition division to revoke European patent EP 2 447 212. The patent in suit concerns a method for production of a cesium aluminum fluoride.
- II. The opposition division held that the subject-matter of claim 1 of the patent as granted did not comply with the requirements of Article 123(2) EPC in view of the feature "maintaining the temperature of the reactor at 90-95°C during production (6)", and that the then pending auxiliary requests 1 and 2 did not overcome said objection.
- III. With its grounds of appeal, the proprietor (appellant) filed, in addition to the main request (claims as granted), auxiliary requests 1 and 2.
- IV. The sole independent claim of the main request reads as follows:
- "1. A method for production of a cesium aluminum fluoride (10) characterized by the following steps:
- mixing aluminum hydroxide with hydrofluoric acid (1),
 - forming aluminum fluoride (2),
 - adding cesium hydroxide to aluminum fluoride till adjusting the pH to 7,8-8 (3),
 - reducing the pH with hydrofluoric acid till the pH of the solution is adjusted to 6,5-7 (4),
 - forming cesium fluoride/aluminum fluoride compound (5),
 - maintaining the temperature of the reactor at 90-95°C during production (6),
 - drying (7)."

V. The sole claim according to auxiliary request 1 differs from claim 1 of the main request only by the wording of step (7):
"- drying the product in a drying oven at a temperature between 90-105°C (7)."

VI. The appellant's arguments, as far as relevant for the present decision, may be summarised as follows:

The subject-matter of granted claim 1 was based on the original claims in combination with page 4, lines 94-95 of the application as filed (paragraph [0013] of the published application). This combination of features derived directly from the application as filed because the entire application related to a single method. The numbering of the method steps did not represent a timely order of events. Rather, the timely order of events was implied by the chemistry of the process. Hence, the more detailed explanation of said chemistry in the last paragraph on page 4 did not imply any difference as to the stage of cesium aluminum fluoride formation, or the nature of the compounds formed. Cesium aluminum fluoride was formed in both steps (3) and (4), as a result of the reaction of aluminum fluoride with cesium hydroxide in step (3). The reaction was finally completed by adding hydrofluoric acid in step (4).

Similarly, the method definition in the original claims did not link temperature adjustment to any specific method stage. The reference to adjusting temperature in the original claims was a generic indication and could mean "raising", "lowering", or "maintaining" the temperature. The generic indication was clarified by

the more specific expression on page 4, "during production, temperature of reactor is kept at 90-95°C".

The method definitions in the original claims and on page 4, respectively, were therefore not contradictory, but page 4 did define a specific embodiment.

It was also apparent from the original claims and from general knowledge that the nature of the drying step, representing the work-up phase, was independent from the other method steps, constituting the synthesis phase of the process. Hence, the specific step of keeping the temperature at 90-95°C during production was not inextricably linked to the specific drying step described on page 4.

The requirements of Article 123(2) EPC were therefore complied with.

Auxiliary request 1

Claim 1 of auxiliary request 1 corresponded to the embodiment described in the last paragraph of page 4 of the original application (paragraph [0013] of the published application) and therefore directly and unambiguously derived from said paragraph alone. The requirements of Article 123(2) EPC were therefore met.

VII. The respondent's arguments, as far as relevant for the present decision, may be summarised as follows:

The claims, the figure, and the paragraph bridging pages 3-4 of the original application (paragraph [0012] of the published application) described one method with distinct, chronological method steps (1)-(7), whereas the last paragraph of p. 4 of the original application

(paragraph [0013] of the published application) described another, different method.

Specifically, the former method (method as originally claimed) involved a step of "adjusting the temperature" following formation of the cesium fluoride/aluminum fluoride compound and prior to drying. The method described in the last paragraph of page 4 of the original application, on the contrary, did not mention any step of adjusting the temperature but required the temperature of the reactor to be kept at 90-95°C during production, which was understood as referring to either the entire production process or at least the production of the cesium fluoride/aluminum fluoride compound.

Both methods additionally differed in that cesium fluoride/aluminum fluoride was formed in step (5) of the originally claimed method following the reduction of the pH with hydrofluoric acid, whereas in the last paragraph of page 4 of the application it was formed as a result of step (3) of the method described. Step (5) of the originally claimed method was to be seen as a separate, additional step wherein the reaction conditions (temperature, pH) had to be selected such that the desired result of "forming cesium fluoride/aluminum fluoride compound" was obtained. It had to be expected that, as a result, the nature of the intermediate and final products was different. This understanding was confirmed by the fact that the original claims referred to a "cesium fluoride/aluminum fluoride compound" (singular form), in contrast to the use of the plural form "compounds" on page 4. The features of these methods could therefore not be combined.

Auxiliary request 1

Claim 1 of auxiliary request 1 had the same deficiency of combining steps and reaction results of original claim 1 with the method described in the last paragraph of page 4 of the application.

VIII. Requests

The appellant requests that the contested decision be set aside and the opposition be rejected, or alternatively, that the patent be maintained based on one of auxiliary requests 1 and 2 filed with the grounds of appeal.

The respondent requests that the appeal be dismissed.

Reasons for the Decision

Article 100(c) EPC in conjunction with Article 123(2) EPC

Main request

1. The claims as originally filed define a step of "adjusting temperature (6)" (see claim 1), namely that the "temperature of the reactor is adjusted to 90-95 °C" (see claim 4). This step cannot be equated with the feature "maintaining the temperature of the reactor at 90-95°C during production (6)" in granted claim 1.

The step of adjusting the temperature is understood as implying an action of changing temperature, in contrast to the instruction to maintain the temperature at 90-95 °C, which implies avoiding temperature changes. While the instruction to maintain the temperature within a desired range may entail temperature

adjustment to said range, original claims 1 and 4 do not link the step of adjusting the temperature to the production (of cesium fluoride/aluminum fluoride). On the contrary, according to original claims 1 and 4, said step of adjusting temperature may reflect a step of preparing the product for drying.

In line with this, the figure, which presents the steps of original claim 1 in the form of a flow chart, suggests that the steps of original claim 1 are to be performed consecutively; the step of adjusting the temperature thus taking place subsequent to the production of the cesium fluoride/aluminum fluoride compound. In the absence of any further details or explanations, there is consequently no basis in the application as filed to construe the step of "adjusting temperature (6)" in original claim 1 as a generic disclosure, encompassing a step of "maintaining the temperature of the reactor at 90-95°C during production" as a specific embodiment thereof.

The subject-matter of claim 1 as granted may not therefore be directly derived from the original claims.

2. The same considerations apply in view of the figure and the paragraph bridging pages 3-4 of the application as filed, which describe the same method steps as original claim 1 and original claim 3, respectively.
3. It remains to be assessed whether the subject-matter of claim 1 as granted may be derived from the method described in the last paragraph of page 4 of the application as filed.

- 3.1 According to said method, the temperature of the reactor is kept at 90-95°C during production. Hence, there is disclosure of step (6) of claim 1 as granted.
- 3.2 Steps (1) to (5) of granted claim 1 are also described as part of said method of the last paragraph of page 4. It is acknowledged that there are differences in the presentation of the results of some of these reaction steps in comparison to claim 1 as granted. For instance, the disclosure of page 4 links the formation of cesium fluoride/aluminum fluoride to step (3), whereas the claim does not. However, the method and reaction steps as such are the same. The consequences of the various method steps must therefore also be the same, irrespective of whether they are explicitly described or not.

In particular, the method of claim 1 as granted defines the temperature and pH conditions. Step (5) of granted claim 1 thus cannot be understood as a separate step in the form of an implicit instruction to select reaction conditions in order to form cesium fluoride/aluminum fluoride, but merely indicates the result of the previous method steps, which already set specific pH and temperature conditions.

For the same reasons, the fact that different expressions are used, namely "cesium fluoride/aluminum fluoride compound" (step (5) of original claim 1), "cesium fluoride/aluminum fluoride compounds" (last paragraph of page 4), but also "cesium aluminum fluoride" (e.g. first line of original claim 1), does not convey a difference in meaning.

Hence, there is no added matter in this respect.

3.3 The sequence of the remaining reaction steps is implied by the chemistry of the process. Consequently, there is no difference between claim 1 as granted and the more detailed wording on page 4 in this regard.

3.4 However, the method of page 4 includes a specific drying step, wherein "after pH adjustment is completed, the product is placed into the drying oven, and dried at a temperature between 90-105°C (7)". This feature is not present in granted claim 1, which merely mentions "drying" in general, which could, for instance, take place at much higher/lower temperatures and by means of a device different from the one indicated in the last paragraph of original page 4. The relevant method definition on page 4 does not make any distinction between product synthesis steps and work-up steps, or between essential and optional steps, but presents the method as a whole.

In the absence of any further details or explanations in the application as filed, no basis is seen to generalise the specific drying step disclosed in the last paragraph of page 4 to "drying" in general, namely to isolate step (6) from said specific drying step.

4. It follows from the above considerations that there is no direct and unambiguous disclosure of the method of claim 1 as granted (present main request) in the application as filed. The requirements of Article 123(2) EPC are therefore not met.

Auxiliary request 1

5. Claim 1 of auxiliary request 1 differs from claim 1 as granted in that the drying step is defined as "drying

the product in a drying oven at a temperature between 90-105°C". Hence, said claim no longer refers to "drying" in general but includes the specific drying step described in the last paragraph of page 4 of the application as filed.

The subject-matter of claim 1 of auxiliary request 1 therefore derives directly and unambiguously from the application as filed, having regard to the last paragraph on page 4.

6. The reasons which led to the revocation of the patent no longer apply to the patent in the form of the first auxiliary request.

Remittal

As the appealed decision dealt exclusively with the requirements of Article 100(c) EPC, and in order to give the parties the opportunity to present their case to two instances, the board exercises its discretion under Article 111(1) EPC to remit the case for continuation of the opposition proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution on the basis of auxiliary request 1 submitted with the grounds of appeal.

The Registrar:

The Chairman:



C. Vodz

E. Bendl

Decision electronically authenticated