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**Datasheet for the decision
of 7 March 2023**

Case Number: T 1606/20 - 3.3.10

Application Number: 13770976.2

Publication Number: 2882704

IPC: C07C17/20, C07C17/25

Language of the proceedings: EN

Title of invention:

PROCESS FOR PRODUCING 2,3,3,3-TETRAFLUOROPROPENE

Patent Proprietor:

Daikin Industries, Ltd.

Opponents:

Mexichem Fluor S.A. de C.V.
ARKEMA FRANCE

Headword:

Relevant legal provisions:

EPC Art. 123(2)
RPBA 2020 Art. 13(2)

Keyword:

Amendments - extension beyond the content of the application
as filed (yes) - Main request and auxiliary requests 1-9 -
Amendments during oral proceedings - exceptional circumstances
(no) - taken into account (no) - auxiliary requests 10 and 11

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 1606/20 - 3.3.10

D E C I S I O N
of Technical Board of Appeal 3.3.10
of 7 March 2023

Appellant:

(Patent Proprietor)

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(Opponent 2)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 20 May 2020
revoking European patent No. 2882704 pursuant to
Article 101(2) and Article 101(3) (b) EPC.**

Composition of the Board:

Chairwoman R. Pérez Carlón
Members: M. Kollmannsberger
 T. Bokor

Summary of Facts and Submissions

- I. The patent proprietor appealed the Opposition Division's decision to revoke the patent under Articles 101(2) and 101(3) (b) EPC.

- II. In its decision the Opposition Division had found that claim 1 of the granted patent extended beyond the application as originally filed and contravened thus Article 123(2) EPC. The claims of the first auxiliary request removed this deficiency, the amendments carried out with respect to the granted patent did not introduce any lack of clarity (Article 84 EPC), the claimed process was sufficiently disclosed (Article 83 EPC), the claims were novel (Article 54 EPC), but lacked an inventive step (Article 56 EPC). The same held for the claims of the second auxiliary request.

- III. With its statement setting out the grounds of appeal the appellant requested that the decision be set aside. It submitted that, contrary to the finding of the Opposition Division, claim 1 of the granted patent did not contain unallowable amendments, Article 123(2) EPC. Moreover, the claimed process as defined in auxiliary requests 1 and 2 was inventive over the cited documents. The appellant filed additional claim sets as auxiliary requests 3-9 for the maintenance of the patent in amended form, in case the Board would not overturn the decision with respect to the granted patent and auxiliary requests 1 and 2.

- IV. With their reply to the appellant's grounds of appeal the respondents, opponents 1 and 2, requested the appeal to be dismissed. They submitted that the Opposition Division's decision holding claim 1 of the

granted patent to contain unallowable amendments was correct. Moreover, in contrast to the findings of the Opposition Division, also the independent claims of auxiliary requests 1 and 2 extended beyond the originally filed disclosure. Newly filed auxiliary requests 3-9 should not be admitted into the appeal proceedings and, in any case, did not overcome these objections. The respondents disagreed with the Opposition Division's finding on clarity, sufficiency and novelty but agreed to its conclusion regarding inventive step.

V. Summons for oral proceedings were issued on 29 April 2022, to take place on 7 March 2023. On 18 October 2022 the Board issued a communication under Article 15(1) RPBA 2020 which contained a preliminary opinion on some of the disputed issues. The Board's preliminary opinion regarding the requirements of Article 123(2) EPC was that, as decided by the Opposition Division, claim 1 of the granted patent contained unallowable amendments. The various other objections raised by the respondents against the claims of the auxiliary requests needed to be discussed during oral proceedings.

VI. During the oral proceedings the appellant filed two additional auxiliary requests 10 and 11. The final requests of the parties were:

The appellant requested the impugned decision to be set aside and the patent to be maintained as granted under Article 101(2) EPC. On an auxiliary basis it requested the maintenance of the patent in amended form under Article 101(3) (a) EPC based on auxiliary requests 1-9, filed with the grounds of appeal, or on the basis of

auxiliary requests 10 and 11, filed during oral proceedings before the Board.

The respondents requested the dismissal of the appeal. They requested auxiliary requests 3-11 not to be admitted to the appeal proceedings, referring to Articles 12 and 13 RPBA (2020).

At the end of the oral proceedings the decision was announced.

VII. The following document is referred to in this decision:

D5: WO 95/16654

VIII. The independent claims of the granted patent and of the auxiliary requests submitted by the appellant are shown in the following. Additions and ~~deletions~~ are shown with respect to granted claim 1. Since all amendments concern the characterizing part of the claim after the word "*wherein*", the preamble of the claim has been omitted in the auxiliary requests.

Granted patent:

"A process for producing 2,3,3,3-tetrafluoropropene, comprising the steps of:

- (i) reacting 2-chloro-3,3,3-trifluoropropene with anhydrous HF in a gas phase in the presence of a fluorination catalyst while heating, thus producing 2,3,3,3-tetrafluoropropene, and*
- (ii) reacting anhydrous HF with at least one chlorine-containing compound selected from 1,1,1,2,3-pentachloropropane, 2,3-dichloro-1,1,1-trifluoropropane and*

1,1,2,3-tetrachloropropene in a gas phase in the presence of a fluorination catalyst while heating, thus producing 2-chloro-3,3,3-trifluoropropene;

wherein

- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine-containing compound defined in step (ii); and*
- the reaction temperature in step (i) is higher than the reaction temperature in step (ii)."*

Auxiliary request 1:

" (...)

wherein

- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine containing compound defined in step (ii) ; ~~and~~*
- the reaction temperature in step (i) is higher than the reaction temperature in step (ii) ~~;~~ and*
- 2,3,3,3-tetrafluoropropene is separated from the products of step (ii)."*

Auxiliary request 2:

" (...)

wherein

- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine containing compound defined in step (ii) ; ~~and~~*
- the reaction temperature in step (i) is higher than the reaction temperature in step (ii) ~~;~~ and*

- 2,3,3,3-tetrafluoropropene passed through the reactor used in step (ii) is separated."

Auxiliary request 3:

" (...)

wherein

- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine containing compound defined in step (ii) ; ~~and~~
- the reaction temperature in step (i) is higher than the reaction temperature in step (ii) ~~;~~ and
- 2,3,3,3-tetrafluoropropene is separated from the products of step (ii); and
- 2-chloro-3,3,3-trifluoropropene obtained in step (ii) is used as a starting material for step (i)."

Auxiliary request 4:

" (...)

wherein

- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine containing compound defined in step (ii) ; ~~and~~
- the reaction temperature in step (i) is higher than the reaction temperature in step (ii) ~~;~~ and
- 2,3,3,3-tetrafluoropropene passed through the reactor used in step (ii) is separated; and
- 2-chloro-3,3,3-trifluoropropene obtained in step (ii) is used as a starting material for step (i)."

The independent claims of auxiliary requests 5-9 correspond to the independent claims of the granted patent and auxiliary requests 1-4 with the following amendment in the characterizing part:

" (...)
wherein
- the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine containing compound defined in step (ii) without removing HCl;
(...)"

Independent claims 1 of auxiliary requests 10 and 11 correspond to independent claim 1 of auxiliary requests 4 and 9 with the following additional feature in the characterizing part:

"and the reactor used in step (i) is disposed upstream of the reactor used in step (ii)."

Reasons for the Decision

1. The appeal is admissible.
2. Amendments in the granted patent, Article 123(2) EPC
 - 2.1 The disputed amendments in granted claim 1 compared to claim 1 as originally filed are the following two:

The feature "*the step of producing 2-chloro-3,3,3-trifluoropropene being performed after the step of producing 2,3,3,3-tetrafluoropropene*", i. e. the step numbered (ii) in granted claim 1 being performed after step (i), has been removed.

The feature "*the products obtained in step (i), which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in step (ii) together with the chlorine-containing compound defined in step (ii)*" was added.

2.2 The Opposition Division decided that the first amendment did not lead to an extension of the claimed subject-matter beyond the the application as filed since the amended claim still required that step (ii) was performed after step (i). In view of the Board's finding outlined below that the second amendment is not allowable, this point does not need to be addressed.

2.3 The alleged basis for the introduction of the second amendment is the description of the process on page 6 line 27 to page 7 line 9. The feature as such has been taken *verbatim* from page 6 lines 31-34. It requires that the products of step (i), in which the final product 2,3,3,3-tetrafluoropropene is obtained, are supplied to the reactor of step (ii), in which the intermediate product 2-chloro-3,3,3-trifluoropropene is obtained, together with the chlorinated starting material.

For ease of reference, the relevant passage is reproduced here:

"The process of the present invention requires a reactor used in the tetrafluoropropene-producing reaction for producing the final target product to be disposed upstream of a reactor used in the trifluoropropene-producing reaction in the above reaction steps. The products obtained in the tetrafluoropropene-producing reaction, which contain 2,3,3,3-tetrafluoropropene, are supplied to the reactor used in the trifluoropropene-producing reaction

together with the chlorine-containing compound, which is a starting material for the trifluoropropene-producing reaction. 2,3,3,3-Tetrafluoropropene passed through the reactor used in the trifluoropropene-producing reaction is separated, and 2-chloro-3,3,3-trifluoropropene obtained in this step is used as a starting material for the tetrafluoropropene-producing reaction. In particular, 2,3,3,3-tetrafluoropropene can be continuously produced by circulating 2-chloro-3,3,3-trifluoropropene obtained in the trifluoropropene-producing reaction to the reactor used in the tetrafluoropropene-producing reaction on the upstream side as a starting material."

2.3.1 The appellant argued that this feature was not linked to any other of the features also disclosed in this paragraph. In its view the feature was disclosed in this passage in isolation, was generally applicable and could thus be extracted and introduced into the claim isolated from the other features. Therefore, in contrast to the finding of the Opposition Division, the separation of 2,3,3,3-tetrafluoropropene from the products of step (ii) did not need to be introduced into the claim. The Opposition Division's decision on this point was erroneous.

2.3.2 In respondent 2's view, not only was the the separation of 2,3,3,3-tetrafluoropropene from the products of step (ii) linked to the feature introduced into the claim, as found by the Opposition Division. Also other features in this passage were necessarily linked to it but were missing from claim 1 of the granted patent. Thus, the claim did not only contravene Article 123(2) EPC for the reasons given in the Opposition Division's decision, but also for various other reasons.

2.4 The passage bridging pages 6 and 7 is a description of the process of the claimed invention which must be read in its entirety.

In this passage the following features are disclosed, none of which is present in the amended claim:

- (a) the presence of two reactors, the one for producing the final product (step (i)) being disposed upstream of the one for preparing the intermediate product (step (ii)),
- (b) 2,3,3,3-tetrafluoropropene, i. e. the final product, passed through the reactor used in the trifluoropropene-producing reaction, is separated, and
- (c) 2-chloro-3,3,3-trifluoropropene obtained in the step for the preparation of the intermediate product is used as a starting material for the tetrafluoropropene-producing reaction.

2.5 Regarding feature (a) the appellant did not dispute that this feature is disclosed in combination with the supply of the final product to the reactor of step (ii), and thus must be a feature of the amended claim. The appellant argued that this feature was implied by the wording of the amended claim, and thus implicitly present. The supply of the products obtained in step (i) to the reactor of step (ii) inevitably required the reactor of step (i) to be located upstream of the reactor used in step (ii).

The Board does not agree with this argument.

Firstly, the claim does not specify two reactors. A reactor is required only for step (ii). Secondly, the claim does not specify the way in which two reactors, if present, should be arranged relative to each other.

Feature (a) being implicitly present in the claim would mean that no other possibility of carrying out the process is covered by the claim, other than two reactors being present, one disposed upstream of the other. However, this is not the case. Respondent 2 has argued, and the Board agrees, that the amended claim covers e. g. a batch process involving only one reactor, consecutively used for steps (i) and (ii), where the products of step (i) are temporarily stored and then supplied again to the reactor. The amended claim covers likewise an arrangement of two parallel reactors, e. g. as set out in figure 4 of D5, where steps (i) and (ii) would be carried out in reactors (412) and (404), the reaction outputs combined and then, possibly after a separation step, are supplied at least partly to each of the reactors. The appellant argued that an intermediate separation step was ruled out by the claim but, in view of the "comprising" language of the claim, this is not the case.

Thus, one can envisage processes which are covered by the amended claim, but do not require two reactors, one being disposed upstream of the other. This feature is therefore not implied by the amended claim.

By introducing the second amendment into claim 1 without requiring the presence of two reactors, one being disposed upstream of the other, the supply of the products obtained in step (i) to the reactor used in step (ii) disclosed on page 6 lines 31-34 of the patent

application has been generalized in a way not originally disclosed.

- 2.6 Feature (b) requires 2,3,3,3-tetrafluoropropene passed through the reactor used in step (ii) to be separated. The appellant argued that this feature was not linked to any other feature disclosed in the passage from which it is taken.

However, the passage bridging pages 6 and 7 describes a process as a whole. The process steps disclosed therein cannot be read in isolation. The passage mentions feature (b) directly after the process feature which has been introduced into claim 1. The separation of 2,3,3,3-tetrafluoropropene, the final product, after step (ii) is not presented as optional. Thus, the Opposition Division has rightly found that the omission of this step leads to a generalisation of the information given in this passage which extends beyond the original disclosure, see point 5.7.2 of the impugned decision.

- 2.7 Feature (c) requires 2-chloro-3,3,3-trifluoropropene obtained in step (ii) to be used as a starting material for step (i). The appellant argued that the skilled person would understand this feature to be optional. This could be seen from the last sentence of the passage bridging pages 6 and 7 which referred to a continuous process in which the intermediate product was circulated.

The Board does not agree. Feature (c) is disclosed in the same sentence as feature (b), connected by "and":

"2,3,3,3- Tetrafluoropropene passed through the reactor used in the trifluoropropene-producing reaction is

separated, and 2-chloro-3,3,3-trifluoropropene obtained in this step is used as a starting material for the tetrafluoropropene-producing reaction."

Both features are presented as features of the process of the invention. It is correct that the passage then describes a preferred embodiment ("*In particular (...)*"). However, this preference relates to the process being carried out in a continuous manner, not to the intermediate being used as a starting material for producing the final product. Feature (c) is thus not disclosed as optional in the passage bridging pages 6 and 7.

- 2.8 The appellant further argued that the passage bridging pages 6 and 7 was not the only passage in the original patent application where the second amendment was disclosed. In particular reference was made to page 3 lines 10-15.

It is correct that this passage mentions the supply of the products obtained in step (i) to step (ii). However, this passage cannot provide a basis for the amended claim either, for the following reasons:

- 2.8.1 The passage requires that the products are supplied from step (i) to step (ii) "*without removing hydrogen chloride*".

The appellant argued that the claim implicitly required this feature. The claim required the *products* of step (i) to be supplied to the reactor used in step (ii). This could only mean that *all* the products were supplied to the reactor, including HCl, without removing it.

This argument was already refuted by the Opposition Division (point 5.7.2 in the impugned decision, last paragraph), and the Board is also not convinced by it.

The claim is drafted using an open language as "comprising" the steps defined therein. Thus, for this reason alone an intermediate separation step is not excluded. The claim does not require the products of step (i) to be *directly* supplied to the reactor, or uses any other language which would exclude a separation step for (part of) the products formed in step (i).

2.8.2 Furthermore, this passage is part of the paragraph starting on page, 2 line 32. The first sentence of this paragraph describes the process as requiring two reactors for the different reaction steps, one being located downstream of the other. This limitation thus likewise applies to the disclosure on page 3, lines 10-15. However, as discussed above, this feature is not present in the claim.

2.9 In summary, by making the second amendment the limitations that are linked to the process feature disclosed on page 6, lines 31-34 in the originally filed description are not features of the claimed process. This feature has been added to the process disclosed in original claim 1 in a generalized way, detached from the context in which it is embedded. The claimed process is thus not directly and unambiguously derivable from the original application documents.

3. Amendments in auxiliary requests 1-9

3.1 Auxiliary requests 1 and 2 were object of the decision of the Opposition Division. Neither claim 1 of

auxiliary request 1 nor claim 1 of auxiliary request 2 contains features (a) or (c) identified above. Thus, these claims likewise contain unallowable amendments for the same reasons as set out above.

- 3.2 Auxiliary requests 3-9 were filed with the statement setting out the grounds of appeal. Their admission into the appeal proceedings was contested by the respondent.

None of the independent claims of these requests contains feature (a) defined above. For this reason alone, regardless of their admission, the patent cannot be maintained on the basis of these requests.

4. Admission of auxiliary requests 10 and 11

- 4.1 Auxiliary requests 10 and 11 were submitted at an advanced stage of the oral proceedings before the Board.

These requests introduce the feature "*and the reactor used in step (i) is disposed upstream of the reactor used in step (ii)*" into the independent claim.

- 4.2 Article 12(3) RPBA 2020 requires the grounds of appeal and the reply thereto to contain a party's complete appeal case. Amendments to an appeal case on the day of oral proceedings are governed by the provisions of Article 13(2) RPBA 2020. Such amendments are in principle not taken into account unless justified by cogent reasons proving exceptional circumstances.

- 4.3 The appellant submitted that the amendment did not constitute any change in the factual or legal framework of its appeal. Thus, these requests were not an amendment of the appeal case in the sense of Article

13(2) RPBA 2020. The appellant had always argued that the features included in claim 1 of these requests were implicitly required by the claimed process. There was no reason to file this amendment earlier, since neither the Opposition Division nor the Board in its communication saw the issue as critical.

4.4 These arguments are not convincing.

The Board considers the amendment to constitute a change in the factual and legal situation of the appeal. Claim 1 of auxiliary requests 10 and 11 were the first ones in the procedure in which the disputed feature was explicitly included. Their filing sought to overcome an objection by introducing a feature into a claim not present before. This inevitably changes the factual and legal situation of the case.

4.5 No exceptional circumstances within the meaning of Article 13(2) RPBA are apparent to the Board.

4.5.1 Auxiliary Requests 10 and 11 intend to overcome the objection under Article 123(2) EPC related to feature (a) as defined above. This objection, which concerns the missing definition of the reactors and their location in the independent claim, was already raised during opposition proceedings and was an object of the impugned decision, see point 5.7.1 there. The objection was likewise raised in the reply to the appeal by respondent 2, see point 2.2, and was mentioned as one of the issues to be discussed in the Board's communication under Article 15(1) RPBA 2020, see point 5.1.6 there.

Thus, the appellant was well aware of the objection.

4.5.2 The fact that the Opposition Division in its decision did not follow the opponent's arguments on a certain point is no reason to postpone amendments addressing this point until the day of oral proceedings before the Board. Even if the Opposition Division found in favour of the proprietor on these issues, the objections were on file. The RPBA 2020 was already in force when the oral proceedings before the Opposition Division was held, and it was clear that it is more strict in admitting amendments to an appeal case than the RPBA 2007, see e.g. the explanations in the Supplementary publication 1 to OJ EPO 2020, 207 (Annex 2). Under these circumstances the proprietor could have been expected to file such requests either already with its grounds of appeal, or at the latest after receiving the reply of the opponents to its own appeal, i.e. at least still within a period falling under the provisions of Article 13(1) RPBA, before the even stricter provisions of Article 13(2) RPBA would apply.

4.5.3 The appellant argued that the amendment was straightforward and removed the disputed objection.

This was disputed by the respondents. They argued that, since the amended feature was taken from the description, it might even give rise to objections under Article 84 EPC.

Thus, whether the amendment was suitable to overcome the relevant objection without giving rise to any new objections or not would have been a new issue to be discussed during oral proceedings. Whether the criteria brought forward by the appellant represent exceptional circumstances under Article 13(2) RPBA can be left open.

4.6 For these reasons, the Board decides not to admit auxiliary requests 10 and 11 into the appeal proceedings.

5. In summary, the ground of opposition under Article 100(c) EPC prejudices the maintenance of the patent as granted. The claims of auxiliary requests 1-9 do not meet the requirements of the convention and are thus not allowable. Auxiliary requests 10 and 11 are not admitted into appeal proceedings under Article 13(2) RPBA 2020.

The Opposition Division's decision to revoke the patent under Articles 101(2) and 101(3) (b) EPC is thus confirmed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:



C. Rodríguez Rodríguez

R. Pérez Carlón

Decision electronically authenticated