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Datasheet for the decision of 19 December 2017

Case Number: T 1890/15 - 3.3.01

Application Number: 05815008.7

Publication Number: 1765800

IPC: C07D301/10

Language of the proceedings: EN

Title of invention:
A PROCESS FOR THE PRODUCTION OF AN OLEFIN OXIDE, A 1,2-DIOL, A 1.2-DIOL ETHER, OR AN ALKANOLAMINE

Patent Proprietor:
Shell Internationale Research Maatschappij B.V.

Opponents:
The Dow Chemical Company
Scientific Design Company Inc.

Headword:
Epoxidation with catalyst on a fluoride-minaralised carrier/ SHELL

Relevant legal provisions:
EPC Art. 123(2)
RPBA Art. 13

Keyword:
Amendments - added subject-matter (yes)
Oral submission by an accompanying person (no)
Late-filed auxiliary requests - admitted (yes)

Decisions cited:
G 0004/95, T 0686/99, T 0016/05, T 0330/05, T 1402/07, T 0667/08, T 1799/12

Catchword:

Europäisches Patentamt
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Office européen des brevets

Beschwerdekammern

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Case Number: T 1890/15 - 3.3.01

D E C I S I O N
of Technical Board of Appeal 3.3.01
of 19 December 2017

Appellant: (Patent Proprietor)	Shell Internationale Research Maatschappij B.V. Carel van Bylandtlaan 30 2596 HR The Hague (NL)
Representative:	Shell Legal Services IP p/a Carel van Bylandtlaan 16 2596 HR Den Haag (NL)
Respondent 1: (Opponent 1)	The Dow Chemical Company 2030 Dow Center Midland, MI 48674 (US)
Representative:	HGF Limited 8th Floor 140 London Wall London EC2Y 5DN (GB)
Respondent 2: (Opponent 2)	Scientific Design Company Inc. 49 Industrial Avenue Little Ferry New Jersey 07643-1901 (US)
Representative:	Andrae | Westendorp Patentanwälte Partnerschaft Uhlandstraße 2 80336 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 27 July 2015 revoking European patent No. 1765800 pursuant to Article 101(3)(b) EPC.**

Composition of the Board:

Chairman	A. Lindner
Members:	G. Seufert
	L. Bühler

Summary of Facts and Submissions

I. The patent proprietor (appellant) lodged an appeal against the decision of the opposition division revoking the European patent No. 1 765 800.

II. The present decision refers to the following documents:

(17) EP-A-0 352 850
(26) US 4,766,105
(48) US 4,761,394
(51) WO 2006/009756

III. Notices of opposition were filed by opponents 1 and 2 (respondents 1 and 2) requesting revocation of the patent in suit on the grounds of lack of novelty and inventive step and insufficiency of disclosure (Article 100(a) and (b) EPC). In addition, opponent 2 requested revocation of the patent in suit on the ground of added subject-matter (Article 100(c) EPC).

IV. The decision under appeal was based on a set of claims according to the main request filed on 2 July 2015 at the oral proceedings before the opposition division, and sets of claims according to first to third auxiliary requests filed on 2 July 2015 (first auxiliary request) and 4 May 2015 (second and third auxiliary requests).

The opposition division held that the subject-matter of claims 1 of all requests contravened Article 123(2) EPC. In particular, the opposition division considered that there was no clear and unambiguous disclosure of the claimed combinations of features.

V. With the statement setting out the grounds of appeal, the appellant resubmitted the main request and first to third auxiliary requests underlying the decision under appeal and filed fourth to seventh auxiliary requests.

Claim 1 of the main request reads as follows:

"1. A process for the epoxidation of an olefin comprising the steps of:
contacting a feed comprising an olefin and oxygen with a catalyst comprising a silver component and a high-selectivity dopant comprising rhenium deposited on a fluoride-mineralized carrier, wherein the catalyst comprises a Group IA metal component comprising cesium or cesium with lithium; and
producing a product mix comprising an olefin oxide, wherein the partial pressure of olefin oxide in the product mix is greater than 40 kPa."

VI. In the reply to the statement setting out the grounds of appeal, the respondents maintained the objection of added subject-matter. In addition, respondent 2 raised an objection under Article 123(3) EPC against the fourth to seventh auxiliary requests.

VII. In a communication accompanying the summons to oral proceedings, the board indicated that it was inclined to agree with the opposition division regarding the issue of added subject-matter and with respondent 2 regarding the objection under Article 123(3) EPC.

VIII. With letter of 17 November 2017, the appellant filed amended fourth to seventh auxiliary requests.

IX. At the oral proceedings, the appellant changed the order of the auxiliary requests. The fourth auxiliary

request filed with letter of 17 November 2017 became the first auxiliary request. First to third auxiliary requests filed with the statement of grounds of appeal became second to fourth auxiliary requests. Fifth to seventh auxiliary requests filed with letter of 17 November 2017 remained unchanged. The fourth to seventh auxiliary requests filed with the statement of grounds of appeal were withdrawn.

Claim 1 of the first auxiliary request differs from claim 1 of the main request (see point V above) in that the partial pressure of olefin oxide in the product mix is "greater than 40 kPa **and at most 60 kPa**".

Claim 1 of the second auxiliary request differs from claim 1 of the main request in that the catalyst comprises additionally **"a rhenium co-promotor selected from one or more of tungsten, molybdenum, chromium, sulfur, phosphorus, boron, compounds thereof, and mixtures thereof"**.

Claim 1 of the third auxiliary request differs from claim 1 of the second auxiliary request in the addition of the feature **"wherein the concentration of carbon dioxide in the feed is at least 0.1 mole-% and lower than 2 mole-%, relative to the total feed"**.

Claim 1 of the fourth auxiliary request differs from claim 1 of the third auxiliary request in that the feed is defined as **"consisting of an olefin, oxygen, organic halide, carbon dioxide, inert gas and saturated hydrocarbons"**.

Claims 1 of fifth to seventh auxiliary requests differ from claims 1 of second to fourth auxiliary request in that the partial pressure of olefin oxide in the

product mix is "greater than 40 kPa and **at most 60 kPa**".

X. The appellant's arguments, as far as they concern the decisive issues of the present decision, can be summarised as follows:

- Oral submissions of an accompanying person

The appellant's technical expert should be allowed to make oral submissions. He would merely explain the skilled person's understanding of the examples, in particular example 3, and elucidate the real pointer provided by example 3. The respondents could have brought their own expert. The fact that they decided against it should not have an impact on the hearing of the appellant's expert.

- Admission of first and fifth to seventh auxiliary requests

These requests were filed in reply to the comments made in the board's communication accompanying the summons to oral proceedings. That was common practice. The requests were filed within the one month time limit usually set by the boards. Furthermore, the amendments made in these requests were easily foreseeable and could not have come as a surprise to the respondents.

- Amendments

Claim 1 of the main request complied with Article 123(2) EPC. The claimed subject-matter was not the result of an arbitrary threefold selection. It was clearly and unambiguously derivable from the disclosure of the application as a whole, taking into account the

state of the art and the common technical knowledge of the skilled person to whom the application was addressed. The amendments in claim 1 of the main request were related to two key features: the catalyst and the partial pressure. However, the application was not directed to new types of catalysts, but rather to their improvement in existing epoxidation reactions. From the cumulative, clear and unambiguous disclosure of preferred catalysts for the claimed epoxidation reaction (see page 7, lines 21 to 22, page 8, lines 12 to 13, page 12, lines 25 to 27 and page 3, lines 3 to 7 of the application as filed) the skilled person would derive catalysts comprising the claimed features.

Furthermore, catalysts comprising silver, rhenium and Group IA metals were known in the art and belonged to the common general knowledge of the skilled person, as was apparent from documents (17), (26) and (48) cited in the application as filed (see page 2, lines 8 to 13, and 20 to 21; page 7, lines 11 to 13). Moreover, it was apparent from document (48) (see figure 1; column 22, table 3, Experiment No. 3.6 and table 6, Experiment No. 6.1. and 6.4) that the presence of caesium considerably increased the selectivity of the epoxidation reaction. For the skilled reader, it was therefore clearly recognisable that rhenium, which was the high-selectivity dopant of choice, and Group IA metals, preferably caesium, were intended to be read together.

The passage on page 12, lines 12 to 24, of the application as originally filed clearly and unambiguously disclosed that conducting the epoxidation reaction under higher olefin oxide partial production conditions was advantageous and disclosed suitable levels. Line 19 of said passage specified the claimed value as being particularly preferred. In the

subsequent paragraph (page 12, line 25 to page 13, line 2), catalysts comprising silver and preferably rhenium on a fluoride-mineralised carrier were disclosed. Moreover, this paragraph referred to the preceding passage (see first half sentence of the paragraph) and therefore clearly tied together each and every partial pressure cited in the preceding passage and catalysts comprising silver and rhenium deposited on a fluoride-mineralised carrier. The skilled person further knew from the application as a whole and his common general knowledge that said catalysts preferably comprised a Group IA metal. Thus, only one selection, namely which Group IA metal to choose, was required. There was a clear pointer towards caesium on page 8, lines 12 to 13 of the application as originally filed. It was also noted that, the skilled person would combine preferred features as the combination of preferred features was the best way to carry out the invention.

Example 3 was a further pointer towards the claimed combination of features. The limitations in claim 1 of the main request were not generalisations of that example, but rather were features that were already disclosed in combination in the general part of the application as originally filed. In the light of the information provided in example 3, the skilled person would unambiguously recognise that conducting the epoxidation reaction at 48 kPa compared to 27 kPa was preferred, which was in keeping with the disclosure on page 12, lines 12 to 24 and, in particular, line 19. Example 3 was not a hypothetical example, as alleged by the respondents. This was apparent from document (51), which had the same priority date and the same inventors, and disclosed the results for the same example.

The arguments provided for claim 1 of the main request applied *mutatis mutandis* to claim 1 of the first auxiliary request. The amendment concerning the olefin oxide partial pressure in the first auxiliary request was supported by the disclosure on page 12, lines 19 and 20 of the application as originally filed. The main distinction compared to claim 1 of the main request was the upper limit of 60 kPa. An additional pointer with regard to the claimed partial pressure range was provided by claim 5 as originally filed. For the skilled person, the range disclosed therein and the presently claimed range were practically the same.

The arguments provided for the main and first auxiliary requests applied *mutatis mutandis* to the second to seventh auxiliary requests.

XI. The respondents' arguments, as far as they concern the decisive issues of the present decision, can be summarised as follows:

- Oral submission by an accompanying person

The appellant's technical expert should not be allowed to make oral submissions. Since example 3 contained no data, a discussion on issues, such as the right balance of production and selectivity, were bound to bring in new facts and information. The appellant had had ample opportunity to provide all necessary data and evidence. Relevant explanations could have been filed in writing as the issue whether example 3 of the application as originally filed provided a pointer towards the claimed combination had already been raised.

- Admission of first and fifth to seventh auxiliary requests

These requests were filed at a very late stage in the proceedings without justification and should not be admitted. The objection which they attempted to overcome had already been raised in the respondents' replies to the statement of grounds of appeal. Contrary to the appellant's view, it was not common practice to wait for the board's comments. Furthermore, the amendments made were not supported by claim 5, as asserted by the appellant, but taken from the description.

- Amendments

The requirement of Article 123(2) EPC was not met. It was not disputed that the individual features of claim 1 of the main request had a basis in the application as originally filed. However, the application disclosed a plethora of features, such as the silver load, dopants, co-promoters and their amounts, particle features, carrier features, etc. The selection of 1) rhenium, 2) caesium and 3) the particular olefin oxide partial pressure and their combination was arbitrary and singled out combinations which had no clear and unambiguous basis in the application as originally filed.

Page 2, lines 8 to 13 of the application as originally filed mentioned modern silver-based catalysts in combination with one or more high-selectivity dopants. In this context, no reference was made to the presence of Group IA metal or caesium. This was consistent with the teaching on page 8, line 9, which clearly indicated Group IA metals as optional. Not even the high-

selectivity dopant was a mandatory catalyst component (see page 7, line 11). The prior art documents cited in the application could not be used to read mandatory components into the catalyst, which according to the application itself were optional. Furthermore, document (48) showed that, contrary to the appellant's assertion, the presence of caesium and rhenium might be worse with regard to the achieved selectivity than the presence of caesium alone. Apparently, certain amounts of the catalyst components were required to achieve the indicated high selectivity. As was recognisable from page 2 of the application as filed, high-selectivity catalysts comprised high-selectivity dopants, such as rhenium. There was no need to import Group 1A metals, in particular caesium, from the prior art. This went against the whole teaching of the application, where the key feature was the particular carrier and its morphology (see page 3, lines 17 to 23, page 5, last paragraph, page 15, lines 8 to 10 and page 17, last paragraph). It was entirely arbitrary to select caesium as an essential catalyst component, but disregard the morphology of the carrier, which was not automatically present in fluoride-mineralised carriers.

Example 3 did not provide a pointer towards the claimed subject-matter. In this example a plethora of features (specific carrier, specific catalyst components and their amounts, reaction conditions) were linked together. The present combination in its general form, which disregards, for example, the presence of tungsten or lithium as catalyst components, or the morphology of the carrier (see page 15, lines 8 to 10), was not derivable from example 3. This example also provided no clear pointer towards the claimed olefin oxide partial pressure of greater than 40 Pa. Partial pressures of 27 kPa, 48 kPa, 55 kPa and 70 kPa were mentioned and

the initial peak selectivity expected to be achieved differed only slightly. A particular threshold was not clearly recognisable. No productivity data, on which the appellant now wished to rely, were present in example 3. In fact, no data at all were provided therein. This could not be cured by reference to document (51). Should the appellant's argument as to an increase in olefin oxide production be accepted, example 3 would clearly point to the highest pressure of 70 kPa. The selection of the presently claimed pressure was therefore completely arbitrary.

In the absence of a clear pointer towards the claimed combination, the amendments in claim 1 of the main request represented a threefold selection from the disclosure of the application as originally filed, which in line with the jurisprudence of the boards added subject-matter.

The arguments as to the non-compliance of claim 1 of the main request also applied to the auxiliary requests. The combination of a partial pressure of greater that 40 kPa in combination with a silver/ rhenium/caesium catalyst was not disclosed. The addition of further features only aggravated the appellant's position of added matter.

XII. The appellant requested that the decision under appeal be set aside and that the case be remitted to the opposition division for further prosecution on the basis of the claims of the main request filed with the statement of grounds of appeal, or, alternatively, on the basis of the claims of one of the following requests:

- first auxiliary request, filed as fourth auxiliary request with letter of 17 November 2017, or

- second to fourth auxiliary requests filed as first to third auxiliary requests with the statement of grounds of appeal, or,
- fifth to seventh auxiliary requests, filed with letter of 17 November 2017.

The appellant further requested that Mr Yeates be allowed to make oral submissions as an accompanying person.

XIII. The respondents requested that the appeal be dismissed. They also requested that first and fifth to seventh auxiliary requests be not admitted into the proceedings.

XIV. At the end of oral proceedings, the decision of the board was announced.

Reasons for the Decision

1. The appeal is admissible.

2. Oral submissions by an accompanying person

2.1 According to the decision G 4/95 of the Enlarged Board of Appeal (see OJ EPO, 1996, 412) oral submissions by a person accompanying the professional representative can only be made with the permission, and under the discretion, of the EPO. In exercising its discretion, the board should consider the following main criteria (see G 4/95, headnote and points 10 and 11 of the Reasons):

(i) The professional representative should request permission for such oral submissions to be made. The request should state the name and

qualifications of the accompanying person, and should specify the subject-matter of the proposed oral submissions.

(ii) The request should be made sufficiently in advance of the oral proceedings so that all opposing parties are able properly to prepare themselves in relation to the proposed oral submissions.

(iii) A request which is made shortly before or at the oral proceedings should in the absence of exceptional circumstances be refused, unless each opposing party agrees to the making of the oral submissions requested.

(iv) The EPO should be satisfied that oral submissions by an accompanying person are made under the continuing responsibility and control of the professional representative.

2.2 In its letter dated 17 November 2017, the appellant notified the board that it will be accompanied by Mr Yeates, one of the inventors, as technical expert and requested permission for Mr Yeates to be allowed to make technical submissions, if required, on a number of issues, such as the background of the invention, common general knowledge, the disclosure the skilled person would derive from the application as filed, the invention, the prior art and the experimental data in the patent in suit. Any such submissions would be made under the continuing responsibility and control of the professional representative.

2.3 In the board's judgement, the subject-matter of the proposed oral submissions was rather generally defined and broadly covered all potential issues of discussion without indicating particularly relevant aspects or details. Indeed, it was only at the oral proceedings that the appellant specified the particular subject-

matter of the expert's oral submission, namely the skilled person's understanding of the balance between reduction in catalyst selectivity and increase in olefin production, derivable from example 3 of the patent in suit. According to the appellant, this addressed the question as to the real pointer derivable from that example.

2.4 In decision G 4/95, the Enlarged Board pointed out that, when exercising its discretionary control in respect of a request for an accompanying person to present oral submissions, a board has to ascertain that all opposing parties are able to properly prepare themselves in relation to the proposed oral submissions and to reply to such oral submissions (G 4/95, OJ 1996, 412, point 10 of the Reasons). Therefore, the subject-matter of the proposed oral submissions must be clearly and exactly stated sufficiently in advance of the oral proceedings. This was at present not the case. Moreover, the question of a pointer towards the claimed subject-matter had already been an issue in the decision under appeal and was addressed in detail in the respondents' replies to the statement of grounds of appeal. If further evidence concerning this particular aspect was required, for example in the form of technical expertise, the appellant could and should have filed this evidence much earlier.

Criteria (i) and (ii) of decision G 4/95 were therefore not met. Since the respondents objected to Mr Yeates making oral submissions, criterion (iii) was also not complied with.

2.5 In view of the above, the board exercised its discretion referred to in G 4/95 by not permitting

Mr Yeates as an accompanying person to make oral submissions.

2.6 Although not relevant for its decision, the Board notes that in decision G 4/95, the Enlarged Board did not accept that Article 117 EPC provides a legal basis for hearing oral submissions by an accompanying person involving the presentation of facts and evidence (G 4/95, OJ 1996, 412, point 8 of the Reasons). In view of the reference to Article 117 EPC in general, it is not entirely clear whether the Enlarged Board considered that an accompanying person, in particular a technical expert, gives oral evidence by way of making oral submissions at the oral proceedings, or merely presents (legal or technical) arguments in place of the presentation of the case (pleading) by the professional representative. Should oral submissions by an accompanying person be considered and intended to be oral evidence comparable to a written statement ("affidavit") of said person, the same criteria as for the admission of late filed facts and evidence should apply. Indeed, submissions by an accompanying person involving the presentation of oral evidence will by definition relate to factual circumstances which will require that the opposing party be given an adequate and proper opportunity to present facts, evidence and arguments in reply (Article 13(2) RPBA). In the absence of exceptional circumstances and of an agreement by the opposing party, a request for hearing an accompanying person on specific facts which is filed either shortly before the date appointed for oral proceedings, or at the oral proceedings, will therefore be refused. This is in line with the conclusions in point 10 of the Reasons of G 4/95.

Main request

3. Amendments (Article 123(2) EPC)

3.1 Claim 1 of the main request is directed to an epoxidation process, which uses a catalyst comprising a silver component and a high-selectivity dopant comprising rhenium deposited on a fluoride-mineralised carrier and a Group IA metal component comprising caesium or caesium and lithium. The partial pressure of the olefin oxide in the resulting product mix is greater than 40 kPa (see point V above).

3.2 It was undisputed that each of the features of claim 1 of the main request, as such, has a basis in the application as originally filed. What has to be examined in assessing whether or not the claimed subject-matter extends beyond the content of the application as originally filed, is whether their combination is directly and unambiguously derivable, either explicitly or implicitly. In this context, "implicit disclosure" means disclosure which any person skilled in the art would objectively consider as necessary implied in the explicit content, e.g. in view of general scientific law.

3.3 The invention according to the application as originally filed relates to a process for the epoxidation of an olefin using a catalyst comprising a silver component deposited on a fluoride-mineralised carrier (see page 3, lines 17 to 22, page 5, lines 27 to 32). A multitude of additional features, which may or may not be present, is also disclosed in the general part of the description, such as a specific morphology of the carrier, the presence of a high-selectivity dopant, specific co-promotors, group IA metal

components, a reaction modifier, feed components, etc. If present, preferred embodiments are mentioned for most of these additional features.

3.4 A particular embodiment of the invention is an epoxidation process with a catalyst comprising a silver component and a high-selectivity dopant comprising one or more rhenium, molybdenum, chromium, and tungsten deposited on a fluoride-mineralised carrier wherein the partial pressure in the product mix is greater than 20 kPa (claim 4). A further embodiment is an epoxidation process with a catalyst comprising a silver component deposited on a fluoride-mineralised carrier wherein the partial pressure in the product mix is greater than 60 kPa (see claim 1). Claim 8 refers to catalysts comprising rhenium and a rhenium co-promoter selected from tungsten, molybdenum, chromium, sulfur, phosphorous, boron and mixtures thereof. Claim 9 refers to the presence of a generic Group IA metal. There is, however, no direct and unambiguous disclosure in the claims as originally filed of an epoxidation process that combines the features according to claim 1 of the main request, in particular a disclosure of the mandatory presence of caesium (optionally in combination with lithium) in a rhenium catalyst and an olefin oxide partial pressure in the product mix of greater than 40 kPa.

3.5 Nor can such a disclosure be found in the general part of the description as originally filed. As mentioned above (see point 3.2), each of the claimed features has a basis in the application as filed. Page 7, line 11 indicates that a high-selectivity dopant may be present and in line 22 rhenium is mentioned as a preferred catalyst component. On page 8, lines 9 to 13, it is indicated that a Group IA metal may be present and that

caesium or caesium in combination with lithium are preferred. The paragraph on page 12, lines 12 to 24 provides a list of olefin oxide partial pressures, including a preferred value of greater than 40 kPa. A clear and unambiguous disclosure for the combination of these features, in particular the mandatory presence of caesium and rhenium in combination with an olefin partial pressure of greater than 40 kPa, is however nowhere to be found in the general part of the description as originally filed.

3.6 The disclosure on page 12, lines 25 to 28, on which the appellant particularly relied, specifies the presence of a high-selectivity dopant and mentions rhenium as preferred. However, this passage is silent as to the mandatory presence of a Group IA metal, let alone caesium or caesium and lithium, and further requires the selection of an olefin partial pressure from the list of possibilities mentioned in the preceding paragraph (page 12, lines 12 to 24), to which this paragraph refers (see page 12, line 25 "when operating at these conditions"). At best, the disclosure on page 12 indicates certain preferences for the olefin oxide partial pressure in the product mix (for example greater than 40 kPa, at most 50 kPa, as much as 70 kPa) in combination with a catalyst comprising silver and rhenium. However, a direct pointer to the mandatory presence of caesium or other catalyst components is clearly missing. The appellant's argument that starting from the disclosure on page 12, lines 25 to 28 only one selection is required, namely which Group IA metal to choose, is therefore not accepted.

3.7 The board also does not accept the appellant's argument that the skilled person would understand from the application as originally filed that rhenium and

caesium as catalyst components were intended to be read in conjunction, in other words, that a combination of rhenium and caesium would be implicitly disclosed in the application as filed. According to the appellant, this was supported by prior art documents (17), (26) and (48) cited in the application as filed, in particular document (48) (see point X above).

3.8 The board takes the view that prior art documents cited in the background of the invention cannot be used to incorporate mandatory features into the disclosure of the application as originally filed, in which such features are clearly indicated as optional.

The explicitly cross-referenced documents (26) and (48) (see page 7, lines 11 to 13) are cited in the application as originally filed as examples of catalysts comprising a high-selectivity dopant, such as rhenium (see also page 2, lines 8 to 13). In this context, no reference to other catalyst components, let alone caesium is made. This is consistent with the disclosure of the application as originally filed, in which the presence of a Group 1A metal is clearly indicated as an optional feature (see page 8, line 9).

The board does not dispute that document (48) discloses a working example (see table 6, Experiment No. 6-4) in which a catalyst comprising rhenium and caesium achieves a particular high selectivity, as pointed out by the appellant. However, this selectivity is the result of silver, rhenium and caesium being present in specific amounts, as is apparent from Figure 1. Furthermore, document (48) relates in general to catalysts comprising silver, alkali metals and rhenium with a rhenium content and/or a carrier surface area within specific limits (see claims). Thus, the cross-

referenced document (48) cannot be used as support for catalysts comprising rhenium and Group IA metals, particularly caesium, irrespective of their amounts and or other features mandatorily disclosed in that document.

The same conclusion applies with respect to document (26), in which the catalyst, in addition to silver, alkali metals and rhenium, comprises specific rhenium co-promotors.

3.9 The board also disagrees with the appellant that example 3 of the application as originally filed provided a direct pointer to the combination of features according to claim 1 of the main request.

3.9.1 Example 3, entitled "catalyst testing" describes a (hypothetical) epoxidation reaction of ethylene with catalyst A. The preparation of catalyst A is described in the preceding examples 1 and 2, in which a fluoride-mineralised carrier with a particular lamellar or platelet-type morphology is prepared and impregnated with a silver stock solution and solutions of ammonium perrhenate, ammonium metatungstate, lithium nitrate and caesium hydroxide yielding a final catalyst composition with specific amounts of each of these metals. The epoxidation is carried out under specific conditions (amount of catalyst, gas hourly space velocity, gas flow, inlet gas pressure, feed composition, temperature). Furthermore, example 3 mentions ethylene oxide partial pressures of 27 kPa, 48 kPa, 55 kPa and 70 kPa. At these levels of ethylene oxide partial pressures, which reflect ethylene oxide production, the initial peak selectivities that are expected to be achieved are greater than 86% and as much as 92% (27 kPa), greater than 85% and as much as 91% (48 kPa),

greater than 84% and as much as 90% (55 kPa) and 84% and as much as 89% (70 kPa). No explicit results, much less results regarding industrial productivity and selectivity, are provided.

3.9.2 In the board's judgement, the person skilled in the art derives from example 3 nothing more than the bare disclosure that specific initial peak selectivities are expected to be achieved, if certain conditions are fulfilled, i.e. if a specific catalyst comprising specific amounts of silver, rhenium, tungsten, caesium and lithium is used and specific reaction parameters are observed. However, the board fails to see a direct pointer to the presently claimed combination, in particular a pointer towards selecting an olefin oxide partial pressure of greater than 40 kPa, a threshold that is not even mentioned in example 3, and caesium as the mandatory catalyst component.

3.9.3 According to the appellant, the skilled person would recognise that such a combination was a "clear winner", because compared to an olefin partial pressure of 27 kPa a partial pressure of 48 kPa was equivalent to a 78% increase in olefin oxide production. At the same time the selectivity decreased only slightly.

3.9.4 However, the appellant neglects that selectivity and olefin oxide production level are linked to the specific measures applied in example 3. No general conclusion as to the relevance of individual features can be drawn from this example. Hence, there is no direct pointer in any particular direction. However, if, as argued by the appellant, the skilled person would indeed go for a high olefin oxide production level, example 3 would direct him to use the highest partial pressure of 70 kPa, which, at least under the

conditions disclosed in that example, results in an even higher increase in olefin oxide production with only a slight decrease in the initial peak selectivity. Hence, the board concurs with the respondents that the selection of caesium and rhenium from example 3 and its combination with the particular partial pressure disclosed on page 12, line 19 is arbitrary and at variance with the requirement of a direct and unambiguous disclosure.

Furthermore, the board fails to see, how the skilled person could pick a clear winner in view of merely expected results of initial peak selectivities. Document (51), to which the appellant referred in that context, is irrelevant as its disclosure does not belong to the content of the application as originally filed.

3.10 The appellant also argued that there was a clear pointer to the presently claimed subject-matter as the claimed features were indicated as preferred in the application as originally filed. The person skilled in the art would consider combinations of preferred features as the best way to carry out the invention.

3.11 However, as explained in point 3.3 above, the application as originally filed refers to a multitude of features which may or may not be present, and, if present, to a multitude of preferred features. The fact that numerous features are identified as preferred, does not mean that any combination of those features is, per definition, also disclosed, at least not unless the application provides a clear and unambiguous basis therefor. For the aforementioned reasons this is not the case here. The board therefore concurs with the respondents that the selection of some of the preferred

features, for example rhenium and caesium as catalyst components and a partial pressure of greater than 40 kPa whilst ignoring others, for example the apparently relevant specific morphology of the fluoride-mineralised support, is arbitrary and not clearly and unambiguously derivable from the application as originally filed.

3.12 The appellant also referred to a number of decisions, which, in the board's judgement, cannot support the appellant's case.

3.12.1 In decision T 330/05, a particular combination of features was already explicitly disclosed in the application as filed. Only one additional selection was required from a list of appropriate alternative materials (see T 330/05, point 2.4 and 3.1 of the Reasons). As explained above (see in particular points 3.3. to 3.6), such a situation does not exist in the present case. A similar situation as in T 330/05 apparently existed in T 1402/07, where the combination of features had a basis in figure 1 and the features which were disclosed in the application as filed with reference to that figure.

3.12.2 With regard to T 686/99, T 16/05 and T 1799/12, the board notes that in each of these decisions the boards acknowledged that a pointer was needed in order for a combination of features to comply with of Article 123(2) EPC. As explained in points 3.9 and 3.11 above, no such pointer to the presently claimed combination is apparent to the board.

3.12.3 In decision T 667/08, the board considered it essential when deciding on added subject-matter to identify the actual teaching conveyed and the technical information

the skilled person would derive from the application as filed. This approach might lead to the identification of subject-matter that was not explicitly disclosed as such, but nevertheless clearly and unambiguously derivable (see headnote and point 4.1.4 of the Reasons). No literal disclosure was required. The board does not dispute any of these statements. However, they were made on a different factual background. For the reasons set out above, the board is convinced that in the present case, the claimed subject-matter is not clearly and unambiguously derivable from the application as originally filed, either explicitly or implicitly. Furthermore, the board concurs with the respondents that by shifting the focus from the carrier to the catalyst and the partial pressure of the olefin oxide in the reaction mix the appellant attempts to change the nature of the invention.

3.13 In view of the above consideration, the board concludes that the subject-matter according to claim 1 of the main request is the result of an undisclosed combination of features, which provides the skilled person with technical information which is not directly and unambiguously derivable from the application as originally filed. Consequently, the subject-matter of claim 1 of the main request extends beyond the application as originally filed, contrary to Article 123(2) EPC.

First auxiliary request

4. Admission into the proceedings

4.1 The first auxiliary request was filed by the appellant one month before the oral proceedings in an attempt to address an objection under Article 123(3) EPC. This

objection had already been raised by respondent 2 in its reply to the statement of grounds of appeal. In its preliminary opinion the board merely indicated that it agreed with respondent 2. Under these circumstances, the board concurs with the respondents that the first auxiliary request could and should have been filed at an earlier stage of the proceedings. The board does not share the appellant's view that it was common practice to wait for the board's comments. Such an approach is at variance with the appellant's obligation to provide all relevant facts, evidence, arguments and requests as early and as completely as possible, in order to ensure a fair treatment of the respondents, who should be informed as early as possible in what form the appellant intended to defend its patent and on which basis. Furthermore, such an approach would be inconsistent with Article 13 RPBA, according to which the admission of late filed requests is left to the discretion of the board, which is to be exercised according to the circumstances of the case.

4.2 However, the amendment carried out by the appellant, namely to replace the feature "40 to 60 kPa" by the feature "greater than 40 kPa and at most 60 kPa, thereby removing the opposed value "40 kPa", was such that it could easily have been foreseen by the respondents. Indeed, the respondents did not argue that they were surprised by the amendment or that the amendments changed the case to such an extent as to prevent them from properly responding. Their argument was that the request was filed very late in the proceedings. The Board agrees. However, the amendment did not result in a change of the case necessitating a completely new discussion. Rather, the passages of the description as originally filed that had to be considered remained the same.

4.3 In these circumstances, the board decided to exercise its discretion pursuant to Article 13 RPBA to the effect that it admitted the first auxiliary request into the proceedings.

5. Amendments

5.1 Claim 1 of the first auxiliary request differs from the main request in that an upper limit of at most 60 kPa for the partial pressure has been added. This amendment does not change the board's reasoning in point 3 above. The mandatory presence of caesium in combination with rhenium and a partial pressure greater than 40 kPa to at most 60 kPa has no basis in the application as originally filed.

5.2 Claim 5 as originally filed, on which the appellant relied in this context, discloses two options, one in which the partial pressure is greater than 30 kPa and one with a range of 40 to 60 kPa, which explicitly includes the presently excluded lower limit. To arrive at the presently claimed subject-matter, requires the selection of the second option, the exclusion of the lower limit and the further selection of rhenium and caesium, which in the absence of any pointer towards such a combination in the description of the application as originally filed is not permissible under Article 123(2) EPC. No such basis can be found in the application as filed. Page 12 (see lines 16 to 24) of the description as originally filed does not disclose ranges. Moreover, as explained in point 3.6 above, there is no pointer on page 12 which links particular partial pressure values to the mandatory presence of caesium.

5.3 Accordingly, the first auxiliary request must also be refused for non-compliance with Article 123(2) EPC.

Second to fourth auxiliary requests

6. Amendments

6.1 Claims 1 of second to fourth auxiliary requests differ from claim 1 of the main request in that additional features have been added (see point IX above). None of these amendments affects any part of the reasoning provided in point 3 above. Indeed, the parties did not submit any arguments specific to these requests.

6.2 Consequently, each of these requests must also be refused for contravening Article 123(2) EPC.

Fifth to seventh auxiliary requests

7. Admission into the proceedings

Fifth to seventh auxiliary requests were filed on the same date as the first auxiliary request and for the same reasons, namely to address an objection under Article 123(3) EPC. For the same reasons as set out in point 4.2 above, the board decided to admit them into the proceedings.

8. Amendments

8.1 Claims 1 of fifth to seventh auxiliary requests differ from claim 1 of the first auxiliary request in that additional features have been added (see point IX above). None of these amendments affects the reasoning provided in points 3 and 5 above. Consequently, each of

these requests must also be refused for non-compliance with Article 123(2) EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

M. Schalow A. Lindner

Decision electronically authenticated