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**Datasheet for the decision
of 29 January 2008**

Case Number: T 0050/03 - 3.3.07

Application Number: 99947467.9

Publication Number: 1126913

IPC: B01J 31/14

Language of the proceedings: EN

Title of invention:

Preparation of an activated catalyst using an inert gas in the absence of hydrogen

Applicant:

Albemarle Netherlands B.V., et al

Opponent:

-

Headword:

-

Relevant legal provisions:

EPC Art. 54, 69, 84, 123(2)

Relevant legal provisions (EPC 1973):

-

Keyword:

"Amendments - refused by Board of Appeal (auxiliary request 5)"

"Amendments - added subject-matter (yes: auxiliary request 6; no: auxiliary request 7)"

"Novelty (no: main and first to fourth auxiliary requests; yes - auxiliary request 7)"

"Unity of invention - yes auxiliary request 7"

Decisions cited:

T 0190/90

Catchword:

-



Case Number: T 0050/03 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 29 January 2008

Appellants:

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Decision under appeal:

Decision of the Examining Division of the
European Patent Office posted 5 September 2002
refusing European application No. 99947467.9
pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: S. Perryman
Members: B. ter Laan
F. Rousseau

Summary of Facts and Submissions

- I. The appeal lies against the decision of the Examining Division issued in writing on 5 September 2002, refusing European patent application No. 99 947 467.9.
- II. The application originating from international application PCT/EP99/07398 (published as WO-A-00/21662) and having the international filing date of 28 September 1999, was originally filed with 13 claims of which claim 1, the sole independent claim, and claim 2 read as follows:
- "1. A process for preparing an activated catalyst composition which process comprises the sequential steps of
- (a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,
- wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas either prior to the treatment with the inert gas or during the treatment with the inert gas,

(b) cooling down to ambient temperature in an inert gas optionally containing hydrogen or containing, at a temperature below 400°C, a halogen-containing gas; or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, halogen-containing gas, and, optionally, hydrogen.

2. The process of claim 1 wherein the hydrocarbon-substituted aluminium is a hydrocarbon-substituted aluminium dihalide, and wherein the entire process is carried out in the absence of a halogen-containing gas."

III. The decision under appeal related to a request in which claim 1 was as filed, and referred to the following documents:

- D1 US-A-5 654 254,
- D2 EP-A-0 409 679 and
- D3 GB-A-0 952 348.
- D4 New Oxford Dictionary of English, Clarendon Press, 1998, page 575, heading "during"

The reasons of the Examining Division can be summarized as follows:

(a) The claimed subject-matter lacked clarity regarding the extra halogenating step carried out "prior to" or "during" the treatment with the inert gas. The third person reading the claim had to speculate as to its exact meaning.

- (b) D4, cited by the applicant, presented three distinct meanings of "during" viz. (i) "throughout the course or duration of (a period of time)", (ii) "constant development throughout a period", (iii) "at a particular point in the course of". Although the applicant's desired meaning of "throughout the course or duration of" was placed first in D4, there was no indication that the other two meanings were not in current usage or in any other way "less preferred". There was also no time period specified in the claim, which could possibly point to meaning (i) in D4 being applicable.
- (c) The term "during", within its commonly accepted meanings, was *a priori* non-delimiting regarding a specific time constraint, rather any point in, or period of, time within the total treatment time above 400°C was encompassed, and this latter definition was to be used for the purpose of examination. On this basis there was a lack of novelty in view of D1, which described a process falling within the scope of claim 1.
- (d) The lack of novelty had the consequence of lack of unity as well, two distinct problems being solved for either the hydrocarbon-substituted aluminium halide or the non-halide.
- (e) Furthermore, the contents of D1 had not been correctly described.

(f) Therefore, the application did not comply with Articles 84, 54, 82 and Rule 27(1)(b)(c) EPC(1973).

IV. On 25 October 2002 a Notice of Appeal was lodged against that decision, together with payment of the prescribed fee. The statement setting out the grounds of the appeal was filed on 17 December 2002.

After a communication from the Board in preparation of the oral proceedings, in which several problems under Articles 84 and 54 EPC were addressed, the appellants, with a letter dated 8 January 2008, filed three new sets of nine claims each, as auxiliary requests one to three.

V. At the oral proceedings before the Board, held on 29 January 2008, after the Board had indicated its preliminary opinion of the claimed subject-matter, auxiliary requests 4 and 5 were filed, which were subsequently replaced by auxiliary requests 4 to 7.

Main request

Claim 1 of the main request, the only independent claim, is identical to claim 1 as filed.

For ease of assessing the following auxiliary requests, the text of their claims 1 is given with additions to the text of claim 1 as originally filed shown in bold and underlined, and deletions struck through.

First auxiliary request

Claim 1 of the first auxiliary request differs from claim 1 as originally filed only in that the "wherein clause" of feature (a) reads as follows:

".... wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas ~~either~~ prior to the treatment with the inert gas of step a) or is contacted with a mixture of a halogen-containing gas and an ~~during the treatment with the~~ inert gas during step a),..."

Second auxiliary request

Claim 1 of the second auxiliary request differs from claim 1 as originally filed only in that the "wherein clause" of feature (a) reads as follows:

"...wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas ~~either~~ prior to the treatment with the inert gas of step a) or is contacted during step a) ~~during the treatment with the~~ inert gas in the presence of a halogen-containing gas, ..."

Third auxiliary request

Claim 1 of the third auxiliary request reads as follows:

"1. A process for preparing an activated catalyst composition which process ~~comprises~~ **consists essentially of** the sequential steps of

(a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,

wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas ~~either~~ prior to the treatment with the inert gas **of step a)** or **is contacted with a mixture of a halogen-containing gas and an** ~~during the treatment with the inert gas~~ **during step a)**,

(g) cooling down to ambient temperature in an inert gas optionally containing hydrogen or containing, at a temperature below 400°C, a halogen-containing gas; or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, a halogen-containing gas, and, optionally, hydrogen."

Auxiliary request 4

Claim 1 of auxiliary request 4 reads as follows:

- "1. A process for preparing an activated catalyst composition which process comprises the sequential steps of
- (a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,
- wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas ~~either prior to the treatment with the inert gas or during the treatment with the inert gas,~~
- (b) cooling down to ambient temperature in an inert gas optionally containing hydrogen or containing, at a temperature below 400°C, a halogen-containing gas; ~~or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, a halogen-containing gas, and, optionally, hydrogen.~~"

Auxiliary request 5

Claim 1 of auxiliary request 5 reads as follows:

"1. A process for preparing an activated catalyst composition which process comprises the sequential steps of

- (a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,

wherein the isothermal time at maximum temperature is in the range of 15 minutes to 5 hours and

wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas ~~either prior to the treatment with the inert gas or during the treatment with the inert gas,~~

- (b) cooling down to ambient temperature in an inert gas optionally containing hydrogen or containing, at a temperature below 400°C, a halogen-containing gas; ~~or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, a halogen containing gas, and, optionally, hydrogen.~~ "

Auxiliary request 6

Claim 1 of auxiliary request 6 reads as follows:

"1. A process for preparing an activated catalyst composition which process comprises the sequential steps of

(a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,

~~wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas either prior to the treatment with the inert gas or during the treatment with the inert gas,~~

(b) cooling down to ambient temperature in an inert gas optionally containing hydrogen or containing, **only** at a temperature below 400°C, a halogen-containing gas; ~~or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, a halogen-containing gas, and, optionally, hydrogen~~ **wherein the hydrocarbon-substituted**

aluminium is a hydrocarbon-substituted aluminium dihalide, and wherein the entire process step a) is carried out in the absence of a halogen-containing gas."

Auxiliary request 7

Claim 1 of auxiliary request 7 is based on a combination of claims 1 and 2 as originally filed and reads as follows:

"1. A process for preparing an activated catalyst composition which process comprises the sequential steps of

(a) contacting a catalyst composition comprising a Group VIII noble metal and a hydrocarbon-substituted aluminium compound on an alumina carrier containing up to 20 wt% of other components with an inert gas in the absence of hydrogen at a temperature above 400°C,

~~wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas either prior to the treatment with the inert gas or during the treatment with the inert gas,~~

(b) cooling down to ambient temperature in an inert gas optionally containing hydrogen ~~or containing, at a temperature below 400°C, a~~

~~halogen-containing gas; or if a halogen-containing gas is present during the treatment with the inert gas, alternatively cooling down in a mixture of an inert gas, a halogen-containing gas, and, optionally, hydrogen~~ **wherein the hydrocarbon-substituted aluminium is a hydrocarbon-substituted aluminium dihalide, and wherein the entire process is carried out in the absence of a halogen-containing gas.**"

VI. The appellants' arguments submitted in writing and during the oral proceedings can be summarised as follows:

- (a) According to claim 1 as originally filed, step a) included a separate step of contacting the catalyst with a halogen-containing gas, which step was not necessary when the catalyst contained a dihalide hydrocarbon aluminium compound, but was preferred for a monohalide aluminium hydrocarbon compound and was mandatory for a non-halide hydrocarbon aluminium compound. That step could be carried out either prior to or throughout the whole treatment with the inert gas. From the description and the examples it was clear that the term "during" meant that the halogen-containing gas was present throughout the whole of the treatment with inert gas.
- (b) The treatment "prior to" referred to a treatment with a halogen-containing gas prior to the treatment at above 400°C with inert gas alone. It

involved the removal of the halogen-containing gas before the inert gas treatment started.

- (c) The term "sequential" in the preamble of the claim meant that step b) was carried out immediately after step a) without any additional step in between.
- (d) The claims should, for the purpose of Article 84 EPC, not be taken literally. If that was done, the process for which protection was sought was not correctly described. The claims should be read in the light of the description and the examples in order to understand their meaning, in accordance with Article 69 EPC. From the description as well as the examples it was clear that there was no intention to claim the embodiment of having the halogen-containing gas present both before and during the inert gas treatment, nor to add the halogen-containing gas at some later time during the inert gas treatment.
- (e) On the above interpretation, claim 1 did not include the treatment of the catalyst with a mixture of inert gas and halogen-containing gas during part of the time period that the inert gas treatment lasts, such as disclosed in D1. D1 did not satisfy the requirement of present claim 1 that - if at all - the catalyst should be contacted with a halogen-gas either prior to the treatment with the inert gas at a temperature above 400°C, or with a mixture of halogen-containing gas and inert gas throughout the period of time beginning when the catalyst was in contact

with the inert gas at a temperature above 400°C and ending when the sequential cooling step b) began.

The process disclosed in D1 required an extra step compared to the present process, the latter involving a simplification of the catalyst activation. The process according to the invention was therefore novel over D1.

- (f) The amendments in the claims of the auxiliary requests served to clarify the claimed subject-matter for a better expression of the intended meaning. They were supported by the original disclosure and rendered the claims clearer, so that the requirements of Articles 123(2) and Article 84 were fulfilled. The amendments solved the problems indicated by the Board in its communication and during the oral proceedings.

- (g) In particular, in auxiliary request 4 no halogen-containing gas was present during step a). The term "inert gas" meant that only inert gas was present, not a reactive gas containing halogen. The dependent claim that referred to the inert gas comprising at least 90% of a group of specified inert gases, only meant that other inert gases could also be present, not any other gas. Therefore, the requirements of the EPC were complied with.

VII. The appellants requested that the decision under appeal be set aside and that the case be remitted to the first instance for further prosecution on the basis of the

claims of the main request or first, second or third auxiliary requests filed on 8 January 2008, or of auxiliary requests 4, 5, 6, or 7 filed at the oral proceedings on 29 January 2008.

Reasons for the Decision

1. The appeal is admissible.

Interpreting claims

2. Article 84 EPC provides that the **claims** shall define the matter for which protection is sought, and that the claims shall be clear and concise and supported by the description. If a claim defines the invention in broad terms and as a result its subject-matter is not novel over cited prior art, then if an applicant wishes to avoid this objection of lack of novelty, it is necessary to amend the wording of the claim, assuming this can be done while meeting the requirements of Article 123(2) EPC, so that the claim covers only the construction the appellants seek to put forward to avoid the prior art. It is not enough to leave the wording of the claim unchanged, and argue by reference to Article 69 EPC and its protocol that the claim should be given a more restricted interpretation than its actual wording suggests, by reference to passages in the description which would be consistent with such restricted interpretation.

- 2.1 Article 69 EPC and its protocol were intended to assist a patentee in contending for a broader interpretation of a claim than perhaps its wording warranted, not for

cutting down the scope of the claim. Thus these provisions cannot be relied on at the application stage to argue that the ordinary broad meaning of the claim should be restricted by reference to the description.

2.2 The appellants have sought to support their position by reference to a passage appearing in point 2.4 of decision T 190/99 of 6 March 2001. To appreciate this passage it is necessary to know its context. The Board in case T 190/99 was considering whether the amended claim 1 before it was in contravention of Article 123(3) EPC compared to claim 1 as granted. It was not disputed (see point 2.1 of this decision) that three passages of claim 1 as there granted were wrong in the light of the description of the patent. Further the skilled person would know that the wording of that granted claim 1 could not always be interpreted strictly (see points 2.2.4 and 2.2.5). It is in this context that the board in decision T 190/99 stated in point 2.4:

"The board adds that the skilled person when considering a claim should rule out interpretations which are illogical or which do not make technical sense. He should try, with synthetical propensity i.e. building up rather than tearing down, to arrive at an interpretation of the claim which is technically sensible and takes into account the whole disclosure of the patent (Article 69 EPC). The patent must be construed by a mind willing to understand not a mind desirous of misunderstanding.

Thus the board finds that the appellants' objections to these three amendments under Article 123(3) EPC are unfounded."

2.3 Decision T 190/99 is thus giving guidance on patent construction and claim interpretation for the purposes of the requirement of Article 123(3) EPC that the European patent may not be amended in such a way as to extend the protection it confers, for which purpose Article 69 EPC and its protocol can be taken into account. The board in that case interpreted claim 1 as there granted broadly in the light of the description to also cover the technically correct version which appeared in the amended claim 1 actually before that board. Decision T 190/99 is thus an example of using Article 69 and its protocol to interpret a claim more broadly than its precise wording would warrant, and certainly not an example of a claim being interpreted more narrowly by reason of something appearing in the description. Accordingly this Board can find nothing in the cited passage of decision T 190/99 that supports the present appellants' contention that when considering novelty for the purpose of Article 54 EPC, the description should be used to interpret the claims more narrowly than their wording warrants.

3. Article 84 EPC also requires that the claims be clear. If the claims need interpretation, as the appellants argued, that in itself shows that they are not clear or do not correctly define the subject-matter for which protection is sought, and that they may need to be amended in order to comply with Article 84 EPC. Therefore, giving the claims, on the basis of the description, a different meaning than the actual

wording of the claims is, certainly at the examination stage, not in accordance with Article 84 EPC. Rather the claims themselves need to be read as such, giving the words used their ordinary meaning.

Main request

4. Claim 1 of the main request describes a process containing sequential steps a) (heating and contacting with an inert gas) and b) (cooling) as essential steps. Within step a) reference is made to what appears to be a third step (contacting with a halogen-containing gas) that, according to the wording of the claim, "at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound" is carried out "either prior to the treatment with the inert gas or during the treatment with the inert gas".
 - 4.1 The Board agrees with the view of the Examining Division that in the context of this claim the term "during", is *a priori* non-delimiting regarding a specific time constraint, rather any point in, or period of, time within the total treatment time above 400°C is encompassed. The normal usage of "during" allows any of these interpretations. If a speaker or writer wished to be more specific then they would add further words to ensure their intended meaning is conveyed to a listener or reader.
 - 4.2 D1 discloses a method of preparing a solid Group VIII metal- and chlorine-containing composition which comprises:

(1) impregnating a solid material comprising (i) at least one Group VIII metal selected from the group consisting of platinum, palladium and nickel and (ii) alumina as the support with at least one organo-aluminium chloride;

(2) heating the material obtained in step (1) in a substantially inert gas atmosphere at a temperature of 630°-750°C for a time period of at least about 10 minutes; and

(3) treating the material obtained in step (2) with a hydrogen chloride-containing gas at a temperature of 630°-750°C for a time period of at least about 10 minutes.

In example I several chlorinated platinum-containing alumina compositions were prepared, said to be useful as catalysts for alkane and/or cycloalkane isomerization. Catalyst A was prepared by impregnating gamma-alumina with an aqueous platinum-containing solution. The Pt-impregnated material was dried, heat-treated and then reduced by heating in hydrogen gas. Part of the reduced material was soaked in a solution of ethyl aluminium dichloride (EADC) in cyclohexane. The EADC-impregnated material was heated in a helium gas stream to about 650°C, followed by heating for 1 hour at 650°C in a HCl/He gas stream, cooling in the HCl/He gas stream to 150°C, and cooling to room temperature.

4.3 In D1, HCl is added when the inert gas treatment is under way, that is "during" the inert gas treatment in the ordinary sense of "during". Thus D1 deprives the subject-matter of claim 1 of novelty.

- 4.4 The appellants argued that the addition of HCl at that point in the inert gas treatment did not fall under the term "during" of present claim 1, because "during" had to be given the restricted sense of "throughout the whole treatment", as was supposedly clear from the description. However the broad interpretation of "during" adopted by the Board makes technical sense, as it is what D1 suggests. Nor does the Board see the description as clearly and unambiguously disclosing that the addition of HCl had necessarily to be throughout the whole treatment. The appellants' interpretation that the halogen-containing gas should - if at all - either only be present - and hence be removed - before the inert gas treatment, or be present throughout the whole of the inert gas treatment, can therefore not be read from the present formulation of step a) in claim 1.
- 4.5 As the words in the claims are to be read in their ordinary meaning (cf. point 3 above), also the possibility that a halogen-containing gas is added during the course of the inert gas treatment is included in present claim 1. In fact, the process disclosed in example 1 of D1 falls under embodiment (vi) on page 6 of the description, according to which the invention comprises e.g. the treatment with a mixture of halogen-containing gas and inert gas at a temperature above 400°C in the absence of hydrogen, and cooling down in a mixture of inert gas and halogen-containing gas.
- 4.6 D1 therefore discloses a process falling within the terms of present claim 1, the subject-matter of which, as a consequence, is not novel (Article 54 EPC).

First to third auxiliary requests

5. Claim 1 of the main request contains the passage: "... wherein ... the catalyst composition is contacted with a halogen-containing gas either prior to the treatment with the inert gas or during the treatment with the inert gas ..."
- 5.1 Claim 1 of the first auxiliary request has been reformulated to: "... wherein ... the catalyst composition is contacted with a halogen-containing gas prior to the treatment with the inert gas of step a) or is contacted with a mixture of a halogen-containing gas and an inert gas during step a) ..."
- 5.2 Claim 1 of the first auxiliary request involves the reformulation of step a) with a view to distinguish the embodiments desired to be protected from those for which no protection is sought. However, it still contains the possibility that the catalyst composition is contacted with a mixture of a halogen-containing gas and an inert gas during step a). This cannot be distinguished from the formulation of the main request according to which the catalyst composition is contacted with a halogen-containing gas during the inert gas treatment. Therefore, the amendments do not serve to avoid the objection of lack of novelty over D1, which was raised against claim 1 of the main request, so for the same reasons the first auxiliary request is not allowable (Article 54 EPC).
6. Claim 1 of the second auxiliary request contains the passage: "... wherein ... the catalyst composition is

contacted with a halogen-containing gas prior to the treatment with the inert gas of step a) or is contacted during step a) with inert gas in the presence of a halogen-containing gas ..."

Claim 1 of the third auxiliary request contains the passage: "... wherein ... the catalyst composition is contacted with a halogen-containing gas prior to the treatment with the inert gas of step a) or is contacted with a mixture of a halogen-containing gas and an inert gas during step a) ... "

The wording of claim 1 of the second and third auxiliary requests is not essentially different from that of the first auxiliary request. In particular, they still cover the possibility of contacting the catalyst composition with inert gas as well as a halogen-containing gas during step a). Therefore, the novelty objection raised against the main request and first auxiliary request also applies to the second and third auxiliary requests.

7. In view of the above, the Board concludes that none of the first, second or third auxiliary requests are allowable (Article 54 EPC).

Auxiliary request 4

8. Claim 1 of auxiliary request 4 contains the passage: "... wherein at least when the hydrocarbon-substituted aluminium compound is a non-halide hydrocarbon-substituted aluminium compound, the catalyst composition is contacted with a halogen-containing gas prior to the treatment with the inert gas ..."

The claim is based on claim 1 of the main request in which the wording regarding contacting the catalyst with a halogen-containing gas during the inert gas treatment has been deleted. The wording in step b) that referred to the wording deleted in step a) has also been removed.

8.1 According to the appellants, this claim 1 now defined a process in which, if the catalyst is contacted with a halogen-containing gas, the contacting with as well as the removal of the halogen-containing gas is done prior to the treatment with the inert gas. In step b) a halogen-containing gas could only be present below a temperature of 400°C.

8.1.1 However, the present formulation of claim 1 does not exclude the presence of a halogen-containing gas during step a) for a non-halide hydrocarbon-substituted aluminium compound. The verb "contact" means "to get in touch or communication with" (online Compact Oxford English Dictionary www.askoxford.com). It says nothing about what happens after the contact has been established. Without any further information, the contact may continue during part or all of the subsequent steps. One cannot therefore conclude, on the basis of the use of that word, that the halogen-containing gas is present only before the inert gas is introduced.

8.1.2 More importantly, in view of the disclosure of D1, the claim is silent about a halogen-containing gas treatment in case of halide-containing hydrocarbon-substituted aluminium compounds, so that it is

completely open in that respect and it includes all possibilities of not contacting the catalyst composition with a halogen-containing gas at all, or of contacting it prior to or during the inert gas treatment.

8.1.3 Therefore, the objection regarding novelty raised above (cf. points 3 to 7) is still valid. In addition, in view of claim 5 according to which the inert gas may contain up to 10 vol.% of other gases, claim 1 cannot be interpreted so as to exclude the presence of a halogen-containing gas during step a). It is noted that also in the presence of other gases, there is still "contact with" an inert gas. Hence there is no support in the claims for the appellants' explanation that the term "inert" would mean that only 100% inert gases may be present.

8.2 Regarding step b), the appellants stated that cooling begins as soon as the temperature is reduced to below that of the inert gas treatment. However, that explanation contradicts the information in step a), confirmed by the appellants, that the inert gas treatment starts at 400°C and therefore takes place at or above that temperature. There is no indication in the claims that the inert gas treatment might begin or end at a temperature higher than 400°C. Therefore, it may be concluded that the inert gas treatment continues as long as the temperature remains at or above 400°C and, as a consequence, step b) begins as soon as the temperature falls below 400°C. Step b), according to its present wording, allows for the presence of a halogen-containing gas below 400°C, so that it cannot

be said that no halogen-containing gas may be present in step b).

- 8.3 As the wording of claim 1 is therefore appropriate neither to exclude the presence of a halogen-containing gas in step a) (cf. points 8.1.1 and 8.1.3), nor in step b) (cf. point 8.2), the claimed subject-matter still encompasses the process disclosed in D1, so that the subject-matter of the fourth auxiliary request is not novel (Article 54 EPC).

Auxiliary request 5

9. Auxiliary request 5 was filed at a very late stage of the oral proceedings, in fact after the Chairman had informed the appellants that no further requests would be accepted anymore. The Board nevertheless allowed some amendments to existing requests. However the fifth auxiliary request goes beyond a mere amendment: the feature "wherein the isothermal time at maximum temperature is in the range of 15 minutes to 5 hours", which was taken from the description and had not previously played a role, is added to claim 1 of auxiliary request 4. As it is not clear what exactly is meant by the expression "the isothermal time at maximum temperature", claim 1 of auxiliary request 5 is unclear and does not meet the requirements of Article 84 EPC. It is thus not allowed into the proceedings.

Auxiliary request 6

10. In claim 1 of auxiliary request 6, the presence of a halogen-containing gas in step a) has been excluded. A

halogen-containing gas may however still be present in step b) at temperatures below 400°C.

There is no basis in the application as originally filed for the absence of a halogen-containing gas in step a) only. According to the original application, the presence of a halogen-containing gas during step b) is only allowed in case a halogen-containing gas is present prior to or during the inert gas treatment in step a) (cf. page 8, line 29 to page 9, line 9). There is no disclosure in the original application of treating a catalyst containing a hydrocarbon aluminium dihalide only with an inert gas in step a) and having a halogen-containing gas present in step b). The requirements of Article 123(2) EPC are not complied with by claim 1, and so the auxiliary request must be refused.

Auxiliary request 7

Amendments

11. In claim 1 of auxiliary request 7 the catalyst is limited to one containing a hydrocarbon aluminium dihalide and any presence of a halogen-containing gas during the entire process has been excluded. Claim 1 of auxiliary request 7 is based on a combination of claims 1 and 2 as originally filed. Article 123(2) EPC is hence complied with.

Unity of invention

12. As the claims of this request are now restricted to a catalyst containing a hydrocarbon aluminium dihalide,

the objection of lack of unity raised by the Examining Division under Article 82 EPC, because it considered that there was no unity of invention between the subject-matter concerning hydrocarbon-substituted Aluminium halides on the one hand, and non-halide Aluminium hydrocarbon-substituted compounds on the other hand, is avoided. The request thus meets the requirements of Article 82 EPC.

Novelty

13. Claim 1 concerns the treatment of a catalyst containing a hydrocarbon aluminium dihalide with an inert gas at above 400°C and cooling down in the absence of hydrogen and halogen-containing gas. Although claim 5 still contains the possible presence of other gases than the inert gas, in view of the clear statement regarding the absence of halogen-containing gas in claim 1 it is evident that the other gas cannot be a halogen-containing gas. Such a process has not been disclosed in any of the documents cited in the present case. In both D1 and D2 the catalyst is activated in the presence of HCl, and in D3 the catalyst is heated to a temperature below 400°C in the presence of HCl.

13.1 Therefore, claim 1 of auxiliary request 7 is novel over documents D1, D2 and D3. Claims 2 to 6 concern preferred embodiments of claim 1 and are therefore novel as well. The objection of lack of novelty under Article 54 EPC which caused the application to be refused thus does not apply to this request.

Inventive step

14. In the decision to refuse the application, the examining division has not decided on the issue of inventive step. In order to give the appellants the opportunity to be heard by two instances if necessary, the board remits the case to the first instance for further prosecution. Any amendments necessary to the description can best be done once this issue is decided.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the first instance for further prosecution on the basis of claims 1 to 6 of auxiliary request 7 filed at the oral proceedings on 29 January 2008.

Registrar

Chairman

C. Eickhoff

S. Perryman