

Internal distribution code:

- (A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

**Datasheet for the decision
of 8 September 2015**

Case Number: T 0856/13 - 3.3.03
Application Number: 04758228.3
Publication Number: 1613670
IPC: C08F10/00, C08F4/651, C08F4/649
Language of the proceedings: EN

Title of invention:

OLEFIN POLYMERISATION CATALYST CONTAINING A CYCLOALKANE
DICARBOXYLATE AS ELECTRON DONOR

Applicant:

Ineos Technologies USA LLC

Headword:

Relevant legal provisions:

EPC Art. 84, 123(2), 111(1)
RPBA Art. 13(1), 13(3)

Keyword:

Late filed requests: admitted
Amendments -
allowable: no (main request), yes (auxiliary request)
Claims - clarity: yes (auxiliary request)
Remittal for remaining issues

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 0856/13 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 8 September 2015

Appellant: Ineos Technologies USA LLC
(Applicant) 3030 Warrenville Road, Suite 650
Lisle, Illinois 60532 (US)

Representative: Smith, Julian Philip Howard
Mathisen & Macara LLP
Communications House
South Street
Staines-upon-Thames, Middx TW18 4PR (GB)

Decision under appeal: **Decision of the Examining Division of the European Patent Office posted on 15 November 2012 refusing European patent application No. 04758228.3 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman F. Rousseau
Members: O. Dury
C. Brandt

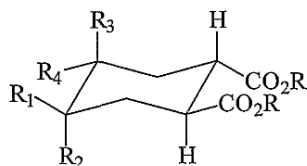
Summary of Facts and Submissions

I. The appeal by the applicant (appellant) lies against the decision of the examining division posted on 15 November 2012 refusing European patent application N° 04 758 228.3 filed as international application PCT/US2004/008888 and published as WO 2004/087771.

II. Claims 1, 3-7, 9 and 13 of the application as filed read as follow:

"1. A solid, hydrocarbon-insoluble, catalyst component useful in polymerizing olefins containing magnesium, titanium, and halogen further containing an internal electron donor comprising a substituted hydrocarbonyl 4-8 membered cycloalkane dicarboxylate wherein the substituents are positioned on the cycloalkane to place the dicarboxylate groups into conformational proximity positions and wherein the substituents contain 1 to 20 carbon atoms and may be joined to the cycloalkane structure to form a bicyclo structure."

"3. The catalyst component of claim 1 wherein the internal electron donor is

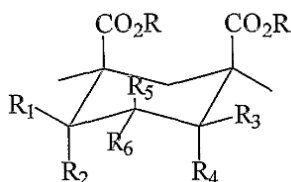


wherein R is selected from lower alkyl groups containing 1 to 20 carbon atoms, R₁ and R₄ are selected from bulky groups sufficient to place the carboxyl groups into conformational proximity positions, and R₂

and R₄ are selected from hydrogen and methyl."

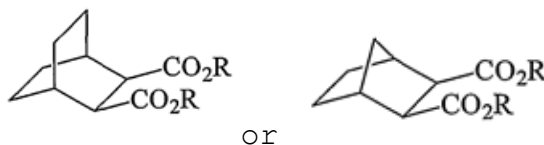
"4. The catalyst component of claim 1 wherein the internal electron donor is trans-di-n-butyl-4,5-di-isopropylcyclohexane trans-dicarboxylate or trans-diisopropyl 4,5-di-t-butylcyclohexane trans-dicarboxylate."

"5. The catalyst component of claim 1 wherein the internal electron donor is



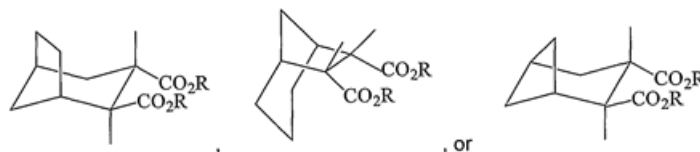
wherein R is selected from lower alkyl groups containing 1 to 20 carbon atoms, R-i, R₃, and R₆ are selected from bulky groups sufficient to place the carboxyl groups into conformational proximity positions, and R₂, R₄, and R₅ are selected from hydrogen and methyl."

"6. The catalyst component of claim 1 wherein the internal electron donor is



wherein R is selected from lower alkyl groups containing 1 to 20 carbon atoms."

"7. The catalyst component of claim 1 wherein the internal electron donor is



wherein R is selected from lower alkyl groups containing 1 to 20 carbon atoms."

"9. The catalyst component of claim 1 wherein R contains 3 to 8 carbon atoms."

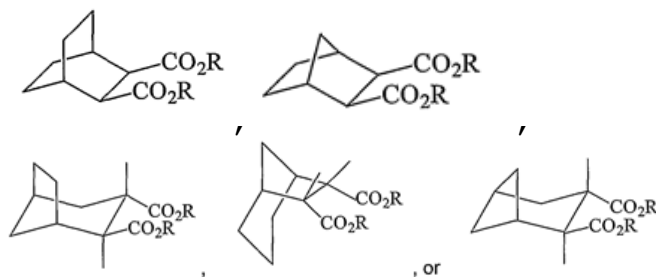
"13. The catalyst component of claim 1 at least one of isopropyl, isobutyl, t-butyl, or s-butyl."

- III. The decision under appeal was based on a single request. The examining division held that the subject-matter of claim 1 of that request did not meet the requirements of Art. 123(2) EPC, Art. 83 EPC and Art. 84 EPC. In particular, it was held that the expression "into conformational proximity positions" used in claim 1 in the same context as in original claim 1 lacked clarity and led to insufficiency of disclosure.
- IV. The appellant filed together with the statement of grounds of appeal a new set of claims and an amended description as single request.
- V. In a communication following the summons to oral proceedings, the Board identified relevant issues to be addressed during the oral proceedings.
- VI. With a letter dated 11 August 2015, the appellant filed a main request and an auxiliary request to replace the

request filed with the statement of grounds of appeal, together with arguments in favour of those new requests. Also, the amended description was withdrawn.

The claims of the main request (three claims) read as follows (in claim 1, additions as compared to claim 1 as filed are indicated in **bold**, deletions in ~~strikethrough~~):

"1. A solid, hydrocarbon-insoluble, catalyst component useful in polymerizing olefins containing magnesium, titanium, and halogen, further containing an internal electron donor ~~comprising a substituted hydrocarbyl 4-8 membered cycloalkane dicarboxylate wherein the substituents are positioned on the cycloalkane to place the dicarboxylate groups into conformational proximity positions and wherein the substitutes contain 1 to 20 carbon atoms and may be joined to the cycloalkane structure to form a bicyclo structure~~ **which is**



wherein R is selected from lower alkyl groups containing 1 to 20 carbon atoms."

"2. The catalyst component of claim 1, wherein said lower alkyl groups of the internal electron donor contain up to 8 carbon atoms".

"3. The catalyst component of claim 1, wherein said lower alkyl groups of the internal electron donor are

selected from isopropyl, isobutyl, t-butyl, or s-butyl."

The auxiliary request (one claim) consisted of claim 1 of the main request.

- VII. After having been informed about the Board's opinion regarding those two requests during a telephone conversation which took place on 7 September 2015, the appellant indicated that he would not attend the oral proceedings scheduled on 8 September 2015.
- VIII. The oral proceedings were held in the absence of the appellant pursuant to Rule 115(2) EPC.
- IX. The appellant's arguments, as far as relevant for the present decision, may be summarized as follows:

Admissibility (both requests)

- a) The main and auxiliary requests addressed the examining division's objections pursuant to Art. 123(2) EPC, Art. 84 EPC and Art. 83 EPC and represented a limitation of the claims on which the examining division's decision was based. Therefore, they should be admitted to the proceedings.

Main request

Art. 123(2) EPC

- b) Claim 1 was based on a combination of original claims 1, 6 and 7. The expression "wherein the substituents (...) into conformational positions" was redundant with the disclosure of the five

structures having the dicarboxylate groups in a fixed conformation. Therefore, its deletion was allowable.

- c) The features defined in claims 2 and 3 were based on page 4, lines 1-8 and on claims 9 and 13 of the application as originally filed. In particular, the skilled person would understand that the passage on page 4 referred to the alkyl groups R of the structures disclosed on pages 5-8 of the application as filed.

Art. 84 EPC

- d) The conformation of the carboxylate groups of the bicyclo structures defined in claim 1 was fixed. Therefore, there was no longer any ambiguity about the boundaries of the claims.

Art. 83 EPC

- e) Since all the compounds defined in claim 1 automatically had their carboxylate groups in conformational proximity, the examining division's objections based on the term "conformational proximity" no longer applied.

Auxiliary request

- f) Claim 1 of the auxiliary request was identical to claim 1 of the main request.

Remittal

- g) The appellant requested that, should either the main request or the auxiliary request be

considered to satisfy the requirements of Art. 83, 84 and 123(2) EPC, the case be remitted to the examining division to consider novelty and inventive step.

- X. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request, or alternatively, on the basis of the auxiliary request, both requests filed with the letter dated 11 August 2015.

- XI. The Board announced its decision at the end of the oral proceedings.

Reasons for the Decision

- 1. Admissibility (both requests)

The operative main and auxiliary requests are considered to be a *bona fide* reply to the objections indicated in the contested decision or identified in the Board's communication. In view of the amendments carried out and considering the arguments brought forward in the appellant's letter of 11 August 2015, the Board, exercising its discretion, decided to admit both the main and the auxiliary requests to the proceedings (Art. 13(1)(3) RPBA).

Main Request

2. Art. 123(2) EPC

2.1 Claim 1 corresponds to original claim 1 with the following amendments:

a) addition of the requirement that the internal electron donor is a compound according to one of five specific chemical structures;

b) deletion of the expression "comprising a substituted ... bicyclo structure".

2.1.1 Amendment a) is based on original claims 6 (first two structures) and 7 (last three structures), which were dependent on claim 1.

2.1.2 Regarding amendment b), the Board is satisfied that, as argued by the appellant, the conformation of the dicarboxylate groups on the cycloalkane making part of a bicyclo structure according to any of the five structures of claim 1 is constrained by chemical bonds. Indeed, due to the bicyclo structure of those compounds, bond rotation or ring conformation change is restricted and a particular conformation is preferred i.e. the carboxylate groups are "in conformational proximity positions" in the sense of the application as filed (page 4, lines 17-21). In that respect, unclear as the expression "wherein the substituents are positioned on the cycloalkane to place the dicarboxylate groups into conformational proximity positions" indicated in original claim 1 may be, it is derivable from the application as filed that the five structures now specified in claim 1 are disclosed to fulfil said requirement (page 4, lines 12 to 19 and

page 6, lines 10 to 13). Therefore, in respect of original claims 6 and 7, the deletion of the above mentioned expression present in original claim 1 does not lead to added matter.

2.1.3 For those reasons, the subject-matter of claim 1 corresponds to the juxtaposition of the subject-matter defined in original claims 6 and 7 and fulfills the requirements of Art. 123(2) EPC.

2.2 In claim 2, dependent on claim 1, the five structures are further defined in that the lower alkyl groups R must contain "up to 8 carbon atoms".

2.2.1 The appellant argued that a basis for that amendment could be found on page 4, lines 1-8 of the application as filed, which reads as follows:

"Typical electron donor compounds of this invention are alkyl esters of substituted cycloalkane dicarboxylic acids, in which the alkyls contain 1 to about 20 carbon atoms. Such alkyls typically contain at least two and preferably at least three carbon atoms. Suitable alkyls also may contain up to 12 and, typically, up to 8 carbon atoms. Other suitable alkyls contain from 4 to 6 carbon atoms. Typical examples of alkyl esters useful in this invention include ethyl, propyl, isopropyl, n-butyl, isobutyl, s-butyl, t-butyl, n-pentyl, isopentyl, hexyl, 2-ethylhexyl, and octyl, esters. Especially suitable alkyls are isopropyl, n-butyl, and s-butyl."

However, said passage is not explicitly directed to electron donor having a bicyclo structures as now being specified in the operative claims but only makes reference to those being "alkyl esters of substituted

cycloalkane dicarboxylic acids" (see first sentence of the passage of page 4 cited above).

In that respect, according to the application as filed, the electron donor compound is an alkyl ester of a cycloalkane dicarboxylic acids wherein "the conformational structure of the cycloalkane is constrained" either by "substituent groups" or by "chemical bonds to make a bicyclo structure" (page 4, lines 17-22).

The substituent groups (first embodiment) are e.g. described on page 4, lines 22-32, page 5, line 1 to page 6, line 9, page 7, lines 10-27, and page 8, lines 1-2 and 5-20 of the application as filed. As explained on page 4, lines 20-22, the ring conformation change (or bond rotation) is here restricted by the presence of "sufficiently bulky substituents" borne by those compounds.

The bicyclo compounds (second embodiment) are for instance described on page 6, lines 10-13, page 7, lines 27-30, page 8, line 4 and page 9, lines 1-10. In that respect, the ring conformation change is said to be restricted by the presence of a chemical bond making up the bicyclo compound.

Those two embodiments are further reflected in the original set of claims: while claims 1-2 encompass both embodiments due to the expression "and may be joined ... to form a bicyclo structure" indicated at the end of claim 1, claims 3-5 and 6-7 are directed to each of those embodiments separately.

Therefore, in the Board's view, the application as filed provides two distinct embodiments for the

selection of the electron donor compound. However, the passage on page 4, lines 1-8 of the application as filed relied upon by the appellant is only related to the substituted cycloalkanes i.e. the first embodiment. There is no indication in the application as filed that the same preferences regarding the nature of the alkyl groups of the substituted cycloalkanes (first embodiment) given in said passage also apply to the bicyclo compounds (second embodiment) i.e. to the structures now being specified in operative claim 1. Nor is there an indication of any preference regarding the definition of R for said second embodiment.

- 2.2.2 Claim 9 as filed, which was mentioned by the appellant as providing a support for the amendment of claim 2, is directed to a "catalyst component of claim 1 wherein R contains 3 to 8 carbon atoms".

The range of "3 to 8" of said claim 9 does not constitute a valid support for the amendment to a broader range of "up to 8", as now being indicated in claim 2. Besides, considering that original claim 1 does not make reference to any "R" groups, nor to the specific bicyclo structures of operative claim 2 (by reference to claim 1), it cannot be concluded that the subject-matter of claim 2 is directly and unambiguously disclosed in the application as filed, in particular not in claim 9 thereof.

- 2.2.3 For those reasons, the appellant's arguments are rejected.

- 2.3 Claim 3, dependent on claim 1, further defines the nature of the group R.

For the same reasons as for claim 2, the passage on

page 4, lines 1-8 of the application as filed does not provide a valid basis for the amendment made as that passage does not concern bicyclo compounds.

Also, as explained above in respect of operative claim 2 and original claim 9, the appellant's argument according to which original claim 13 provides a basis for the amendment made in claim 3 is rejected.

- 2.4 For those reasons, the subject-matter of claims 2 and 3 does not satisfy the requirements of Art. 123(2) EPC and the main request is refused.

Auxiliary request

3. Art. 123(2) EPC

Claim 1 of the auxiliary request is identical to claim 1 of the main request. Therefore, it fulfils the requirements of Art. 123(2) EPC (see section 2.1).

4. Art. 84 EPC

All the objections raised either by the examining division or the Board were overcome by precisely defining the structure of the electron donor. Therefore, the Board is satisfied that claim 1 fulfils the requirements of Art. 84 EPC.

5. Art. 83 EPC

The objection pursuant to Art. 83 EPC raised by the first instance does not apply to claim 1 of the auxiliary request.

6. Remittal

In view of the above, the Board considers it appropriate, in the present circumstances of the case, to remit the case to the first instance for deciding on the remaining issues (Art. 111(1) EPC).

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 the auxiliary request filed with letter of 11 August 2015.

The Registrar:

The Chairman:



B. ter Heijden

F. Rousseau

Decision electronically authenticated