

Internal distribution code:

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

**Datasheet for the decision
of 25 September 2014**

Case Number: T 0837/10 - 3.3.03

Application Number: 01201693.7

Publication Number: 1134238

IPC: C08F10/02, C08F4/642

Language of the proceedings: EN

Title of invention:

Copolymers

Patent Proprietor:

Ineos Sales (UK) Limited

Opponents:

Total Research & Technology Feluy
THE DOW CHEMICAL COMPANY

Headword:

Relevant legal provisions:

EPC Art. 76(1)
RPBA Art. 13(1)

Keyword:

Divisional application - subject-
matter extends beyond content of earlier application
(main request: yes)
Late-filed auxiliary requests - procedural economy

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 0837/10 - 3.3.03

**D E C I S I O N
of Technical Board of Appeal 3.3.03
of 25 September 2014**

Appellant:
(Patent Proprietor)

Ineos Sales (UK) Limited
Hawkslease Chapel Lane
Lyndhurst
Hampshire SO43 7FG (GB)

Representative:

Hawkins, David George
Mathisen & Macara LLP
Communications House
South Street
Staines-upon-Thames
Middlesex, TW18 4PR (GB)

Respondent :
(Opponent 1)

Total Research & Technology Feluy
Zone Industrielle C
7181 Seneffe (BE)

Representative:

Leyder, Francis
Total Research & Technology Feluy
Zone Industrielle C
7181 Seneffe (BE)

Respondent:
(Opponent 2)

THE DOW CHEMICAL COMPANY
2030 Dow Center
Midland, Michigan 48674 (US)

Representative:

Marsman, Hermanus Antonius M.
V.O.
Johan de Wittlaan 7
2517 JR Den Haag (NL)

Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 17 February
2010 revoking European patent No. 1134238
pursuant to Article 101(3) (b) EPC.**

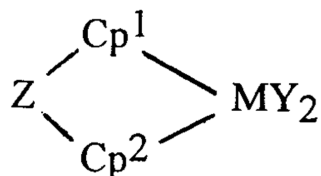
Composition of the Board:

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

Summary of Facts and Submissions

- I. The appeal by the patent proprietor lies against the decision of the opposition division posted on 17 February 2010 revoking European patent No. EP 1 134 238 in respect of European patent application 01 201 693.7, filed as a divisional application of the earlier (hereinafter parent) application 95 302 124.3.
- II. Two notices of opposition to the patent had been filed, requesting revocation of the patent in its entirety on the grounds of Art. 100(a) EPC (lack of novelty and lack of inventive step), Art. 100(b) EPC and Art. 100(c) EPC.
- III. Claims 1, 10 and 12 of the parent application as filed read as follows:

"1. A process for producing polyolefins which have at least 0.01 long chain branches/1000 carbon atoms along the polymer backbone, (as measured by flow activation) and a breadth of molecular weight distribution (M_w/M_n) greater than 2.5 said process comprising polymerising an olefin monomer or monomers in the presence of a catalyst comprising a metallocene complex having the general formula:



wherein

Cp^1 , Cp^2 are independently a substituted or unsubstituted indenyl or hydrogenated indenyl group,

Y is a univalent anionic ligand,
M is zirconium, titanium or hafnium, and
Z is a bridging group comprising an alkylene group having 1 to 20 carbon atoms or a dialkyl silyl- or germanyl- group, or alkyl phosphine or amine radical."

"10. A polyolefin characterised in having: (a) a flow activation energy (E_a) in the range $30 \leq E_a \leq 500$ kJ/mol and
(b) a degree of long chain branching (LCB/1000C) as measured by GPC/solution viscometry satisfies the equation: $LCB \leq 0.03 E_a - 1.5$."

"12. A polyolefin according to claim 10 wherein the polyolefin is a copolymer of ethylene and an alpha-olefin having from 3 to 20 C atoms characterised in having
(a) a flow activation energy (E_a) in the range $50 \leq E_a \leq 200$ kJ/mol and
(b) a degree of long chain branching (LCB/1000C) as measured by GPC/solution viscometry in the range $LCB \leq 0.03 E_a - 1.5$ to $LCB \geq 0.2$."

IV. Claim 1 of the granted patent read as follows (as far as they are relevant for the present decision, additions as compared to claim 12 of the parent application as filed are indicated in **bold**, deletions in ~~strikethrough~~):

"1. A copolymer of ethylene and an alpha-olefin having from 3 to 20 carbon atoms characterised in having
(a) a flow activation energy (E_a) in the range $50 \leq E_a \leq 200$ kJ/mol, ~~and~~
(b) a degree of long chain branching (LCB/1000C) as

measured by GPC/solution viscometry in the range
LCB \leq 0.03 E_a - 1.5 **and** ~~\leq~~ LCB \geq **0.25** ~~0.20~~, **and**
(c) a breadth of molecular weight distribution (Mw/Mn)
greater than 2.5."

- V. In the decision under appeal, which was based on the patent as granted as sole request, the opposition division considered among others that granted claim 1 extended beyond the content of the parent application as originally filed.
- VI. The patent proprietor lodged an appeal against this decision. In the statement setting out the grounds for the appeal, the appellant requested that the patent be maintained in amended form according to a main request filed therewith.
- VII. By letters of 18 October 2010 and 28 October 2010, respondent 01 (opponent 01) and respondent 02 (opponent 02), respectively, filed comments on the statement of grounds of appeal and requested that the appeal be dismissed.
- VIII. In the communication issued on 28 March 2014 accompanying the summons to oral proceedings, the Board identified relevant issues to be addressed during the oral proceedings.
- IX. With letter of 25 July 2014, the appellant submitted a new main request and two auxiliary requests in replacement of the previous main request.

Claim 1 of the main request read as follows (as far as they are relevant for the present decision, additions as compared to claim 12 of the parent application as filed are indicated in **bold**, deletions in

~~strikethrough~~):

"1. A copolymer of ethylene and an alpha-olefin having from 3 to 20 carbon atoms characterised in having
(a) a flow activation energy (E_a) in the range
 $50 \leq E_a \leq 200$ kJ/mol, ~~and~~
(b) a degree of long chain branching (LCB/1000C) as measured by GPC/solution viscometry in the range
 $LCB \leq 0.03 E_a - 1.5$ ~~to~~ **and $LCB \geq 0.20$ LCB LCB in the range 0.25 - 0.49, and**
(c) a breadth of molecular weight distribution (M_w/M_n) greater than 2.5."

Claim 1 of auxiliary request 1 corresponded to claim 1 of the main request, with the highest LCB value specified amended from **0.49** to **0.47** in feature (b).

Claim 1 of auxiliary request 2 corresponded to claim 1 of auxiliary request 1, with the expression "**greater than 2.5**" amended to "**in the range 3.7 to 5.9**" in feature (c).

- X. Oral proceedings were held on 25 September 2014 in the presence of all parties.
- XI. The appellant's arguments as relevant for the decision may be summarised as follows:

Main request

- a) Starting from claim 12 of the parent application as filed, the basis for the amendments to feature (b) of claim 1 was to be found in examples 3, 6, 8 and 10 as reported in Table 4 of the parent application as filed. The amendment of feature (c) was disclosed on page 18, lines 1-4, and on

page 2, lines 8-13, of said application. According to the data reported in Tables 1 and 4 of the parent application, those four examples satisfied the requirements specified in each of features (a), (b) and (c) according to claim 1 of the main request. Considering that said examples 3, 6, 8 and 10 were all performed using the same type of catalyst and process conditions (see Table 1), the skilled person would understand that the LCB and Mw/Mn parameters of those copolymers would equally apply to any other copolymer falling under the scope of claim 1. It was therefore not necessary to limit claim 1 in respect of either the catalyst or the process conditions.

- b) Although it was not disputed that the parent application as filed did not disclose any information regarding Mw/Mn for example 10, it was derivable from the application as a whole, in particular from the information provided in the examples and in Table 1, that the requirement according to feature (c) of claim 1 would necessarily be met.
- c) Therefore, the main request satisfied the requirements of Art. 76(1) EPC.

Auxiliary requests 1 and 2

- d) The amendments were made in reply to objections raised by the respondents and were all based on features originally disclosed in respect of examples 3, 6 and 8 of the parent application as filed, which were all illustrative of the subject-matter being claimed. The amendments made were easy to understand and did not complicate the

case. Considering further that both requests had been filed well in advance of the oral proceedings and within the deadline set in the board's communication, they should be admitted into the proceedings.

- e) The same passages of the parent application as filed as identified above for the main request formed the basis for the subject-matter of claim 1 of each of auxiliary requests 1 and 2. Therefore, each of auxiliary requests 1 and 2 satisfied the requirements of Art. 76(1) EPC.

XII. The respondents' arguments as relevant for the decision may be summarised as follows:

Main request

- a) Considering that the examples of the parent application as filed had been performed under specific working conditions, which were not reflected in claim 1, it was not allowable to generalise the values extracted from the specific examples relied upon by the appellant in order to create the new range of "0.25 to 0.49" specified in feature (b) of claim 1. That conclusion was confirmed by the passage on page 14, lines 4-9, of the parent application as filed, according to which both the LCB and Mw/Mn parameters were affected by the working conditions.
- b) The parent application as filed did not disclose any support for a general upper limit of 0.49 for LCB. Example 10, which did indeed disclose an LCB value as determined by GC/solution viscometry of 0.49, did not disclose an Mw/Mn value. Since it

could not be ascertained that it satisfied feature (c) of claim 1, example 10 did not provide valid support for the amendment made in feature (b).

- c) The lower limit of 0.25 for LCB was not disclosed in the parent application as filed in a general manner. Only a value of 0.2 could be found, e.g. in claim 12 or on page 19, line 12, but without any limitation in terms of Mw/Mn values.
- d) The value of at least 2.5 for Mw/Mn mentioned in feature (c) of claim 1 was disclosed in the parent application as filed only in the context of a process using a specific catalyst, which was not reflected by claim 1 of the main request.
- e) Since examples 8 and 10 were further not disclosed as critical examples, the choice of their values as lower and upper limits for the range of LCB was not supported in the parent application as filed.
- f) Whether or not the examples relied upon by the appellant were within the scope of claim 1 of the main request was not relevant for the assessment of Art. 76(1) EPC.
- g) Therefore, the requirements of Art. 76(1) EPC were not met.

Auxiliary requests 1 and 2

- h) Both requests were late-filed. The objections raised against the main request pursuant to Art. 76(1) EPC had already been made in the first reply to the statement of grounds of appeal in 2010. There was no valid reason justifying the

late filing of those requests. Nor had the appellant provided any. Furthermore, the amendments made could not remove the objections raised against the main request, as claim 1 of each of auxiliary requests 1 and 2 contained amendments extracted from examples 3, 6 and 8 of the parent application as filed. For these reasons, auxiliary requests 1 and 2 should not be admitted into the proceedings.

XIII. The appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of the main request or alternatively on the basis of either of the first and second auxiliary requests, all requests submitted with letter of 25 July 2014.

Respondents 01 and 02 both requested that the appeal be dismissed.

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

Reasons for the Decision

1. The appeal is admissible.

Main request

2. Considering that

- the patent in suit is based on a European patent application which is a divisional application of an earlier European patent application, and that

- the opposition division considered that the patent in suit extended beyond the content of the parent application as filed,

the first issue to be examined is whether or not the subject-matter of the main request meets the requirement of Art. 76(1) EPC. In that respect, it has to be assessed whether or not the subject-matter claimed is directly and unambiguously derivable from the parent application as filed.

3. Claim 1 of the main request differs from either claim 12 or the passage on page 19, lines 8-12, of the parent application as filed in particular in that:

- in feature (b), the range "LCB \geq 0.2" (LCB being measured by GPC/solution viscometry) has been modified to "LCB in the range of 0.25 - 0.49";
- feature (c), defining an Mw/Mn ratio greater than 2.5, has been added.

3.1 The appellant did not contest that the combination of all the features specified in claim 1 was not explicitly disclosed in the parent application as filed, but considered that it was derivable from the combination of original claim 12 with an "LCB in the range of 0.25 - 0.49" and with the addition of feature (c), those amendments being derivable, according to the appellant, from the data specified for examples 3, 6, 8 and 10 in Table 4 of the parent application as filed and from the passages on page 2, lines 8-26, or on page 18, lines 1-4, of the parent application as filed, respectively.

3.2 The parent application as filed does not disclose in a general manner the limitation regarding an upper limit of 0.49 for LCB determined by GPC/solution viscometry as defined in feature (b) of claim 1. There is also no

hint in the parent application as filed that an upper limit for LCB, below that implicitly imposed by the relationship between LCB and E_a defined in feature (b) of claim 1 of the parent application as filed, would be in any way critical. On the contrary, example 7, specified in Table 4 of the parent application as filed, was indicated as an example according to the invention (page 18, lines 9-11) but exhibited an LCB value measured by GPC/solution viscometry of 0.63, i.e. above the range now specified in claim 1. The value of 0.49 is disclosed in example 10 of the parent application as filed for a specific embodiment directed to the preparation of a specific ethylene copolymer using a specific comonomer (hexene) in specific amounts, a specific catalyst system (in respect of the catalyst, cocatalyst and support thereof) and specific working conditions. Those working conditions have led to the preparation of a copolymer exhibiting not only a specific LCB value of 0.49, but also a specific E_a of 85.59. The appellant has however not demonstrated why that specific LCB value of 0.49 would be of any significance for any other copolymer now being defined in claim 1, in particular those prepared using other comonomers than hexene, in any amount. In that respect, considering that it is explicitly indicated on page 14, lines 4-9, of the parent application as filed that the LCB value (feature (b) of operative claim 1) and the polydispersity (feature (c) of operative claim 1) are affected by the working conditions, it cannot be concluded in the absence of further information that the range of LCB values defined by the two specific values obtained with the particular copolymers of examples 8 and 10 is disclosed in the parent application as filed in association with a degree of polydispersity defined as being greater than 2.5. On the contrary, none of examples 3, 6, 8 and 10 discloses

a copolymer having a polydispersity close to 2.5. Besides, it was also not shown that it was derivable from the parent application as filed that the specific LCB values extracted from said specific examples and used to define the range now specified in claim 1 would be of any significance for any other copolymer prepared using other (co)catalyst systems than those used in said examples.

That the higher LCB value of 0.49, disclosed in the parent application as filed only in respect of the copolymer of example 10 (Table 4), can serve as a basis for defining the subject-matter of present claim 1, which requires a minimum polydispersity value, is further not directly and unambiguously apparent, because the Mw/Mn value of the copolymer according to example 10 is not reported in the parent application as filed.

Therefore, examples 3, 6, 8 and 10 do not provide valid support for the amendment "LCB in the range of 0.25 - 0.49" at that level of generality.

- 3.3 On page 2, lines 8-25, page 18, lines 1-4, and in claim 1 of the parent application as filed, which were relied upon by the appellant, reference is made to polyolefins having a polydispersity M_w/M_n greater than 2.5. However, those passages are all related to a process characterised by the use of a specific catalyst according to claim 1 of the parent application as filed, which is not reflected in claim 1 of the main request. It was not shown by the appellant, in particular during the oral proceedings, that the requirements as to polydispersity specified in those passages was, on the basis of the information provided in the parent application as filed, not related to the

specific metallocene catalyst. In that respect, it is conspicuous that examples 3, 6, 8 and 10 relied upon by the appellant were all performed using a metallocene complex according to claim 1 of the parent application as filed. Consequently, the amendment consisting in the addition of the polydispersity according to feature (c) of claim 1 is, also for that reason, not directly and unambiguously disclosed at that level of generality in the parent application as filed.

- 3.4 For the reasons indicated in sections 3.1 and 3.2 above, the specific combination of ranges of parameters LCB, Ea according to feature (b) and polydispersity Mw/Mn according to feature (c) now being defined in claim 1, does not emerge from, i.e. is not directly and unambiguously disclosed in, the parent application as filed.
- 3.5 The fact that examples 3, 6, 8 and 10 of the parent application as filed, relied upon by the appellant, do fall within the scope of claim 1 of the main request is not sufficient for acknowledging the allowability of the amendments with respect to the requirements of Art. 76(1) EPC. As explained above, the question to be answered is rather whether or not the subject-matter now being defined in claim 1 is directly and unambiguously derivable from the whole disclosure of the parent application as filed, including said examples. This, however, is not the case, as shown above.
- 3.6 Consequently, the main request does not satisfy the requirements of Art. 76(1) EPC and is not allowable.

Auxiliary requests 1 and 2

4. Auxiliary requests 1 and 2 were both filed after oral proceedings had been arranged. As explained by the appellant during the oral proceedings, they were filed in reply to the respondents' objections pursuant to Art. 76(1) EPC in respect of the main request filed with the statement of grounds of appeal. However, although those objections had already been submitted in the respondents' rejoinders to the statement of grounds of appeal, the appellant did not react to them until after the Board's communication. The fact that the Board provided a negative preliminary opinion on the basis of the objections raised by the respondents does not constitute proper justification for not having reacted earlier to the respondents' objections that the subject-matter claimed extended beyond the content of the parent application as filed, for example by submitting requests along the line of present auxiliary requests 1 and 2.

Apart from their late filing, claim 1 of each of auxiliary requests 1 and 2 contains amendments related to (i) a range of LCB values built from specific values disclosed in respect of examples 3, 6 and 8 of the parent application as filed and (ii) requirements in terms of an Mw/Mn either identical to that of claim 1 of the main request (auxiliary request 1) or based on specific Mw/Mn values defined in those examples for defining a new range of Mw/Mn values. In the absence of any indication in the parent application as filed that a dual selection of a range of Mw/Mn values and a more restricted range of LCB values would be desirable, let alone that examples 3, 6 and 8 would be of particular relevance for that restriction, the amendments made do not appear to constitute a promising attempt to

overcome the objections raised against the main request.

For these reasons, admitting auxiliary requests 1 and 2 would be contrary to the principle of procedural economy. Thus, auxiliary requests 1 and 2 are not admitted into the proceedings (Art. 13(1) RPBA).

5. The appellant/patent proprietor's main request not being allowable and auxiliary requests 1 and 2 not being admissible, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



S. Sánchez Chiquero

F. Rousseau

Decision electronically authenticated