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**Datasheet for the decision
of 4 April 2023**

Case Number: T 1256/20 - 3.3.03

Application Number: 11719104.9

Publication Number: 2560999

IPC: C08F210/16, C08F4/6592

Language of the proceedings: EN

Title of invention:

CATALYST COMPOSITION FOR PRODUCING HIGH Mz/Mw POLYOLEFINS

Patent Proprietor:

Chevron Phillips Chemical Company LP

Opponents:

The Dow Chemical Company
Basell Polyolefine GmbH

Relevant legal provisions:

RPBA 2020 Art. 12(4), 13(2)
EPC Art. 83

Keyword:

Admittance of documents
Sufficiency of disclosure - Auxiliary requests 1-4 (no)
Admittance of auxiliary request 5 (no) - reformatio in peius

Decisions cited:

G 0009/92, G 0004/93, G 0001/99



Beschwerdekammern

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Case Number: T 1256/20 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 4 April 2023

Appellant: The Dow Chemical Company
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
18 March 2020 concerning maintenance of the
European Patent No. 2560999 in amended form.**

Composition of the Board:

Chairman D. Semino
Members: D. Marquis
 A. Bacchin

Summary of Facts and Submissions

I. The appeal lies against the decision of the opposition division concerning maintenance of European patent No. 2 560 999 in amended form on the basis of the claims of auxiliary request 1 filed with letter of 4 December 2019 and an amended description.

II. Two oppositions had been filed against claims 12 to 14 of the granted patent, whereby granted claim 12 read as follows:

"12. An ethylene polymer having a non-bimodal molecular weight distribution; a ratio of Mw/Mn from 3 to 8; a ratio of Mz/Mw from 3 to 6; and a reverse comonomer distribution".

Claim 12 of auxiliary request 1 additionally specified that the polymer "has less than about 0.008 long chain branches (LCB) per 1000 total carbon atoms".

III. The opposition division decided that claims 12-14 of the patent as granted were sufficiently disclosed and that their subject matter was novel over D1 (US 6 936 675 B2). Claim 12 as granted however lacked novelty over example 5 of D2 (WO 97/44371 A1) and example 3 of D5 (WO 2009/103516 A2). Claim 12 of auxiliary request 1 was sufficiently disclosed and its subject-matter found a basis in the application as filed. Claim 12 of auxiliary request 1 was novel over example 3 of D5 and inventive starting from that example.

IV. Both opponent 1 (appellant I) and opponent 2 (appellant II) lodged an appeal against the decision of the

opposition division.

V. The following additional evidence was submitted in appeal:

- Data reported in section 3.13 of the reply to the statements setting out the grounds of appeal

- D11: Sukhadia, A.M., The Complex Effects Of Long Chain Branching On The Blown Film Performance Of LLDPE Resins, Antec Annual Conference, May 5-9, 2002- California (submitted by appellant I with the statement of grounds of appeal)

- Declaration of Mr. Qing Yang dated 27 March 2023 (submitted by the patent proprietor - respondent - with letter of 29 March 2023)

VI. The parties were summoned to oral proceedings and a communication pursuant to Article 15(1) RPBA 2020 indicating specific issues to be discussed at the oral proceedings was sent to the parties.

VII. Oral proceedings were held on 4 April 2023 by videoconference.

VIII. The final requests of the parties were as follows:

- Appellant I and appellant II requested that the decision under appeal be set aside and that the European patent be revoked.

- The respondent requested that the appeals be dismissed or that the patent be maintained as amended on the basis of one of auxiliary requests 2 to 6 filed with the reply to the statements setting

out the grounds of appeal.

Claim 12 of auxiliary request 2 corresponded to claim 12 of auxiliary request 1 wherein the range defining the ratio of Mw/Mn was further limited to "3.2 to 5" and the ratio of Mz/Mw was limited to "3 to 4.5".

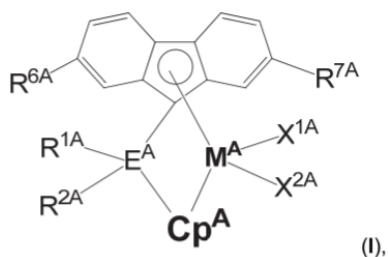
Claim 12 of auxiliary request 3 corresponded to claim 12 of auxiliary request 1.

Claim 12 of auxiliary request 4 corresponded to claim 12 of auxiliary request 2.

Claim 12 of auxiliary request 5 read:

"12. An ethylene polymer having a non-bimodal molecular weight distribution; a ratio of Mw/Mn from 3 to 8; a ratio of Mz/Mw from 3 to 6; and a reverse comonomer distribution and wherein the polymer is obtained using a catalyst composition comprising catalyst component I, catalyst component II, and at least one activator, wherein:

catalyst component I comprises at least one *ansa*-metallocene compound having formula (I):



wherein:

M^A is Ti, Zr, or Hf;
 X^{1A} and X^{2A} are independently F; Cl; Br; I; methyl; benzyl; phenyl; H; BH_4 ; OBR_2 or SO_3R ,
wherein R is an alkyl or aryl group having up to 18 carbon atoms; or a hydrocarbyloxy group, a

hydrocarbylamino group, or a hydrocarbylsilyl group, any of which having up to 18 carbon atoms;

E^A is C or Si;

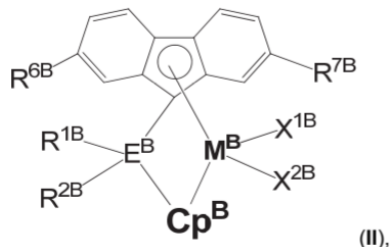
R^{1A} and R^{2A} are independently H, a hydrocarbyl group having up to 18 carbon atoms, or R^{1A} and R^{2A} are connected to form a cyclic or heterocyclic group having up to 18 carbon atoms,

wherein R^{1A} and R^{2A} are not aryl groups;

R^{6A} and R^{7A} are independently H or a hydrocarbyl group having up to 18 carbon atoms; and

Cp^A is a cyclopentadienyl, indenyl, or fluorenyl group, or a heteroatom-substituted derivative thereof, any substituent on Cp^A is independently H or a hydrocarbyl or hydrocarbylsilyl group having up to 36 carbon atoms; and

catalyst component II comprises at least one *ansa*-metallocene compound having formula (II):



wherein:

M^B is Ti, Zr, or Hf;

X^{1B} and X^{2B} are independently F; Cl; Br; I; methyl; benzyl; phenyl; H; BH_4 ; OBR_2 or SO_3R ,

wherein R is an alkyl or aryl group having up to 18 carbon atoms; or a hydrocarbyloxy group, a hydrocarbylamino group, or a hydrocarbylsilyl group, any of which having up to 18 carbon atoms;

E^B is C or Si;

R^{1B} and R^{2B} are independently H or a hydrocarbyl group having up to 18 carbon atoms, wherein at least one of

R^{1B} and R^{2B} is an aryl group having up to 18 carbon atoms;

R^{6B} and R^{7B} are independently H or a hydrocarbyl group having up to 18 carbon atoms; and

Cp^B is a cyclopentadienyl, indenyl, or fluorenyl group, or a heteroatom-substituted derivative thereof, any substituent on Cp^B is independently H or a hydrocarbyl or hydrocarbylsilyl group having up to 36 carbon atoms".

Auxiliary request 6 corresponded to auxiliary request 1 from which claims 12-14 pertaining to an ethylene polymer and an article comprising the polymer were deleted.

- IX. The appellants' arguments, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They are essentially as follows:

Admittance

The information referred to by the respondent in their argumentation concerning the objection of lack of sufficiency of disclosure in their rejoinder (section 3.13) and the declaration of Mr. Qing Yang, filed with the respondent's letter of 29 March 2023, were late filed and should not be admitted into the proceedings. D11 should be admitted into the proceedings.

Auxiliary requests 1-4 - Sufficiency of disclosure

Claim 12 of auxiliary request 1, that was defined by the long chain branching of the ethylene polymers, lacked sufficiency of disclosure. The same applied to claims 12 of auxiliary requests 2-4.

Auxiliary request 5 - Admittance

Auxiliary request 5 should not be admitted into the proceedings.

- X. The respondent's arguments, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. They are essentially as follows:

Admittance

The information concerning the objection of lack of sufficiency of disclosure provided in the rejoinder (section 3.13) and the declaration of Mr. Qing Yang should be admitted into the proceedings. D11 should not be admitted into the proceedings.

Auxiliary requests 1-4 - Sufficiency of disclosure

Claim 12 of auxiliary request 1 was sufficiency disclosed. The same applied to claims 12 of auxiliary requests 2-4.

Auxiliary request 5 - Admittance

Auxiliary request 5 should be admitted into the proceedings.

Reasons for the Decision

1. Admittance

1.1 Appellant I contested the admittance into the proceedings of additional information referred to by

the respondent in their argumentation concerning the objection of lack of sufficiency of disclosure in their rejoinder (section 3.13). That information concerned the values of long chain branching of the ethylene polymers produced in example 5 and 6 of the patent.

- 1.1.1 Long chain branching was already present as a characterizing feature in granted claim 13. It was also introduced in independent claim 12 of auxiliary request 5 filed with letter of 3 May 2019 and was maintained in the requests on file throughout the written phase of the opposition proceedings. That feature was however only addressed with regard to sufficiency of disclosure at the oral proceedings before the opposition division (section 7 of the minutes) and was dealt with in section 3.2.3 of the decision under appeal. The objection was pursued by appellant I in their statement of grounds of appeal (page 5, second to fifth paragraphs).
- 1.1.2 As the data of long chain branching for examples 5 and 6 were provided for the first time with the rejoinder of the respondent, they constitute an amendment to the respondent's case. Their admittance into the proceedings is at the discretion of the Board (Article 12(4) RPBA 2020), which exercises it in view of, *inter alia*, the complexity of the amendment, the suitability of the amendment to address the issues which led to the decision under appeal, and the need for procedural economy.
- 1.1.3 The values of long chain branching were filed by the respondent at the earliest point in time after the issuance of the decision of the opposition, in which long chain branching was discussed in the context of an objection of lack of sufficient disclosure for the

first time. Also, the values of long chain branching provided for two examples of the patent in suit did not add complexity to the case, nor impaired its procedural economy. Under these circumstances, the Board found it appropriate to exercise its discretion under Article 12(4) RPBA 2020 by admitting the values of long chain branching for examples 5 and 6 as disclosed in section 3.13 of the rejoinder into the appeal proceedings.

- 1.2 D11, which was filed by appellant I with their statement setting out the grounds of appeal (page 9, fourth paragraph), represents an amendment to appellant's I case. Its admittance into the proceedings is also at the discretion of the Board (Article 12(4) RPBA 2020). D11 addressed the decision of the opposition division on inventive step, in particular the point concerning the link between the ratio M_w/M_n and the long chain branching of the ethylene polymer.
 - 1.2.1 The facts of the case show that D11 was filed by appellant I at the earliest point in time in appeal and in reaction to the impugned decision where the long chain branching became the key feature of the request which was found to meet the requirements of the EPC. D11 did not add complexity to the case, nor impaired its procedural economy. In view of these considerations, the Board found it appropriate to exercise its discretion under Article 12(4) RPBA 2020 by admitting D11 into the appeal proceedings.
- 1.3 The respondent further requested the admittance of a declaration from Mr. Qing Yang dated 27 March 2023.
 - 1.3.1 That declaration was submitted with letter of 29 March 2023, after issuance of a summons to oral proceedings on 8 June 2022 and the Board's communication pursuant

to Article 15(1) RPBA 2020 on 7 March 2023. It follows that the declaration represents an amendment to the respondent's case that shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned (Article 13(2) RPBA 2020).

1.3.2 The respondent argued that the declaration was filed in view of the arguments set out in points 8.6 to 8.9 of the Board's communication in which the Board conveyed the opinion that the skilled person found no guidance in the patent as to how to obtain the claimed level of long chain branching.

1.3.3 Lack of guidance with regard to long chain branching was however not an issue raised by the Board in their communication for the first time in the proceedings. It was in fact already part of the decision under appeal (section 3.2) and it was also addressed by appellant I in their statement of grounds of appeal (pages 3-5) and in their letter of 1 March 2022 (pages 2/3), including the discussion of whether paragraph 197 of the patent in suit provided that guidance (section 3.2.3 of the contested decision and page 5 of the statement of grounds of appeal). The communication of the Board therefore did not raise a new issue that could be seen as a justification for the filing of the declaration of Mr. Qing Yang. Rather, it merely addressed, and provisionally found it convincing, an objection which already formed part of the proceedings.

1.3.4 The respondent provided no further justification nor cogent reason that could amount to an exceptional circumstance justifying the admittance of the declaration of Mr. Qing Yang into the appeal

proceedings. In view of that, the declaration is not taken into account in the appeal proceedings (Article 13(2) RPBA 2020).

2. Auxiliary requests 1-4 - Sufficiency of disclosure

2.1 According to the established jurisprudence of the Boards of Appeal, a European patent complies with the requirements of sufficiency of disclosure, if a skilled person, on the basis of the information provided in the patent specification and, if necessary, using common general knowledge, is able to carry out the invention as claimed in its whole extent without undue burden, i.e. with reasonable effort. This means in the present case to prepare ethylene polymers meeting the combination of parameters defined in claim 12 of auxiliary request 1, throughout the whole area(s) claimed, taking into account the information given in the patent in suit, using common general knowledge and routine experimentation.

2.2 One of the objections of lack of sufficiency pursued by appellant I in appeal concerned the definition of the range of long chain branching of the ethylene polymer of claim 12 of auxiliary request 1. The opposition division considered in the impugned decision that paragraph 197 as well as the description of the catalysts in the patent in suit provided sufficient guidance to prepare ethylene polymers according to claim 12 of auxiliary request 1 having less than about 0.008 long chain branches (LCB) per 1000 total carbon atoms.

2.3 The patent in suit provides, however, very little information about the long chain branching of the

disclosed ethylene polymers.

- 2.3.1 Paragraph 197 discloses ranges of long chain branches of the polymers according to the invention but that passage does not provide any teaching as to how any of these ranges could be achieved. The patent in suit also discloses the catalysts that can be used for the preparation of ethylene polymers but the Board did not find in these passages of the patent in suit a teaching relating to long chain branching.
- 2.3.2 The statement by the respondent in section 3.11 of their rejoinder that the long chain branching content was inherent to the process is ambiguous and even seems to contradict the patent in suit which reads "**Generally**, polymers of the present invention have low levels of long chain branching with **typically** less than about **0.05** long chain branches (LCB) per 1000 total carbon atoms [...]" (emphasis by the Board). The patent in suit does not teach that the process disclosed therein inherently led to ethylene polymers having a long chain branching according to claim 12 of auxiliary request 1, nor was any evidence provided showing that the skilled person had that knowledge.
- 2.3.3 Paragraph 198 mentions ethylene polymers having less than about 0.008 long chain branches per 1000 total carbon atoms but that disclosure is one among many other illustrative and non-limiting examples of ethylene polymers disclosed in that paragraph. The Board found no guidance concerning long chain branching in that paragraph.
- 2.3.4 The examples of the patent in suit also do not help to understand how the level of long chain branches of ethylene polymers according to claim 12 of auxiliary

request 1 (less than 0.008 per 1000 total carbon atoms) could be met because the examples do not disclose that parameter and do not give any indication of how that parameter could be obtained, modified or controlled. The skilled reader of the patent in suit has also no reason to expect that the ethylene polymers of the examples have a long chain branching of less than 0.008 per 1000 total carbon atoms. Besides, there is no wider indication in the patent in suit of how to obtain an ethylene composition with a long chain branching according to claim 12 including which parameters of the preparation process the skilled person had to control to obtain the defined long chain branching.

2.3.5 The respondent provided in their rejoinder (section 3.13) values of long chain branching (LCB) for example 5 (0.0034) and example 6 (0.0060) but these values are not part of the patent in suit nor of the common general knowledge and therefore are not relevant to the question of sufficiency of disclosure. Also, these two individual values alone cannot show that a value of less than 0.008 was inherent to the process of the patent in suit.

2.4 With no teaching on how to adjust the long chain branching of the ethylene polymers in the patent in suit and no reason to expect that the examples provided ethylene polymers with a long chain branching of less than 0.008 per 1000 total carbon atoms, the skilled person would have been without guidance as to how to fulfill the requirements of claim 12 of auxiliary request 1. That lack of guidance constitutes a verifiable fact that ultimately cast a serious doubt as to whether the subject-matter of claim 12 was sufficiently disclosed. In this respect, the respondent did not provide any additional reference to the patent

in suit, nor any indication or evidence on how a guidance could be available in the common general knowledge. The Board therefore comes to the conclusion that claim 12 of auxiliary request 1 lacks sufficiency of disclosure.

2.5 The ethylene polymers of claim 12 of auxiliary requests 2-4 are defined by the same condition on long chain branching as present in claim 12 of auxiliary request 1. The parties in appeal relied on the arguments provided for claim 12 of auxiliary request 1 for the assessment of sufficiency of disclosure of claim 12 of auxiliary requests 2-4. The Board finds therefore that the reasoning applying to claim 12 of auxiliary request 1 equally applies to claim 12 of auxiliary requests 2-4 with the consequence of a lack of sufficiency of disclosure for these auxiliary requests as well.

3. Auxiliary request 5 - Admittance

3.1 Auxiliary request 5 was filed with the reply to the statements of grounds of appeal and corresponded to auxiliary request 1 with the amendment in claim 12 that the ethylene polymer is no longer defined by its long chain branching but by features relating to the process of preparation of the ethylene polymer (product-by-process claim). The appellants contested the admittance of auxiliary request 5 into the proceedings.

3.2 Claim 12 of auxiliary request 1 as maintained by the opposition division was limited by a range defining the long chain branching of the ethylene polymer (less than about 0.008 long chain branches per 1000 total carbon atoms). It was nowhere derivable from the documents on file that the process features added in claim 12 of auxiliary request 5 were equivalent or even related to

the definition of the ethylene polymer by its amount of long chain branching.

3.3 In view of that, claim 12 of auxiliary request 5 extends beyond the scope of the claims as maintained by the department of first instance since the condition on the long chain branching no longer limits the ethylene polymers according to operative claim 12. The filing of auxiliary request 5 is therefore in violation of the principle of prohibition of *reformatio in peius*, according to which in an appeal case in which the opponents are the sole appellants, the patent proprietor is primarily restricted to defending the patent in the form in which it was maintained by the opposition division in its interlocutory decision.

3.4 Amendments proposed by the patent proprietor as a party to the proceedings as of right under Article 107, second sentence, EPC, may be rejected as inadmissible by the Board of Appeal if they are neither appropriate nor necessary (see G 9/92 and G 4/93, headnote II and Case Law of the Boards of Appeal, 10th Edition 2022, V.A.3.1 and V.A.3.1.5). No reasons were provided by the respondent as to why the amendments proposed would be appropriate or necessary so as to justify an exception to the prohibition of *reformatio in peius*, neither does the Board find a justification for applying such an exception in the sense of decision G 1/99 (see in particular the headnote). The Board finds therefore that auxiliary request 5 is not to be admitted into the appeal proceedings.

4. The next auxiliary request in line after auxiliary request 5 was auxiliary request 6, which does not contain any of the claims against which an opposition was filed. The case is therefore to be remitted to the

opposition division with the order to maintain the patent on the basis of the claims of auxiliary request 6 filed with the reply to the statements of grounds of appeal after any necessary consequential amendment of the description.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent on the basis of the claims of auxiliary request 6 filed with the reply to the statement of grounds of appeal after any necessary consequential amendment of the description.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated