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**Datasheet for the decision
of 8 September 2023**

Case Number: T 2420/19 - 3.3.03

Application Number: 12809595.7

Publication Number: 2788395

IPC: C08F110/02

Language of the proceedings: EN

Title of invention:

A NEW POLYETHYLENE

Patent Proprietor:

Borealis AG

Opponent:

The Dow Chemical Company

Relevant legal provisions:

EPC Art. 100(b)

Keyword:

Claims read on their own merits - no need for interpretation
in the light of the description
Insufficiency of disclosure (yes) - all requests

Decisions cited:

T 0190/99, T 1279/04, T 0063/06



Beschwerdekammern

Boards of Appeal

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Case Number: T 2420/19 - 3.3.03

D E C I S I O N
of Technical Board of Appeal 3.3.03
of 8 September 2023

Appellant:
(Patent Proprietor)

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Decision under appeal:

**Decision of the Opposition Division of the
European Patent Office posted on 19 June 2019
revoking European patent No. 2788395 pursuant to
Article 101(3) (b) EPC.**

Composition of the Board:

Chairman D. Semino
Members: F. Rousseau
W. Ungler

Summary of Facts and Submissions

- I. The present appeal lies against the decision of the opposition division revoking European patent No. 2 788 395. The contested decision was based on the patent as granted as the main request and on auxiliary requests 1, 2, 2a, 3 and 4, all submitted with letter of 15 March 2019, with the exception of auxiliary request 2a which was submitted with letter of 9 May 2019.
- II. Claims 1 and 7 of the patent as granted read as follows:
- "1. A low density polyethylene having a density in the interval of 900-935 kg/m³, measured according to ISO 1183, a molecular weight distribution Mw/Mn, measured according to ISO 16014-4:2003 and ASTM D 6474-99, which is greater than 15, a storage modulus G' (5kPa), measured according to ISO 6721-1 and 6721-10, which is above 3000, and a vinylidene content which is at least 15 / 100k C.
7. A process for the production of the low density polyethylene according to any of claim 1, 2, 3 or 4, in a tubular reactor by radical initiated polymerization under high pressure where the polymerization is performed by reacting the ethylene monomer under the action of one or more radical initiators, such as peroxides, oxygen or combinations thereof, characterized by that the amount of used radical initiators, i.e. the amount of used active oxygen, is at least 0.125 kg AO/ton PE."

The wording of the auxiliary requests underlying the contested decision is not relevant for the present decision.

III. The following items of evidence were submitted *inter alia* during the opposition proceedings:

D3: Declaration of Sylvie Vervoort (Part A) and of Teresa Plumley Karjala (Part B) concerning LDPE PT 7007
D6: WO 2013/078018 A2
D10: Declaration of Teresa Plumley Karjala concerning SABIC LDPE nExCoat 5 resin
D10a: Evaluation of LDPE SABIC nExCoat 5
D17: Technical brochure of AkzoNobel, Initiators and Reactor Additives for Thermoplastics, 2010
D19: ISO 16014-4:2003 (E)
D23: ASTM D-6474-99 (reapproved 2006)
D25: Declaration of T. Karjala and J. den Doelder on inventive example 4 of WO 2013/078018

IV. According to the reasons for the contested decision which are pertinent in the appeal proceedings:

(a) As regards claim 1, whereas it had been made clear by the patent proprietor that the Mw and Mn described in paragraphs [0012] and [0079] to [0084] of the description and the resulting molecular weight distribution were determined by an absolute method (Mw/Mn(abs)), as use was made of exclusion chromatography coupled with light scattering, the molecular weight distribution determined according to the methods of measurements indicated in claim 1, i.e. ISO 16014-4:2003 and ASTM D 6474-99, corresponding to D19 and D23, respectively, was

based on a relative measurement of Mw and Mn (Mw/Mn(conv)) using GPC and polystyrene standards.

D6 in combination with D25, D3, as well as D10 showed that the values for Mw/Mn(abs) and Mw/Mn(conv) were considerably different for LDPE, the Mw/Mn(conv) values addressed in these documents being less than half of the corresponding Mw/Mn(abs) values. Whereas all Mw/Mn(abs) values addressed in these documents were inside the Mw/Mn range defined in claim 1, all corresponding Mw/Mn(conv) values were in contrast outside of the range claimed.

Since the description and the example of the patent only gave instructions as to how to obtain Mw/Mn(abs) values, the invention in accordance with the definition of claim 1 based on a definition of Mw/Mn(conv) values lacked sufficiency of disclosure. The main request was therefore not allowable.

(b) The same reasoning and conclusion applied to the auxiliary requests.

(c) The patent in suit was therefore revoked.

V. An appeal was filed by the patent proprietor (appellant). With their statement of grounds of appeal the appellant submitted five sets of claim requests labelled auxiliary requests 1 to 5.

VI. With the reply to the statement of grounds of appeal, the opponent (respondent) filed inter alia the following additional document:

D27: Declaration of Teresa Plumley Karjala on NUC 8007 LDPE resin.

VII. In reply to the rejoinder the appellant submitted with letter of 13 November 2020 an additional auxiliary request, labelled new auxiliary request 4.

VIII. Oral proceedings before the Board were held on 8 September 2023.

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

The appellant requested that the decision of the opposition division be set aside and the case be remitted to the opposition division for further prosecution on the basis of the patent as granted (main request), or alternatively on the basis of auxiliary requests 1 to 3, filed with the statement of grounds of appeal, auxiliary request 4 submitted with letter of 13 November 2020 and auxiliary requests 4 and 5 both submitted with the statement of grounds of appeal to be renumbered as auxiliary request 5 and 6.

The respondent requested that the appeal be dismissed.

X. Claim 1 according to the auxiliary requests is as follows:

- claim 1 of auxiliary request 1 differs from claim 1 of the main request whose wording is indicated in point II above in that the LDPE is defined to be a homopolymer of ethylene;

- claim 1 of auxiliary request 2 differs from claim 1 of the main request in that the LDPE is defined to be a

homopolymer of ethylene and the vinylidene content is defined to be at least 25 / 100k C;

- claim 1 of auxiliary request 3 differs from claim 1 of the main request in that the LDPE is defined to be a homopolymer of ethylene, the molecular weight distribution Mw/Mn is defined to be greater than 17 and the vinylidene content is defined to be at least 25 / 100k C;

- claim 1 of auxiliary request 4 differs from claim 1 of the main request in that the LDPE is defined to be a homopolymer of ethylene, the molecular weight distribution Mw/Mn is defined to be greater than 18 and the vinylidene content is defined to be at least 25 / 100k C;

- claim 1 of auxiliary request 5 defines a process for the production of the homopolymer of ethylene as defined in claim 1 of auxiliary request 1 with the process features of granted claim 7, whose wording is given in point II above;

- claim 1 of auxiliary request 6 differs from claim 1 of auxiliary request 5 in that the one or more peroxides are defined to comprise peroxides having a 0.1 hour half-time temperature which is below 100°C.

XI. The parties' submissions, in so far as they are pertinent to the present decision, may be derived from the reasons for the decision below. The contentious points concerned whether the molecular weight distribution Mw/Mn of the LDPE, measured according to ISO 16014-4:2003 and ASTM D 6474-99, was to be understood to relate to an absolute or conventional measurement and whether the LDPE defined in this manner

in combination with the additional parametric requirements set out in claim 1 or the process for its production was disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

Reasons for the Decision

Main request

Introductory remarks and technical background

1. The pivotal issue in the reasons for the contested decision and the parties' submissions in appeal is whether the molecular weight distribution M_w/M_n , which is one parameter characterizing the low density polyethylene (LDPE) of granted claim 1 obtainable in a tubular reactor, is to be measured by an absolute method as contented by the appellant or a conventional method, as submitted by the respondent and decided by the opposition division.
2. The absolute and the conventional method used for determining the molecular weight distribution rely both in a first step on a separation by size exclusion chromatography of the LDPE molecules in solution according to their hydrodynamic volume which depends on the molecular weight of the molecules. An absolute method refers to a determination of the molecular weight of the eluted molecules by light scattering which allows for a determination of the true molecular weight, whereas a conventional method refers to a determination of the molecular weight of the eluted molecules by comparison with polymer standards used for

calibrating the chromatographic column, i.e. a relative measurement.

This is relevant to sufficiency of disclosure of the LDPE defined in granted claim 1, since it is undisputed that the absolute and relative measurements lead to different values as far as LDPE are concerned, resulting in different molecular weight distribution values $M_w/M_n(\text{abs})$ and $M_w/M_n(\text{conv})$, respectively.

As pointed out by the appellant during the oral proceedings, this is essentially due to the presence in LDPE molecules of long-chain branches and short-chain branches. Because of these branches LDPE molecules adopt in the solution used for determination of the molecular weight distribution by size exclusion a more compact structure than the linear polystyrene molecules used as standards for calibrating the chromatographic column.

On that basis, since both the conventional and the absolute methods rely in a first step on a separation of the molecules in solution according to their hydrodynamic volume, a conventional measure of the molecular weight of LDPE molecules by GPC using polystyrene standards will underestimate the true molecular weight of the LDPE which can be determined using an absolute method. This also results in different molecular weight distribution values $M_w/M_n(\text{abs})$ and $M_w/M_n(\text{conv})$.

Meaning to be attributed to M_w/M_n in claim 1

3. Granted claim 1 defines that the molecular weight distribution M_w/M_n is to be measured according to ISO 16014-4:2003 and ASTM D 6474-99. These norms are

described in documents D19 and D23, respectively. It is undisputed that both of them describe a relative measurement.

4. The appellant, however, submits that the reference to ASTM D 6474-99 in granted claim 1 would render that claim ambiguous, as this norm would exclude application of this relative measurement method for high pressure LDPE, as explicitly mentioned in several passages of D23 (section 1 -Scope-, section 3.2.1 -Terminology- section 5.1 -Significance and Use-). Moreover, the skilled person would be aware for the reasons indicated in point 2 above that the use of a relative measurement for the molecular weight distribution is scientifically incorrect. For these reasons, the skilled reader would need to refer to the description of the specification for a proper understanding of the method used for measuring the molecular weight distribution. The skilled person therefore would understand from the description that the molecular weight distribution is in fact to be measured using an absolute method.

5. This is not accepted by the Board for the following reasons:
 - 5.1 The appellant's point concerning the alleged ambiguity of claim 1 and the need to consult the description for its interpretation refers to a lack of clarity of the subject-matter of claim 1 within the meaning of Article 84 EPC. This article provides in its first sentence that the claims shall define the matter for which protection is sought. For this reason they shall be clear and concise and be supported by the description as set out in the second sentence of Article 84 EPC.

It is therefore established case law that the claims must be clear for the sake of legal certainty, as their purpose is to enable the protection conferred by the patent to be determined (Case Law of the Boards of Appeal of the EPO, 10th edition 2022, II.A.1.1). For these reasons, it is up to the applicant according to their personal view and needs to define the object for which the protection is sought. There is no requirement in the EPC that the clarity requirement for determining the protection conferred by the patent refers to the scientific accuracy of the definition used in the claim.

- 5.2 In the present case, the appellant does not even argue that a molecular weight distribution of the LDPE according to the literal definition given with the reference to ASTM D 6474-99 leads to ambiguous values, i.e. to an ambiguous definition of the subject-matter for which protection is sought.

Moreover, the technical meaningfulness of using at the date of priority of the patent in suit a conventional method for measuring the molecular weight distribution of a LDPE is explicitly confirmed in the first norm ISO 16014-4:2003 cited in granted claim 1. It is referred to Annex A of D19 (page 9, first paragraph) from which it can be taken that the relative method used for this norm, although it assumes that the sample is a linear homopolymer, can be also be applied to a long series of other types of polymers, including branched polymers.

This is also confirmed for tubular LDPE, i.e. the same type of branched polymers defined in claim 1, in document D10A. D10A is a report anterior to the priority date of the patent in suit by the respondent in which an evaluation of the properties of the tubular

grade LDPE of SABIC referred to as nExCoat 5 is presented (D10A, pages 1 and 9). According to this report, the molecular weight distribution of that specific LDPE was measured using both an absolute and a conventional method (page 9, table 4; pages 34 and 35, section 10.3).

- 5.3 On that basis, it has not been established that claim 1 lacks clarity. It is therefore to be read on its own merits without the need to refer to the description or other sources of interpretation.
6. The appellant, referring to T 190/99, submits that a patent must be construed by a mind willing to understand not a mind desirous of misunderstanding and that the skilled person would clearly construe granted claim 1 in a technically sensible manner taking into account the whole disclosure of the patent and would, thus, arrive at an interpretation of the molecular weight distribution Mw/Mn of greater than 15 in claim 1 as an absolute value.

Decision T 190/99 concerns the compliance of an amended claim with the requirements of Article 123(3) EPC, in which case the scope of protection of the granted patent is to be assessed taking into account the whole disclosure of the granted patent (Article 69 EPC and Protocol on the Interpretation of Article 69 EPC).

However, the present situation is different, since the present main request concerns the patent in the form as granted. The appellant did not submit any amendment of the definition of the measuring method of the molecular weight distribution so as to define it as an absolute method.

The interpretation of claim 1 sought by the appellant would in fact amount to a rewording of granted claim 1, which would completely change the object for which the protection is sought, as understood on its face value, since the absolute and relative measurements lead to different values (point 2. above). As pointed out in decision T 1279/04 (point 3 of the Reasons), in (appeal) opposition proceedings the value of future legal certainty is paramount. Having regard to the unambiguous and technical sensible definition in present claim 1 of a molecular weight distribution of the LDPE measured by a conventional method, an assessment of patentability requirements based on a reading of the molecular weight distribution to be measured by an absolute method would not be compatible with a reasonable degree of legal certainty for third parties.

7. Accordingly, the Board does not accept a reading of granted claim 1 according to which the ratio M_w/M_n is measured in accordance with an absolute method. It is rather to be understood as requiring a LDPE having a molecular weight distribution M_w/M_n of more than 15 measured by a conventional method.

Sufficiency of disclosure

8. According to the established jurisprudence of the Boards of Appeal of the EPO 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.

8.1 It follows from the appellant's submissions through the whole opposition and appeal opposition proceedings that the whole teaching provided in the description of the patent in suit, including the preparation of inventive material A described in paragraphs [0110] to [0114] was intended to be directed to the preparation of a LDPE material having a molecular distribution Mw/Mn value of greater than 15 according to an absolute, but not a relative measurement. However, as indicated in point 2 above, the absolute and relative measurements of the molecular weight of LDPE lead to different values of its molecular weight distribution values. The question therefore arises as to whether the teaching of the patent in suit would also enable the skilled person to prepare a LDPE material as defined in granted claim 1 in which the Mw/Mn value is measured by a relative method, but not by an absolute method.

8.2 The appellant did not pursue during the oral proceedings the argument put in writing that the respondent had not convincingly demonstrated that material A with a Mw/Mn(abs) of 18.9 whose synthesis is described in the experimental part of the patent in suit does not have a Mw/Mn(conv) of greater than 15. In any case, the Board observes that each of the parties to the proceedings carries the burden of proof for the facts it alleges. Who bears the burden of proof may be determined by the legal cases which the respective parties are trying to make. Whether it is discharged or not is assessed by the board based on all the relevant evidence put before it, including the teaching or lack of teaching in the patent in suit, in the present case in relation to measures to be taken to prepare a LDPE having a molecular weight distribution Mw/Mn value of greater than 15 when measured by a relative method.

In the context of the opposition ground of sufficiency of disclosure, the weight of the submissions required to rebut the legal presumption that the patent meets that requirement of the EPC depends on its strength (T 63/06, point 3.3.1 of the Reasons). A strong presumption requires more substantial submissions than a weak one.

8.3 In the present case, a weak presumption that the invention is sufficiently disclosed (and conversely a strong presumption for a lack of sufficiency of disclosure) results from the absence of any teaching relating to the preparation of a LDPE material having a molecular weight distribution Mw/Mn value of greater than 15 when measured by a relative method.

This is all more the case, since the respondent has provided multiple examples of LDPEs, one prepared in an autoclave reactor and three different LDPEs prepared in a tubular reactor, which exhibit in each case a ratio of Mw/Mn(abs) to Mw/Mn(conv) which is approximately two.

It can be referred to (i) the autoclave grade LDPE PT 7007 with a MFR₂ of 7.4 g/10 min., a density of 0.9194, a Mw/Mn(abs) of 23.7 and a Mw/Mn(conv) of 9.2 (D3, page 9), (ii) the commercial grade tubular LDPE nExCoat 5 with a MFR₂ of 4.6 g/10 min., a density of 0.9170, a Mw/Mn(abs) of 19.8 and a Mw/Mn(conv) of 8.69 (D10, page 2 and D10A, pages 8, 9 and 12), (iii) the tubular grade LDPE of example 4 of D6 (page 20, table 2) with a MFR₂ of 3.3 g/10 min., a density of 0.9191, a Mw/Mn(abs) of 14.4 (D6, table 4, page 21 and D25, page 3) and a Mw/Mn(conv) of 8.76 (D25, page 3) and (iv) the tubular grade LDPE NUC 8007 with a MFR₂ of 6.3 g/10 min., a

density of 0.9169, a Mw/Mn(abs) of 17 and a Mw/Mn(conv) of 7.8 (D27, pages 1 and 3).

Given the structural similarities between these polyolefins, i.e. the presence of long chain branching, there is no reason to assume that the LDPE materials produced with the process of the patent in suit will also not exhibit a Mw/Mn(conv) which is significantly lower than the corresponding Mw/Mn(abs). In this respect, the appellant has not provided any argument, let alone evidence, as to why the materials produced by the process taught in the specification should behave differently, as far as their Mw/Mn(abs) to Mw/Mn(conv) ratio is concerned.

- 8.4 According to the teaching given in claim 7, as well as paragraphs [0008], [0014] and [0052] to [0059], the key measure for producing the LDPE of the present invention is the use of an amount of active oxygen (AO) per tonne of polyethylene (ton PE) which is of at least 0.125 kg AO/ton PE, or alternatively of at least 0.127 kg AO/ton PE in a radical initiated polymerisation under high pressure in a tubular reactor. Such a process is illustrated by the production of a material A using 0.127 kg AO/ton PE.

In view of the correlation between the amount of active oxygen and the Mw/Mn of the obtained LDPE, which is explicitly mentioned in paragraph [0014] of the specification and experimentally demonstrated with materials A and B, whose preparation and properties are shown in paragraphs [0110] to [0119] and in table 1 in paragraph [0125], the appellant submits that the skilled person would understand that an additional and substantial increase of the Mw/Mn(conv) of the LDPE

could be obtained by further increasing the amount of AO/ton PE.

Table 1 of the patent in suit shows indeed that material A prepared with 0.129 kg AO/ton PE (i.e. slightly above the level of at least 0.125 kg AO/ton PE defined in claim 7) exhibits a Mw/Mn(abs) of 18.9, while material B prepared with 0.040 kg AO/ton PE has a Mw/Mn(abs) of 6.6.

However, even if it were accepted to the benefit of the appellant that the skilled person would expect by extrapolation of these two sole experimental values for materials A and B that a further additional amount of active oxygen would lead to a further increase of the Mw/Mn(abs), there is no suggestion, e.g. based on technical considerations or experimental evidence, that values of Mw/Mn(conv) greater than 15 could be reached in this manner.

There is also no indication by the appellant, let alone any proof in this respect, about the variation of the Mw/Mn(abs) or Mw/Mn(conv) as a function of the amount of active oxygen relative to the amount of LDPE. Based only on two experimental values, namely those for materials A and B of the patent in suit, there is no reason to assume a linear relationship between the Mw/Mn(abs) or Mw/Mn(conv) of the LDPE and the amount of active oxygen used in a tubular reactor.

8.5 Moreover, a modification of the synthesis of material A by increasing the amount of active oxygen would require sufficient information concerning the preparation of material A. In this regard, the appellant argues that paragraphs [0109] to [0114] of the opposed patent provide a detailed description of the process

parameters for preparing material A including the indication of the type of tubular reactor, the applied pressure, the peak temperatures, the ethylene fed to the front of the reactor, the amount of added active oxygen and the polymerisation yield.

Whereas the information about the ethylene fed to the front of the reactor, the amount of added active oxygen and the polymerisation yield for the preparation of material A are exactly indicated, this not the case for the other process parameters, as pointed out by the respondent.

Firstly, the pressure in the reactor and the peak temperatures in the reactor are only defined to be between 220 - 285 MPa and in the range of 250 to 315 °C, respectively, without any information as to the temperature in each of the three successive reaction zones of the reactor.

Secondly and more importantly, the required crucial information concerning the initiators used for preparing material A is vague. In this respect, the five initiators labelled A to E used for the synthesis of material A are not described by their chemical designation, but for each of them by a range for their 0.1 h half-time decomposition temperature, some ranges even overlapping as far as initiators A and B and C and D are concerned.

Thirdly, the amount for each of these initiators A to E to be used in each of the three reaction zones is not precisely described, but only indicated by broad ranges.

Apart from the possibility for the skilled person to have recourse to technical brochures such as D17 listing polymerization initiators and their 0.1 h half-time decomposition temperature, the appellant did not indicate how the skilled person would select the various process parameters in order to obtain a LDPE similar to material A with a reasonable amount of experimentation. Having regard to the large number of combinations of process parameters conceivable in accordance with the teaching of the patent in suit and any evidence to the contrary, it can only be concluded that the skilled person would be faced with an undue amount of experimentation when trying to reproduce material A of the patent in suit, even if initiators having a 0.1 h half-time decomposition temperature within the ranges defined in the patent in suit could be identified in the light of technical brochures.

- 8.6 Furthermore, the difficulty for the skilled person to prepare a LDPE with a $M_w/M_n(\text{conv})$ of greater than 15 is exacerbated by the additional requirement in operative claim 1 that the vinylidene content of the LDPE includes as lower limit a value of 15 / 100k C.

In this regard paragraph [0028] of the specification indicates that *"With increased branching by higher radical initiator amount, the number of tertiary carbon radicals will increase and also the probability of beta-scission and creation of a vinylidene. The vinylidene content will then be an indirect measurement on the amount of introduced branches in the low density polyethylene of the present invention"*.

Accordingly, it must be expected based on the information provided in specification that a further addition of active oxygen to increase the M_w/M_n (conv)

will be concomitant with an additional increase of the vinylidene content. This means starting from the most promising teaching provided in the specification in terms of Mw/Mn, namely the synthesis of material A, any additional amount of active oxygen would lead to a concomitant increase of the vinylidene content which is already of 25.9 /100k C for material A, i.e. well above the lower limit encompassed by the subject-matter of claim 1, making it questionable whether the lower part of the range can indeed be obtained together with a Mw/Mn(conv) of greater than 15.

- 8.7 It is concluded from the above that the skilled person using the information provided in the patent specification, common general knowledge and a reasonable amount of effort is not able to prepare a LDPE meeting the parametric definition of operative claim 1 within the whole ambit of the claim. This means that the subject-matter of claim 1 does not meet the requirement of sufficiency of disclosure.
- 8.8 Consequently, as the ground of opposition under Article 100(b) EPC prejudices the maintenance of the patent as granted, the appellant's main request is not allowable.

Auxiliary requests

9. The auxiliary requests define either a LDPE whose definition has been restricted compared to the main request (auxiliary requests 1 to 4) or a process for the production of the LDPE defined in claim 1 of auxiliary request 1 (auxiliary requests 5 and 6). As far as sufficiency of disclosure is concerned, the appellant submits that the same arguments as presented for the main request apply mutatis mutandis to auxiliary requests 1 to 6. On that basis, there is no

reason to conclude that the subject-matter as defined with the auxiliary requests meets the requirements for sufficiency of disclosure.

Indeed, as shown in relation to the main request the lack of sufficiency of disclosure primarily concerns the ability for the skilled person to obtain a molecular weight distribution $M_w/M_n(\text{conv})$ of the LDPE above the value of 15, independently of the achievement of a certain vinylidene content or of whether it is a homopolymer or a copolymer. Hence, the definition of a vinylidene content of at least 25 / 100k C in auxiliary requests 2 to 4, which in any case is below the level obtained for material A which has an insufficient $M_w/M_n(\text{conv})$, or the definition that the LDPE is a homopolymer of ethylene in all auxiliary requests cannot cure the lack of sufficiency of disclosure established for the main request. This is a fortiori the case for a stricter requirement for the molecular weight distribution with values of $M_w/M_n(\text{conv})$ of more than 17 or 18 defined in auxiliary requests 3 and 4.

In other words, the amendments inserted in auxiliary requests 1 to 4 which concern the nature of the LDPE being a homopolymer of ethylene, its vinylidene content defined to be at least 25 / 100k C and its molecular weight distribution $M_w/M_n(\text{conv})$ greater than 17 or greater than 18 do not limit the definition of the LDPE to those which can be prepared by the skilled person using the information provided in the patent specification, common general knowledge and a reasonable amount of experimentation.

Concerning the amendment of the claimed subject-matter to a process for the production of a LDPE in auxiliary requests 5 and 6, the claims of these auxiliary

requests still require the production of a LDPE as defined in claim 1 of auxiliary request 1, which LDPE lacks sufficiency of disclosure, as shown above.

Consequently, the conclusion given in respect of the main request equally applies to auxiliary requests 1 to 6.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Hampe

D. Semino

Decision electronically authenticated